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THE LANCASTER FARMER

DEVOTED TO AGRICULTURE, HORTICULTURE, DOMESTIC ECONOMY AND MISCELLANY.

"THE FARMER IS THE FOUNDER OF CIVILIZATION."—WEBSTER

Prof. S. S. RATHVON, Editor. LANCASTER, JANUARY 15, 1877. LINNÆUS RATHVON, Publisher.

CONTENTS OF THIS NUMBER.

THE PUBLISHER TO THE PEOPLE.

Having assumed the publication of the *Lancaster Farmer* in obedience to the wishes of many of its former friends and patrons, I confidently look to the agricultural community in general, and to Lancaster county in particular, for those supports, in subscriptions, contributions, advertisements, and moral influence, which are the essential elements to success in any enterprise. I have undertaken the task before me at a period of great business depression throughout our wide extended country, and my main object in doing so—aside from the moral necessity of having a local journal as a representative of the farming interest of our great county—is to furnish just so much more labor to a mechanical interest which is acknowledged as—"the art preservative of all arts"—and which has been sorely affected by the present stringency of the times.

The friends of progressive agriculture in the county and elsewhere feel confident that a local journal devoted to their calling, *can*, and *ought*, to be sustained; and whatever effort of mine may be necessary in making it creditable to the profession, to the people, and to our rich agricultural domain, will be faithfully and unstintingly accorded. I am sure I have the *will* and I believe I have the *ability* to meet the expectations of its friends and patrons, if I am sustained by those material means through which alone either will or ability can be successfully manifested. The *Farmer* has already attained an advanced position in the ranks of agricultural journalism, and I propose to improve it as a rapidly as the sustaining means will possibly allow. Therefore, if it fails to meet the requirements of its patrons and the community, it will not be for a lack of effort on the part of either its editor or its publisher. All communication and contributions should be addressed to the editor, No. 101 North Queen Street, Lancaster, Pa; and subscriptions and advertisements may be sent, either to the same address, or to the publisher, No. 22, South Queen street, office of the *Examiner and Express*.

LINNÆUS RATHVON.

WE CALL the attention of our readers to our *scale of advertising* in another column of this issue of our journal; and also to the additional *fact* that our subscription list has been greatly enlarged; and consequently, our efficiency as an advertising medium has correspondingly increased. All having articles for sale, and that they wish brought to the notice of the public, will find that through our columns, they will reach as staunch a class of people as any in the country; and therefore it will be to their interest to make use of them in making their wants known, either in buying or in selling.

PENNSYLVANIA RAILROAD SCHEDULE.
Trains LEAVE the Depot in this city, as follows:

WE TWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*.....	2:40 a. m.	4:05 a. m.
Way Passenger†	4:50 a. m.	7:50 a. m.
Niagara Express.....	9.35 a. m.	10:40 a. m.
York Accommodation ...	9:40 a. m.	Col. 10:10 a. m.
Mail train via Mt. Joy.....	11:20 a. m.	1:00 p. m.
No. 2 via Columbia.....	11:20 a. m.	1:20 p. m.
Sunday Mail.....	11:29 a. m.	1:30 p. m.
Fast Line*.	1:55 p. m.	3:10 p. m.
Frederick Accommodation.	2:00 p. m.	Col. 2:35 p. m.
Harrisburg Accom.....	6:10 p. m.	8:10 p. m.
Columbia Accommodation..	7:20 p. m.	8:00 p. m.
Harrisburg Express	7:25 p. m.	8:40 p. m.
Pittsburg Express.....	9:25 p. m.	10:50 p. m.
Cincinnati Express*.....	11:30 p. m.	12:45 a. m.
EASTWARD.	**Lancaster.**	**Philadelphia.**
Atlantic Express*.....	12:40 a. m.	3:10 a. m.
Philadelphia Express†.....	4:10 a. m.	7:00 a. m.
Harrisburg Express.....	7:35 a. m.	10:00 a. m.
Columbia Accommodation..	9.28 a. m.	12:30 p. m.
Pacific Express*.....	1:20 p. m.	3:45 p. m.
Sunday Mail.....	2:00 p. m.	5:00 p. m.
Johnstown Express.....	3:05 p. m.	6:00 p. m.
Harrisburg Accom.....	5:50 p. m.	9:00 p. m.

The York Accommodation, west, connects at Lancaster with Niagara Express, west, at 9:35 a. m., and will run through to Hanover.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 1:55 p. m., and runs through to Frederick without change of cars.

The Pacific Express, east, on Sunday, when flagged, will stop at Middletown, Elizabethtown, Mount Joy and Landisville.

*The only trains which run daily.
†Runs daily, except Monday.

PUBLIC SALE BILLS
FOR REAL ESTATE OR PERSONAL PROPERTY,
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THE LANCASTER FARMER.

Rates of Advertising in the Farmer.

	1 in.	2 in.	3 in.	4 in.	5 in.	8 in.
1 mo.....	$1.00	$ 2.00	$ 3.00	$ 4.00	$ 6.00	$ 8.00
2 mo.....	2 00	4.00	6.00	8.00	12.00	16.00
3 mo.....	2.50	4.50	6.75	10.00	13.50	18.00
4 mo.....	3.00	6.00	9.00	12.00	18.00	24.00
6 mo.....	4.50	9.00	13.50	18.00	27.00	36.00
8 mo.....	6.00	12.00	18.00	24.00	36.00	48.00
1 year.....	9.00	18.00	27.00	36.00	64.00	72 00

☞ Special and business notices 15 cents per line.

"THE FARMER IS THE FOUNDER OF CIVILIZATION."---WEBSTER.

THE LANCASTER FARMER,

A MONTHLY JOURNAL:

DEVOTED TO

AGRICULTURE AND HORTICULTURE, PRACTICAL ENTOMOLOGY, DOMESTIC ECONOMY AND GENERAL MISCELLANY.

EDITED BY PROF. S. S. RATHVON.

VOLUME IX.--1877.

LANCASTER, PA.:
LINNÆUS RATHVON, PUBLISHER.
1877.

CONTENTST OF VOLUME NINE.

INDEX TO ILLUSTRATIONS.

The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., JANUARY, 1877. Vol. IX. No. 1.

TO THE PUBLIC.

The farmers of Lancaster county, to their own imperishable credit, have seemingly felt that they could not afford to let their local journal die, without making a manly effort to resuscitate and sustain it; and hence it becomes our pleasing duty to announce to the public that their noble resolve has been crowned with a larger degree of success than could have been expected in the present peculiar and unsettled state of the times; and hence, also, we extend to them these our friendly greetings.

How often does it happen that we have a friend, a relative, perchance a wife or mother, who is quietly, perseveringly, and it may be, arduously laboring for our moral and physical comfort, but whose labors we seemingly unrequite or unappreciate until we suddenly become conscious that they are about to die. Then they immediately are accorded a recognition that had never been vouchsafed before; then we begin to realize the vacuum in our social life that their absence would create; then we make a frantic effort to recall, restore and sustain them, that we had never made before, and which, had it been timely made along their rugged pathway in life, their health might not have become impaired, and their usefulness might have continued on to the evening of a *green old age*.

Analogous to this had been the life and pecuniary condition of the *Lancaster Farmer*. It had exhausted its *constitution*, and for the past year had been "running on the by-laws;" and therefore when it became manifest that it was about to die, its friends and patrons—the friends of agricultural, social and domestic progress—became solicitous about its apparently approaching demise. They therefore, in solemn conclave, vowed that it should not pass away from the things that *are*, if their united efforts could prevent it. There is a wonderful potency in the human will, which, if rightly conceived and intelligently and perseveringly carried out, must avail; and when these elements constitute its substratum, if it does not avail, we may clearly acquit ourselves, and interpret the result as an indication that our efforts in the matter ought to submit to the dictates of a still "higher law." Under these circumstances, and with a deep sense of our responsibilities, we again launch our craft upon the sea of journalism. We do not ask for much—we do not expect much—but we should greatly underestimate the farmers of the great county of Lancaster, if we concluded that they could not, or would not, sustain a local agricultural journal among them. Such a conclusion, we feel, would do them great injustice at home, and misrepresent them abroad.

Having then signalized the beginning of the second century of our political being, by a worthy determination to sustain a local journal amongst them, we trust this worthy intention may be more than realized; but to assure such a result, we look for a liberal support in the way of pecuniary patronage, Agricultural and Horticultural contributions, essays, communications, and judicious selections. In short, we wish to reflect the moral, physical, financial, domestic and agricultural condition of our growing county. We do not claim to be an oracle, nor a dictator in matters of rural industry and economy; hence, our situation must necessarily be that of a *Medium* between the farmers and the public. We therefore need their thoughts and experiences to stamp our journal with that degree of interest to them, which is so much desired by a progressive people. Having this support, we will see that their ideas are clothed in such language as will make them intelligible and useful, as well as a credit to their authors. Judging from the past we feel assured that they possess the intellectual and physical power to make their representative journal a first-class publication. It is true, that our country at this time, is depressed, and that all our domestic, mechanical, agricultural and commercial interests are in travail; but then we must remember, that the greatest blessings to the human family are often secured only through travail. It was through travail a hundred years ago that our *status* as a free and independent people was secured; and it was through the direst travail that nearly nineteen hundred years ago the Christian religion was established on earth. We have reason to believe that the present unpropitious times are only a transition period that sooner or later must pass away, and that a "good time is coming." The self-denial that each farmer will be called upon to exercise will be small indeed, when it is compared with the good which may be done in sustaining the *Lancaster Farmer*, at so small an outlay. This good will live after us, and its influence will be felt among our children and our children's children down along the stream of time, and they will rise up and call us blessed. With these sentiments as our support and guide, and a desire to merit your favor, we emerge forth, hoping that you all may experience a prosperous and "*Happy New Year.*"

TO OUR READERS.

We are obliged to throw ourselves upon the kind indulgence of our friends and patrons for the late apperance of our journal. Adverse and almost uncontrollable circumstances prevented its issue at the regular period, in the beginning of the year; and then, we thought that the next best thing we could do, was to issue a double number, covering the months of January and February. But this was overruled by our friends, and the more practical suggestions of the publisher and his friends. In order, therefore, to cover the whole ground, and prevent a historical *vacuum* in its series, we have concluded to issue the January number separate, under its proper date, and immediately follow it with the February number. The March number will be issued at its regular period, and from thence forward we expect to be regularly "on time."

We feel that long before the end of the year, our patrons will have forgotten these unpleasant irregularities, and that in ten or a hundred years hereafter (but for this necessary record) "no body will be the wiser of it." We have received many verbal and written commendations from our brethren of the agricultural press, which it will give us pleasure to notice in due time; but for the present, we cannot resist the impulse to express our hearty thanks for the kind words we have received from the editor of the *American Farmer*, published at No. 9 North street, Baltimore, Md., one of the best and most ably conducted agricultural journals in the Union.

BALTIMORE, 1877.

Prof. S. S. Rathvon, Lancaster, Pa.

Dear Sir: I take the liberty of saying that I was sorry not to have the opportunity, when in Lancaster, of expressing to you, in person, the regret I feel at your withdrawl from the control of a journal so efficiently working in the field of agricultural literature, as did the one under your editorial management. That important cause can ill afford to lose the services of men so intelligent, so active, and so disinterested—and while no doubt it is to you, individually, a relief, it is, to my mind, no less a disaster to the true interest of agricultural journalism; in the ranks of which are too many who take up the work only as an expedient, or to subserve personal aims. Assuring you of my great respect, I beg to subscribe myself, very truly your friend,

W. B. SANDS.

In conclusion, we admonish our friends who have subscription lists or advertisements, to send them in without delay.—*Ed.*

AFTER THOUGHTS.

And now, here turns up before us a postal card, bearing date June 1, 1875, which we do not remember having seen before, buried as it has been among a multitude of letters and promiscuous papers, containing the following:

"The young duck swims at once, the young snapping turtle bites when taken from the egg, and a harmless serpent, without fang or rattle, will vibrate its tail like a rattle snake, producing a similar sound among dry leaves."—HALDEMAN, in the *Iconographic Encyclopædia*, New York, 1850-zoology, p. 6.

"The Latin adjective 'exilis' means *slender*, but 'exile' is akin to 'exilium,' *banishment*, 'exul,' *one banished*."

"The Pennsylvania canal from Chickies to Bainbridge, and perhaps farther, has many dead and dying fish, such as chubs, minnows, suckers, black bass; also catfish and eels, which seem to be hardier than the others. The cause is probably due to pumping out the Lykens Valley coal mines, after the long strike, which allowed the waters to take up an unusual amount of deleterious salts and acids. I have been told that frogs are dying with the fish!"

"The article in the *Intelligencer*, May 31, 1875, does not state distinctly whether the ground-hog plugs his hole or not."

None of the above paragraphs are too transient to go on permanent record; because they all relate to those facts which may be consulted with profit at any time; notwithstanding they have been inhumed for nearly two years. The *first* paragraph illustrates that instinctive mimicry, which also distinguishes so many of the the tiny subjects of the insect realm, in which they exhibit all the activity and intelligence of adults, the very moment they evolve from their pupal sleep. The little *Microgaster congregata*, which is parasitic on the bodies of the "Grape Sphinxes," the moment its head protrudes from the upper end of its little rice-shaped cocoon (which stands erect on the body of the Sphinx) begins to manipulate its antenna as deftly as a "fiddler's elbow," and looks as brightly and as cunningly at you as if it anticipated some sinister intent towards it; and, as soon as the whole body is extricated it will run or fly with all the agility it ever acquires. And that is not all; if the slightest drop of honey or treacle is placed upon a fresh leaf, by the aid of those same little antennæ it will find it and appropriate it as dexterously as if it had been specially educated to it. And when its nuptials are accomplished, it knows exactly where to go to oviposit.

The *second* paragraph involves a philological question that is altogether unquestionable.

The *third* paragraph involves a historical fact, that was patent at the time, and suggests a rational conjecture as to the cause. Such mortalities in the animal world are frequent; and doubtless are the effects of different causes. During the "heated term" of 1876 we heard of one or two such cases, as occurring in lakes or other large bodies of water, but we cannot now specifically recall them.

In regard to the *fourth* paragraph, we have not easy access to the record alluded to; we therefore, cannot recall what was said there, in regard to the habit of the ground-hog, in plugging the hole of his den during the winter season; but, in a paper of prior date, we made the statement (on the authority of Dr. John Godman) that the ground-hog *did* retire to his winter sleep, and plug up the door of

entrance to his lair. This was questioned by Mr. W. B., who states that he had explored the burrows of one of these animals, and that he did not recognize anything in the form of a plug, by which its burrow was closed. This statement, to our mind, did not involve a question of veracity between these two men, both of whom were intelligent and also reliable. The fact is, they were both right. We subsequently learned that Mr. B. meant the hole at the *outer* end of the burrow, and doubtless Dr. Godman meant the hole at the *inner* end, and there the matter since has rested. Of course it would be folly to attempt to set an arbitrary limit to the knowledge that is every day being developed on all subjects relating to natural and physical science, and therefore many cases must provisionally remain open subjects.

SPARROWS.

A man—or a simpleton—named Henry Ruth, in Reading, Pa., professes to have discovered that the highly useful little bird—the English sparrow—whose almost incessant vocal strains impart life in our gardens, groves and forests, summer and winter alike, destroys the buds of the trees and the embryo fruit. He says that he has noticed the birds pecking the blossoms on peach trees, and that they have pecked the buds off other trees, so that they did not bear any fruit. Last year he had no currants, and he charges the sparrows with pecking out the eyes of the bushes. He has no doubt they destroy the buds of grape vines, and he is convinced that the little sparrows do a great deal of harm and very little good, and he thinks it was a great mistake to import them. Having put up boxes for them to house in, he has torn them down, and now stones the sparrows whenever they come upon his premises. Mr. Ruth is entirely mistaken in his theory. He must have seen them pecking about the buds for the larvæ secreted there, and the bird may have injured a few buds in its efforts, but they do not thus subsist in winter, as he asserts, on buds, but upon the larvæ and insects secreted on the bark of trees, and feed on the seeds of plants and such food as may be given them, because they seek the haunts of civilization, and are great lovers of good society. In summer their principal food is insects, of which one will devour a vast number in a day. One of these useful birds may be heard any day along the hillside in Saltsburg, uttering the most lively notes, the coldest morning never being cold enough to check the utterance of his ever-changing song.—*Saltsburg Press.*

There appear to be much "fuss and feathers" developed throughout the country in relation to the "English sparrows," but we opine that the people would have a more practical and powerful illustration of their benefits to the vegetable kingdom by their absence, than by their presence. More things in this world are *under*-estimated than are *over*-estimated, and one of the former are the English sparrows. We distinctly remember the time when the small "woodpecker," known under the name of "sap-sucker," was universally and unquestionably voted a great enemy to the apple tree, because everybody professed to have seen them peck holes into the trunk or branches and suck out the sap, and it must be confessed that there were *appearances* which seemed to corroborate this opinion. But it transpired, in the course of time, that these little birds were in pursuit of insect grubs that were boring under the bark of the trees, to their great injury. This, we believe, will also become manifest in relation to the sparrows. Whatever the adult birds themselves—under a stress of circumstances—may be compelled to eat, still sparrows, and many other graniferous and frugivorous birds, almost invariably feed their young on slugs, grubs, worms, larvæ, and the softer-bodied insects, and during a season, too, when no other food is accessible, and when the foundations of the future colonies of destructive insects are laid. In this field of use, the benefits of insectivorous birds are inestimable, and, if there never had been a bird of this character at all, there would not have long remained either fruit or vegetation. Insects are almost infinitely more prolific than the estimate of *quails*, as exhibited in another article in this paper.

PARSNIP.

Pastinaca Sativa.

According to Johnson, the botanic name *Pastinaca*, is derived from the Latin word for a dibble, *pastinum*, in allusion to the long, tapering shape of the root. This is a very hardy biennial, of which the original is probably the common wild parsnip of southern Europe. In its natural state, it is of small size, woody and poisonous. It has been greatly improved by cultivation, and is at the present time much esteemed for culinary purposes, being found nutritious as well as wholesome. It is particularly valuable on account of its power of standing severe frost without injury, and continuing good for use until the latter part of spring. The varieties are not numerous, and the *Hollowed-crowned* is undoubtedly the best adapted to the wants of the family gardener.

Culture. In regard to soil, the parsnip has a preference for one that is dry and mellow, rich and of considerable depth. A good sandy loam seems to be most suitable; while only poor crops can be expected from a gravel or tenacious clay. Depth and fertility are particularly necessary, because thereon depend the length and size of the roots. In the latter part of autumn, or the very commencement of spring, the ground selected for the bed should be spaded or trenched two spits deep, and if it be not sufficiently rich, some well decomposed manure ought to be dug in with the lower spit. Sea-weed, decayed forest leaves and bird's-dung have been highly recommended as fertilizers, as being less liable to affect the quality of the roots, than common stable dung. In spading, care is to be taken to break up all the clods or large lumps of dirt, and to remove the largest stones.

Sow in drills, twelve inches apart, in April or May, according to the forwardness of the season. One ounce of seed is sufficient for rather more than a rod of ground. Drop the seed thinly, and cover it nearly an inch deep. In dry weather vegetation will be hastened by rolling the surface of the bed, or by treading down the drills with the feet. When the plants have taken a good start, they are to be weeded and thinned out in the drills; but, it is not until they become firmly established, that they should receive their final thinning. To ensure the formation of large roots, they ought to have plenty of room, and stand not nearer together than six inches. It is a bad plan to crowd vegetables like the carrot and parsnip. Make frequent use of the hoe, as well to keep the ground free from weeds, as to prevent its becoming hard or baked.

Parsnips do not attain maturity until cold weather is near at hand. They will be found fit for use as soon as the leaves decay, in the month of October, but their sweetness and agreeable flavor are much improved by frost. This fact is so well understood, that many cultivators are accustomed to let the roots remain in bed through the winter; or, at least, to take up only a number sufficient for the wants of the family while the ground is closed, and to harvest the balance of the crop in the spring. They ought to be dug very carefully, without being cut or bruised by the spade any more than is unavoidable; and, for preservation, must be packed in layers of sand, in a shed or cool cellar.

For seed. Some of the best plants should be left in the bed where grown; or else set out in a border, some time during the early part of spring. They ought to be in rows, about two feet apart each way. In continued dry weather, it will be found of advantage to apply water every three or four days. Lay the flower-heads upon a cloth, and suffer them to get fully dry, before you attempt to thresh out the seed.

Use. The parsnip has many valuable qualities, which commend it to both the farmer and gardener. It is thought highly of for feeding to domestic animals. Hogs and bullocks are fattened upon it in a very short space of time, and the flesh is considered of superior flavor; while in cows it produces an extraordinary yield of milk, having a rich color, and affording butter of an excellent quality. Its character in the kitchen is well established. Although disliked by some persons on account of its peculiar sweetish taste, it is certainly wholesome, and proves very acceptable at that season of the year when in perfection, and when other vegetables are so few in number. It excites appetite, and physicians think it wholesome for convalescents. It is sometimes manufactured into ardent spirits, wine and marmalade; while in Ireland, it is used with hops for brewing a kind of beer much liked by the peasantry. The seeds are occasionally employed in intermittent fevers.

To boil. Wash and split the roots, lay them in a stew-pan with the flat sides down, and just cover them with boiling water, into which a little salt has been thrown. When they are quite tender, pare and butter them, and carry immediately to the table. Cold boiled parsnips are good when cut into thin slices, dipped into butter, and fried brown.—*Schenck's Gardener's Text-Book.*

For The Lancaster Farmer.

GREEN MANURING.

This is a term that is now applied to the plowing under of any green vegetable substance for the purpose of adding fertility to the soil.

The common red clover is considered the best of all farm crops for this purpose, and it is so undoubtedly from two very different causes. In the first place it must be borne in mind that clover is very rich in nitrogen, which it is said to appropriate not only from the soil, but also from the air to a very great extent, while all other plants available for this purpose derive very little, if any, from that source. In the second place, clover has very long tap-roots, which penetrate through the soil directly into the sub-soil and drawing on whatever fertilizing materials such sub-soil may contain, carries them up into the stems and leaves, and the upper part of the root itself, the latter becoming very thick near the surface and containing a large amount of vegetable substance to the acre. I do not believe, however, that the amount thus drawn from the sub-soil is as great as some would make it appear, as the root is not very thick at eight or ten inches below the surface, whatever its length may be. It must still be given its proper credit in this case, for all, or mostly all other crops used for green manures, have only surface-roots, and draw very little of the materials requisite for plant-growth from the sub-soil.

Clover, however, is a very unhandy crop for this purpose, as it must be sowed one spring and cannot be plowed under before the next spring, and, as in common rotation, this would not work very well, some other, easily-raised crop must be looked for, and among the handiest are rye, oats, buckwheat and corn.

Rye is for some purposes the handiest of all crops for this purpose, as it can be used where no other kind could be, except wheat, and in this the price of the seed is much greater, and no better result obtained. The rye can be sowed on corn stubbles, where it is intended to plant some crop that is put out late like tobacco, or perhaps a second time in corn, as is done in some places. For the two crops mentioned, the rye need not be put out very early if other work is pressing, as it has time to grow in the spring until the middle of May or the beginning of June, but when it is sowed very late a larger quantity of seed is needed to the acre. I have seen rye that was sowed in the beginning of December do very fair, but it would not do good every year sowed so late as this. The late J. B. Root, a

seedsman of Rockford, Illinois, said that one of the best crops of seed (Melon, I believe) he ever raised was a field of rye he rented and turned down in the beginning of June, this being all the manure the field received.

If in the fall, work is too pressing, so that rye cannot be got out, oats would probably do very well for crops that are put out late, such as tobacco, which is sometimes not planted until the middle of June, or a quick growing corn, like Early Canada or One Hundred Day Dent, which can also be delayed until the 10th or 15th of June.

In place of letting a piece of ground intended for wheat, lie fallow, buckwheat is sometimes sowed and plowed under twice before seeding time, and is found to be very good for the purpose, as it keeps the ground mellow and free from weeds, the buckwheat being of very rapid growth and smothering all weeds. There is objection made against it, that in a dry season it makes the soil so dry that unless a rain comes on at seeding time, the wheat will not germinate very readily.

I have never seen corn tried, or heard of its being tried, but I think that an oat-stubble plowed up and seeded very thick, broad-cast, to corn, would make a sufficient growth and prove very good for wheat. There are but few crops for which corn could be used, but I have no doubt that in such cases it would do nearly as well as anything else, with the exception of clover.

Any green vegetable substance plowed under is good for this purpose, even if it be only weeds, but with these it is very important to plow under by blossoming time or before, as if the seed is allowed to ripen, the harme done will more than overbalance the good resulting from the decaying vegetable matter.

Green manuring, with the exception of clover, does not really add any fertlizing material to the soil, as with the exception mentioned, they draw none or so very little from the air as to be inappreciable, and all the materials that the soil receives from the plants, had been taken by the plants from the soil, and so the soil is neither richer nor poorer than before, but the green vegetable matter plowed under decays in a short time and leaves the fertilizing materials contained therein in the very best condition for them to be taken up by the crop which is now put in. It also makes the soil loose and mellow, the very condition for the roots of most plants, which have thus all opportunity for penetrating to every part and appropriating the materials which have been made ready for them beforehand.—*A. B. K., Safe Harbor.*

For The Lancaster Farmer

THE CARE OF HOGS.

Hogs are animals that require more than corn and slop to satisfy them. They have cravings when they are penned up that can't be satisfied unless we give them the material to do it with. You will notice how they root and work down through dung and everything else to get at the dirt, and they will have it if it is in their power to get it. And again, we sometimes hear and see them scraping the boards and pen to pieces. We should try to give them something to satisfy this desire and craving. But not like the man that took his club, and every time the hogs scraped the pen or boards he would pound the hogs for doing so. I knew an old colored woman who did not be so cruel. Whenever her hogs tore at the pen, she would throw in a rotten log to satisfy them. Again, we often notice the hogs chewing leaves, husks, fodder, and some of their bedding, if they have any. This shows us that they need something to mix in with their corn and slop for wadding, &c. Now we claim that the domesticated hog deserves a more generous treatment than it usually gets. The hogs should be treated with some luxuries to mix with their food and quiet those cravings and uneasiness which is caused by their being shut away from dirt and various kinds of herbage that they would otherwise get, if running at large, according to nature, as of old. When the Prodigal was sent into the fields to feed swine, he "would fain have filled his belly with the husks that the swine did eat," &c. Now I will mention some things that will help to satisfy them (but not without the corn and slop, also). Give them every few days some wood or coal ashes, with bits of coal in it; sods when you can get them; husks, fodder, tree leaves, or any other kind of herbage, green or dry; weeds and rubbish, chip dirt, rotten wood, straw or hay; a few raw or sweet potatoes, squashes or other vegetables. A little soapsuds sometimes, is good for them, but sometimes the slop has enough soap in the dish water to answer the purpose. I don't mean that my plan is the best, but I think it is none of the worst. It has given entire satisfaction so far, and I have not had a hog butchered for a number of years, with a diseased liver. When they are small I use the fine white shorts, or middlings, scalded for slop. When they get a little older I use some corn-chop along with it. Next, bran and chop, and some whole corn, but not much at first, but increase the quantity as they grow up, but not as much in hot weather as in cold winter. I use two slop barrels in summer for shoats, always putting the chop and bran to soak and sour a little while before tilling up, using the slop in the other barrel first. For shoats, or large hogs, I use a little salt in a barrel of slop, and all the milk and dish slops I can get. When the weather is set in very cold I change to scalding the chop, &c., for a warm slop. Keep them well sheltered from the cold winds and rain or snow, &c. Have their pen clean and a dry nest. Look if they have lice; you can soon tell if they have any; take a little lard and a bit of tar mixed with it, rub some back of their ears. Fix a rail slanting across the out pen, for them to scratch at. Card them sometimes and see how they like it, and if they are very scruffy along their backs, swab them with buttermilk right well along the back, and it will loosen and come off without much trouble. If any look sickly use some good cattle powder in their slop. Now, I take it for granted that nearly everybody knows something about feeding and fattening hogs; yet for the benefit of those that are anxious to learn, I have thrown out these hints, and still hope others may give us more information on the subject. I would like to know whether ground bone or ground bay would be any benefit for feeding hogs, &c.—*John B. Erb, Lime Valley.*

ESSAY ON TOBACCO CULTURE.*

It is an encouraging sight, and it affords me a peculiar pleasure, to see the husbandmen of our great county assembled together for the purpose of elaborating and discussing plans for growing tobacco, which is becoming—if it has not already become—one of the most profitable crops of Lancaster county. But in order to "make it pay" in the end, we must manage to grow it without impoverishing the soil—yea, even increasing the fertility of our land.

We should remember that tobacco leaves nothing in the soil for manure, and therefore, under ordinary circumstances, it is not profitable to the land, and should be grown with considerations having reference to this fact. Those farmers who are not making and using more than an ordinary amount of manure, nor applying any more than an ordinary quantity of lime, should limit themselves accordingly, or they may eventually lose in other crops what they gain in tobacco. Without an effective forearming in obedience to this forewarning, a time will surely come when farmers will realize that in their anxiety to obtain the "golden egg," they have destroyed the prolific "goose." Nor should any farmer put out more tobacco than he can well attend to, as one good acre is worth more than two bad ones, and one good leaf is worth as much as five bad ones.

Out of the 320,000,000 pounds grown on 427,000 acres of land, and realizing $40,000,000, which was the tobacco product of the United States for one year, Pennsylvania produced comparatively a small quantity; Virginia very largely taking the lead. Locally considered, Lancaster county takes the lead of any other similar district in the United States in its production of tobacco. The Miami Valley, in Ohio, produced 12,000,000 pounds, worth more than $2,000,000. Counties in smaller tobacco-growing localities, as in Connecticut, Virginia and North Carolina, are increasing very rapidly. Brazil, South America, exports over 160,000,000 pounds annually.

A pamphlet written by a gentleman in Virginia, on the culture and curing of tobacco, describes a steaming process to fix the color of the plant, which increases its value nearly one hundred per cent. An article on the subject from Japan states that in that country they raise 4,000 pounds on an acre, which sells at four cents a pound, realizing $160. They use twenty dollars' worth of manure to the acre, subsoiling their land, and picking it three times.

In the successful cultivation of tobacco, the three leading essentials are, *firstly*, good land; *secondly*, good tillage; and *thirdly*, a good season. The proper preparation of our tobacco land requires good barnyard manure, or almost any other good kind of fertilizer, and lime; barnyard manure being the cheapest, and is one of the greatest advantages of our Lancaster county farmers, who feed their grain into their stock, and thus keep up the fertility of their lands. Those who can burn their own lime with coal at $2.50 per ton, have an additional advantage.

Hauling the manure on the land in the fall, and plowing it under, and about one hundred bushels of lime to the acre in the spring, also ploughed under, is now advocated very strongly, as a necessary preparation of the soil. About two weeks before planting time, the ground should be cultivated and rolled, as the saying is, "like a garden." It should then be ridged and marked off—as each one may think best—about 3½ feet by 30 inches to be ready by the first of June.

Plant at such times when the sun is not too hot; and should a "dry spell" take place, I would recommend covers made of small boards. I would here mention that some of my farmer neighbors have about 2,000, what they call "little houses," made of thin boards, with the use of which, they were very successful. When the plants are properly started, keep the weeds down with hoe cultivation, or any other implement, to make the ground loose and mellow. Top your tobacco from the tenth to the twentieth leaf, according to the season and growth, so that the top leaves may be the largest. When ripe, cut it with a hatchet or a cutter, as a knife will be very apt to make your hand sore. The precise ripening period I will not attempt to instruct you in; but I judge, by the yellowish spots, and the yellowish tinge of the whole leaf.

After the plants are wilted, we string them up on inch by half-inch laths, and hang them on a scaffold in the fields for about two days, when we haul them home on a scaffold wagon that will hold about one hundred laths. I prefer to sort it into three qualities or kinds, and pile it up in a proper place, when in my estimation the *grower's* work terminates, except to sell it to the packer, and to deliver it as soon as it is sold. It is perhaps, unnecessary to say that, as a general thing, tobacco should not be handled in very dry weather, or at least, not when the plant becomes dry, crispy, or brittle; as much of it may become lost or damaged.

Much might be said yet in regard to seedbeds; the best kinds of fertilizers; preparing the land; planting and cultivating; suckering and topping; cutting and curing; shipping, selling, etc., which I will leave to the special experience of the grower. I may suggest, however, in conclusion, that Lancaster county and Pennsylvania have advantages not possessed by any other locality in the

* Read before the Tobacco Growers' Association of Lancaster County, November 20, 1876, by Peter S. Reist.

Union, on account of their lime and barn-yard manure facilities, and which are made and abound to a greater extent here than elsewhere.

Of course, every tobacco grower will have his own individual experiences to guide him as to the best plan to pursue in reference to his own particular locality; for, like growing any other crop, different situations may suggest some variations in culture and general treatment. Thanking you for your attention, I will bring my remarks to a close.

For The Lancaster Farmer.

THE YAM—SWEET POTATO.

They seem to be too large for some people. We have been raising the white, or yellow and red yams—both yellow when cooked—and dry and sweet, if raised in sandy soil that lays not too low, a great many from one to five pounds in weight; *we* can manage them; but some of our good housewives in the city seem to be afraid of them. I have sent several barrels of them to the city, and I must always sort out all the large ones to keep at home. They say it takes too long to cook them. Well, perhaps it does, if they leave them whole; but try our plan once. Pare them raw, slice them thin, as you do the common potato when you fry them raw stew or fry them about the same way, season to suit, and if done about right you will say they don't eat bad. Now this is one of the quickest ways to cook big sweet potatoes; but, as I am no cook, I will leave others to tell how to do it, so dont be backward, but give us *your* plan. Sweet potatoes should not be planted in heavy clay or wet land; this is one reason why many of the country sweet potatoes brought to market are not good, and townspeople don't trust to buy them. I don't blame them, for I have tried both, and find a great difference in the quality. Sweet potatoes and other potatoes are much better if raised in middling dry, sandy soil. The yams should not be planted as close as the others. I set the plants from 15 to 18 inches apart in the row. When making the rows I make them a little heavier than I want them, so that the hoe can be used freely to scrape the grass before the vines are too long; I keep them clean and let them run. Perhaps there is a better way, and some one will tell us how to do it. One thing more—never take diseased potatoes for sprouting, it affects the new tubers, and although they may look well, it can be detected in the quality.—*Old Cultivator, Lime Valley.*

For The Lancaster Farmer.

ARE FORESTS A BENEFIT TO FRUIT-GROWING?

This question presented itself to my mind, when Mr. Hiller and others, at the last meeting of the "Pennsylvania Fruit Growers' Society," spoke of how fruit could be raised forty years ago, when fruit-trees were healthy. Now, even cherries won't do as well as they did formerly—the trees dying in low localities.

Forty or fifty years ago our country was not so denuded of its forests, and our fruit-trees were more or less protected by forests, or shelter belts, as a screen for fruit-trees.

The climate has not changed as much, if any, as some suppose, but the cold and freezing north-west winds are more severe in the absence of wind breaks. There is a difference of from five to ten degrees between the north and the south side of a forest. It was that protection, which made fruit growing more successful then than now. Then, the pear, and all kinds of stone fruit became more perfect in the towns than in the open country. The "Reading-Pear" comes to perfection in the City of Reading, but outside of it, it is a failure. Pears and Plums do very well in Lancaster City, all of which is due to the protection afforded by the buildings. Grapes do much better when sheltered, especially the *Catawba*, which will succeed almost everywhere, on a trellis close to the south side of a house. Why not then speak a good word for forest-culture? Ten percentum of all arable lands ought to remain in forests. The inordinate and almost universal demand for more clear land, has been the greatest injury to farmers and orchardists. Ten acres out of every hundred now cleared, ought to be given back to forests. The ninety acres left should be improved, and can be made fertile enough to grow as much as a hundred now yield, and forty-five to grow as much as fifty, or twenty-two as much as twenty-five, and so on down to lesser quantities proportionately. Farmers, by planting a shelter-belt, or a screen on the northern borders of their farms would be vastly benefited. It would protect their crops from the piercing north-west winds, and the freezing out of their young clover.

It would protect their trees from freezing in their trunks and branches—from freezing during their blossoming periods. The apple and pear tree borers would be apt to more readily find a natural *nidus* in the forests, in which to deposit their eggs, instead of* apple wood. The curculios and the apple tree borers might find some tender place or some congenial growth in which to deposit *their* eggs, instead of in the apple or the locust trees.

It is for this reason that the "borers" destroy all the locust trees in the west—they have nothing else to attack. I have thrifty young locust trees, that are free from borers and other insects. I have young second growth timber lands, which I find occasionally attacked by borers, and the branches broken off them as the natural effects, but they do not do any very material damage, and I believe they save my locust trees and my fruit trees. Forests would also be beneficial, in inducing birds to harbor in them and multiply, and then come forth on foraging excursions among our fruit trees in pursuit of insects. It would afford a convenient cover for the birds, and decrease the insects, while it would increase the number of birds. It would improve the farm, and become a pleasure park for the farmer's family during the hot summer months. It would also conduce to the health of the people, and it would facilitate rain falls. It would eventually return us two-fold on what we planted, and would make our lands more valuable. It would make our homes more attractive, and would afford more home enjoyment, and more home entertainment, and make country life far more pleasant than town life.—*L. S. R. Oregon*, 1877.

EGYPT.

Alexandria, Jan. 1, 1877.

Egypt is a very old country, dating back far beyond history. It possesses some natural advantages, but owes all its prosperity to the grand old Nile river, which has never failed for at least nearly seven thousand years, or as long as we have any record, to bring down a flood of warm water every year from the south, overflowing the land, making the heart of the husbandman glad with bountiful crops, and all the people rejoice, for they are entirely dependent on the Nile river for the water so necessary to sustain life. The Arabs say this water comes from heaven.

They never have any rain in Egypt, of any consequence, except along the sea-coast. At Alexandria they may have six or eight rainy days, while at Cairo, they will only have three or four light showers during the year, and once in eight or ten years having a heavy rain storm. They have many canals intersecting the country, and depend entirely on the Nile to supply the water for irrigation, to produce the crops.

I was up the country in Egypt during high Nile. It was a great novelty to me to see a great flood covering nearly the whole country, where it seldom rains. The Nile begins to rise the last of June, attains its height about the middle of September, when it slowly falls during three months. The difference between high and low Nile is about twenty-eight feet. It was a singular sight to see many large villages entirely surrounded with water ten or twelve feet deep for three or four months. When the water retires it leaves the land very rich, and the husbandman is sure of a good crop if he half works, for the sky is always bright, and the sunshine warm all the year round. In most sections of the delta of the Nile the water covers the land about two feet, for a short period during high Nile. After the water retires, during the month of November, they put in their wheat, which grows all winter, and is ready to harvest in April or May. They sometimes grow two or three crops on the same land, during the season. If it were not for the noble Nile river this whole country would be one vast drifting, sandy desert, destitute of vegetation or inhabitants, for the only land that can be cultivated is along the bottom land of this river.

Cotton, corn, wheat, barley and sugar, with dates, oranges and bananas, are the chief products. Cotton is perhaps the most valuable product; has only been cultivated in this country some fifty years, and yet there is a large amount grown, and mostly shipped to England. Some good cotton is raised, but the large portion I should say is not equal to our American cotton, but they *can* grow first-class cotton here; the stalk is used for fuel. They do not know how to grow corn. They "rough" it in by sowing, do not generally cultivate it and work among it as we do; consequently they have very small ears, and they cultivate only the small, hard flinty variety. Their wheat is splendid, with a fine plump kernel, always producing a good crop, and strange to say, I never have seen a good, bright, clean lot in market. It is always mixed, more or less, with dirt, owing to threshing the grain on the ground, and cleaning it by throwing it up against the wind, which leaves more or less lumps of dirt among the grain. These people have not money to buy a fanning mill, nor have they sense enough to use one if it was given to them. No threshing machines, no mowers and reapers, nor any barns to put them in if they had them. They have a thing they call a plow, which is enough to scare the cows. It is constructed as follows: A straight piece of timber some eight inches square and about three and a half feet long, with a kind of a shovel on the end, about six or eight inches broad; the beam is a crooked-stick framed in, extending and fastened to the yoke of the cattle or buffaloes, which are always used in plowing. A straight stick with a pin stuck through and standing perpendicular abaft the beam, finishes the plow. With this thing they plow backward and forward on one side of the land, rooting up the ground some, about two or three inches deep. A few of our enterprising western hogs would do a far better job of rooting up the land. Well, no matter about the plowing, the Nile water will bring them a crop anyhow. It would be of no use to give these people good agricultural machinery, for they have not sense enough to use it.

After the Nile has fallen and the crops put in, the land must be irrigated with water at once. All through the delta of the Nile they have canals and ditches convenient for watering the crops, which is generally drawn up with a bucket and sweep into a small ditch about one foot higher than the land. Then water is let on, enough to soak the land well, which must be repeated several times for each crop during the season. This takes time and labor, but makes a sure thing of a good crop, for the sun shines warm every day the year round, with no cold, sour weather to trouble

* The striped "apple tree borer," (*Saperda bivittata*) originally bred in the hawthorn, and there is every reason to believe that an apple orchard surrounded by a Hawthorn hedge would be greatly protected by such a hedge. Or, if this was not desirable, then clusters of hawthorn planted at suitable points in the orchard, or in proximity to it, would no doubt have a beneficial effect. The first specimen of this borer we ever obtained (about thirty years ago) we captured on a hawthorn hedge, and there is the place we usually looked for them. We also believe that wild cherry trees and gum trees would attract *curculios* and birds to feed upon them, and thus afford protection to our domestic fruits. We have often seen the wild cherry fourfold more infested by the *curculio* than we ever did the cultivated kinds. Such trees would, at least, afford these insects a place of resort if we molested them by the application of domestic remedies, and prevented them from returning and resuming the attack.—Ed.

the husbandman. These Egyptians do about the same kind of farming at the present day that was done by their forefathers four or five thousand years ago. Manure is used for fuel – not put on the land.

The camel is the most valuable domestic animal; in fact, the only one which can successfully cross these vast deserts. They are healthy, require no shoeing; their feet are very elastic, spreading right out when they come to the ground. They are faithful, ready and willing to go anywhere at all times; will carry about seven hundred pounds; will easily travel from twenty to thirty miles a day, and more if necessary; a homely, good animal, always obedient to their Arab masters. A little donkey generally leads the head camel of a caravan. This honest, intelligent little animal will go straight ahead, and never turn to the right or left. They are the principal riding animal in the cities, and quite pleasant to jog along on; besides, they will carry a good load.

Of the horned cattle, the buffalo, native breed, is the most valuable. Heavy built, with scarcely any hair on his black hide, black horns, sloping back, they make very good, hardy oxen. They like to go into the water during the middle of the day and lay a long time with only their nose and eyes out of the water. When in the herd they do not associate with other cattle. This breed is quite healthy, while other cattle die with the murrain. This is not a good cattle-growing section. The market beef is of poor quality. They have a few large, coarse wool, black sheep, which make fair mutton. Poultry is easily grown in this warm, dry climate, but I think they have more poultry than corn, for they are generally quite poor. The Egyptians are surrounded with live stock, counting in fleas, mosquitoes, lice, bugs, and other insects of this kind too numerous to mention.

The agricultural class of the delta of the Nile live in compact villages of mud hovels, which are very tight, with scarcely any light, built on a bit of land raised a few feet above high Nile. While living in a very rich country of land, they are the poorest and most ignorant class I have yet seen. The Arab Egyptians are a tall, well built people, who have never been hampered by the rules of civilized society. These Arab women in their loose flowing dresses, which are tight only around the neck, have nothing to prevent that round, full development of figure which is so much admired in civilized life and so rarely seen. It is wonderful to see these tall, straight Arab women carry a heavy water jar full of water on their heads, which they carry a long distance, barefooted, with that easy, graceful motion which cannot be imitated by the high-heeled beauties of our own country.

The finances of Egypt are worth the study of our people. The present Khedive of Egypt, Ismail Pasha, succeeded to this title in 1863. He was educated in Paris with lofty ideas, and his will is the supreme law of the land. Egypt nominally owes allegiance to Turkey, but is practically independent by paying the heavy sum of $600,000 per year.

Upon assuming the title of Khedive he embarked in all the grand enterprises of the day, by constructing railways and canals, running steam vessels, the Grand Hotel at Cairo, sugar plantations, etc. All this business done on foreign capital, borrowed at a heavy rate of interest, some of it at 10 and 12 per cent; the English contractors securing fat jobs; the flood tide of prosperity running high; everybody making money; never was such times known in Egypt before. Foreigners embarked largely in the business of the country when business was so good; rents advanced rapidly, and living was high. But pay-day came at last, and the Khedive could not pay his interest, nor could he get any more money, for it was soon ascertained that he had swamped the country in a hopeless indebtedness. Then came the crash, with many failures, and Egypt is now suffering sorely from mismanagement. It will never recover its former prosperity. The population of this country is only 7,000,000, and the richness of the country has been overrated. There is only a strip of land along the Nile, not very wide—excepting the delta of the Nile, which is from 50 to 150 miles wide—that is rich. All the rest of the country is a howling desert.

I have been on the top of several of the highest cathedrals of Europe, and in some low places too, yet have never had such a splendid view as when standing on the top of the great pyramid of Cheops, the highest in the world, with fully ten miles of water in front; many large villages surrounded with deep water; the date palm seen all around, with some specimens nearly 100 feet high. The grand old Nile, with its islands, could be seen a long distance in the clear atmosphere; some twenty-five pyramids in full view, and here I saw the great howling desert wilderness for the first time, which was a great curiosity to me; the blowing sand was drifting all around below us—a solitary, dismal looking place indeed.

These pyramids are old settlers, according to the estimate of M. Mariette, who has devoted a lifetime to the study of Egyptian antiquities, in the employ of the Khedive. He has collected and arranged the museum at Cairo, the most valuable collection of Egyptian antiquities in the world. The English residents and all other classes consider him the best authority. According to his calculation the great Cheops pyramid was built 4235 years B. C. The first known king of Egypt lived 5004 years B. C. In addition to other evidence, recent discoveries appear to confirm these figures. This pyramid covers twelve acres of land, and is 460 feet high; constructed solid, of heavy block stone, some of which are thirty feet long, three feet thick, and six feet wide, of a beautiful white limestone. The inside chamber is constructed of heavy blocks, each weighing several tons, of red granite, and fitted together as closely as possible. They were brought from the Upper Nile, over 500 miles. There are about 100 pyramids scattered along the banks of the Nile, inside of fifty miles. Two or three others are nearly as large as this one, but many are small. One hundred thousand men were occupied ten years in getting ready, and 360,000 men spent twenty years in building the great Cheops pyramid. The mind can scarcely comprehend the magnitude of this great heathen temple.

According to the hieroglyphics, in the days of the pyramids, Egypt conquered all the surrounding nations, and placed her frontier wherever she pleased. She has since been conquered seven or eight times, and at the present day is hardly capable of self-government. These people are not wanting in intellect. The whole secret of the matter is, the masses of the people are not educated. This is a lesson that our American people should learn over and over again—to educate the working classes.

After living among these dark-skinned Turks and Arabs over four months, I long to once more get among the white Christian nations, and my course now will be in that direction.

A happy New Years to the readers of THE FARMER. They may all thank God that they live in our own blessed country.—*D. C. Richmond.*

TWENTY MILLIONS IN BEEF.

The Ups and Downs of Cattle Raising on the Plains.

A special correspondent of the New York *World* writes from Denver, Col.:

A good share of the best beef in the western markets comes from the plains of Colorado and Wyoming. The supply is increasing every year, as the shipments from the cattle yards at Cheyenne, Denver, Deer Trail, Las Animas, and other points show. The best ranges are now largely occupied, and the valleys of the Platte, Republican and Upper Arkansas fairly swarm with cattle. Some of the best known Texas drovers have removed their herds from the Red River country to the Platte. John Hittson's great ranch on the Bijou, a tributary of the Platte, where his herd of 40,000 are grazing, and the ranches of John W. Iliff, J. P. Farmer and other "cattle kings," now located in Colorado, are examples. The State auditor's books show that there are a half million head of cattle within our borders, and over 200,000 in Wyoming. As large numbers escape assessment by being transferred over the line, back and forth, at the proper season, it would be a fair estimate to say that there are a round million of cattle grazing in the two territories. They are worth from $10,000,000 to $12,000,000, and when marketed at Kansas City or Omaha, twice that sum. Last year's shipments from Colorado were estimated at 90,000 head, worth in market $2,700,000; and the shipments from the Laramie plains in Wyoming over 25,000—showing in round numbers a product of about $3,500,000 in beef raised for market on the western borders of the "Great American Desert."

The shipping season is generally from August to November. Sometimes the drovers hold back, as they did this season, for better prices, resulting in a great rush for the market the latter half of October and the first two weeks in November, taxing the railroads beyond their capacity. There are now awaiting shipment, between Denver and Kit Carson, on the Kansas Pacific, from Pueblo to Las Animas, on the Atchison, Topeka and Santa Fe, and from Cheyenne to Julesburg, on the Union Pacific, thirty or forty thousand head of cattle, which will be got into market as rapidly as cars can be provided. During October there were 460 car loads taken eastward from points on the Union Pacific railroad, most of them being loaded at Cheyenne and Julesburg, and coming from the herds on the Laramie plains and Platte valley. For the four months ending with October, 1,561 car loads had been shipped from these points. The shipments by the Kansas Pacific from Denver, Box Elder, River Bend, Deer Trail, Kit Carson and Las Animas during the past two months have been very large. One hundred and fifty-three car loads were shipped from Las Animas alone during October. The total shipments for the season from the above stations have probably been 20,000 head. The Atchison, Topeka and Santa Fe line has stock yards at Pueblo, West Las Animas, Granada and one or two other points within Colorado. Their shipments have been considerable, but I could not obtain the figures. Last season they took 8,043 head from Las Animas and 8,074 from Granada. Large numbers bound for the eastern markets were driven out of the State, feeding leisurely along, and finally loaded on the cars at Dodge City, Great Bend or Wichita, from which stations there were forwarded in four months 37,875 head. It seems probable that there will have been shipped out of Colorado and Wyoming during this season over one hundred and twenty-five thousand fat beeves for the markets of the Missouri and Mississippi valleys. Had better prices prevailed, especially the past month, the exports would have been much greater. Shipping dressed beef to market is carried on at two or three points, and is a business of some magnitude. The slaughter houses at West Las Animas put up and sent into eastern markets over twenty thousand head in this way last winter. The prospects are that very large shipments will be made during the next three months. It will depend on the markets. Beef is now low, and all who are not obliged to turn their beeves into money, will hold on for better times. Good steers bring 2½ cents per pound on the hoof, from one-half to one per cent. less than last season. Ordinary Texans rule so low that neither buyer nor drover cares to market them. The drovers on the plains are giving a good deal of attention to "breeding up." Large numbers of thoroughbred bulls have been introduced. The old Texas stock is fast disappearing, and the young improved half-breeds, which make choicest beef and are far

more marketable, take their place. As a result, there is an increasing demand for the plains cattle. The Texas herders see this, and out of last season's "drives" from the Red River country, numbering about 350,000 head of cattle, about one-third, instead of being marketed, were driven westward to feed until another season, and then to be shipped east as Colorado or Laramie plains beef.

While five or six years ago cattle in this section were herded in sufficient quantities only for the limited local demand, such as comes from the scattering settlements and military posts, and the business did not attract much attention, it is now grown to such importance that it seems likely in a few years to be more extensive and profitable than gold or silver mining. The returns are large, and it is noticeable that a greater share of the capital that has come this way during the last year has been put into stock as the safest and best investment. There are large numbers of moneyed men, out of health, who have their cattle ranch on the plains or in the parks and are getting the double returns of restored health and multiplied ducats.

The tendency to go into the cattle business in a large way seems to be growing. The amount of capital represented in some of the herds is sufficient to run a national bank. Five hundred or a thousand cattle are looked upon as of very small account, although from $10,000 to $20,000 is represented. The average herds run from 1,000 to 3,000 head. There are many having from 8,000 to 10,000, and several from 20,000 to 40,000. At only $10 through and through here is from $200,000 to $400,000 in a single herd, to say nothing of the corrals, the hundreds of ponies, the hired "cow-boys," the grain and feed in store, and the reserve fund necessary in handling such a "bunch" of cattle. While most of the herds are owned by individuals and firms, the capital invested is larger than that actually employed by companies in working some of the most extensive gold and silver mines of the Rocky mountains.

It is estimated that there are 40,000 square miles of grazing lands, fit for herding and nothing else, west of the Kansas borders, between the Union Pacific and Atchison, Topeka and Santa Fe railroads. Owing to the rapid increase of cattle, many of the best ranges have been eaten off, so that new ranches, handy to water, are at all times sought for. The sheep men have been gradually invading this field. Grazing as they both do upon the public domain, the only right one has over the other is priority of settlement. The states and territories cannot legislate upon the matter. Quarrels have at times come up, and at one time, two years ago, there was such a bitter feeling that considerable numbers of sheep were killed by the cattle men, followed by retaliation in kind. The two interests seem to be antagonistic, and, as if by common consent, the sheep men, at least those doing business on the largest scale, are operating south of the Arkansas and in the San Luis valley. Northern New Mexico is a kind of paradise for them, though there is occasionally trouble from the fact that cattle men are also carrying on a large business in some parts of that territory. It may not be generally known that stock raising is an extensive and profitable business in the slow territory of New Mexico. The largest herds are to be found there. One man owns forty-two townships, which he has stocked with 60,000 head of cattle. New Mexico cattle are of an inferior grade, as no attention has been paid to breeding up. This is also the case with sheep, which in some districts seem to cover the country for miles. A limited number of families, mostly pure Castilians, have absorbed and own nearly all the flocks, prominent among whom may be named the Armijo family, who have 250,000 sheep. They drive to Denver every spring from 10,000 to 20,000 for market.

To return, however, to our subject—a talk about cattle. It seems as if the next few years were to largely change the beef supply of the East. Instead of coming from Texas, as now, the best and most will come from the old buffalo ranges in Western Kansas, Colorado and Wyoming.

There are now more cattle on the plains than ever before. Large numbers from the Texas "drives" instead of being marketed at once are driven westerly over the ranges to feed a few months before being sold. Generally cattle winter well, without shelter or much if any feed beyond what they get by grazing. Last winter was open and mild, without any hard storms or severe weather. But the winter before that was unprecedentedly cold and thousands of cattle perished. On the average the stockmen take chances and come out without much loss from exposure; but it is found best to be prepared for storms and extreme weather, and it is now customary among the most experienced herders to have shelter and feed for their flocks during the winter.

The plains cattle men are not wholly dependent upon the ups and downs of eastern markets. Some of them have a regular demand for their beeves from the markets of Denver, Cheyenne and the large towns of Colorado and Wyoming, and large numbers are driven into the mountains to supply the miners' camps. The sales to butchers in Denver last season amounted to $15.000, and to the mountain trade $165,000. During the past summer there has been a brisk demand from the San Juan country and from the new towns in the Black Hills. There has been a good deal of risk and much loss in trying to drive cattle into the latter region, owing to the frequent Indian raids and stampeding; but where a man could get through safely he had no trouble in disposing of his beeves at a high price. Fat cattle are worth 8 cents per pound on the hoof at Deadwood. At the older settled towns along the line of the railways in Colorado and Wyoming the price of beef is moderate, but high enough to give a good profit to the drover. At Denver the price is from 2½ to 3 cents. It retails in the butcher-shops at 10 cents for round steaks, and 15 for sirloin. The market is easily affected, in an upward direction, by an overshipment to the East, leaving a supply of marketable beeves short, or by a stampede in the winter. Very often a cold, windy snow storm will be followed by an advance, as for instance, last spring, when beeves advanced to 5 cents per pound on the hoof, and for some weeks retailed at the butcher-shops at 20 to 25 cents per pound.

But at the low prices for beef cattle now prevailing the plains drovers have no very discouraging outlook. What depresses the Texas drover and entails upon him heavy losses has very little effect upon the Colorado drover. The cost of raising beeves, and the losses by stampede, thieving and Indians, are not nearly so great as in the Red River country. The Colorado drover can at any time get his beef, fat and sleek, into the Kansas City market, right off the range, in five days' time, and thus take advantage of a rise. On the other hand the method of marketing Texas cattle is to drive them across the country, north, to the Kansas Pacific and Atchison, Topeka and Santa Fe railroads, taking generally two months' time, and then holding them at considerable expense for feed, at the shipping points until prices are favorable. A hurried glance at how the Texas drover has fared in this way may be taken. He is always more or less at the mercy of the speculators, who every spring go down early into the cattle districts and spread the most doleful accounts of the prospects for the coming season's trade. If the times are dull and the drover hard up they have all the better chance to frighten and squeeze him. The result is large contracts for beeves, to be delivered at such a time to certain shipping points. Whole herds have, during the past few seasons, often been bought up at $3 per head, or culled out at $5 per head. This is from 25 to 30 cents per 100 pounds gross. From the year 1865, when what is known as the annual Texas cattle "drives" began, until this year, the business has been a series of ups and downs, more particularly the latter. Take, for instance, the experience of 1866, when the Southwest was undergoing the pinch of hard times. Everybody was anxious to sell. Money was scarce. Some who could count their long horns by the tens of thousands could hardly raise cash enough for their ordinary wants. In fact, a man's poverty was almost according to the size of his herd. The "drive" of 1866 into western Kansas numbered 260,000 head. The drover went forward with visions of better times and big pay for his beef but was destined to meet with unlooked for difficulties. Bands of outlaws infested the "trail," and if they could not by some means make away with the drover and steal the whole herd, would at night time stampede the cattle in every direction, and seize the opportunity to gather up and hurry off what they could. His losses were fearful, and many of the rising cattle kings were "snuffed out." In later years the Texas drover has been put to great annoyance and loss by the laws of Kansas legislature establishing "dead lines," and compelling shipments each year to be made at points much further west, lengthening the drives and turning them into sections where food is short and dear.

During the past eight years about 3,000,000 Texas beeves were put upon the market. In 1874 450,000 head were handled, the cost value of which at the shipping points in Kansas was only $5,000,000; and when finally sold to butchers and packers, $2,000,000. This was a poor year for the business. The grasshopper plague depressed everything. There was no feed, and so the drovers hurried to market, the supply being so great and the quality so poor that prices were down, down.

The cattle-men of the plains suffer none of these drawbacks. Stock is easily raised, multiplies fast, and is of better quality and generally in better condition for market than the Texans; the drovers and old hands at the trade give a good deal of attention to improving the breeds and are carrying on their business in a methodical, business-like way, and have good markets at their command, all of which seems to point to the "Great American Desert" as the Texas of the future.

BLACKBERRIES.

Price of Berries.

Blackberries have sold readily for several years past at from 12½ to 15 cents per quart. They will be likely to sell well for many years to come, as they can be used in so many ways, and the demand will increase with the supply. Some patches will be planted on unsuitable soil, and will not pay cost; others, in the most favorable locations, will be suffered to grow at random, becoming large and rank and producing but little fruit.

How to Raise Bountiful Crops.

To insure good crops requires close attention; the canes should be kept thin and well headed back; and on poor land an occasional dressing of manure, muck, or fertilizer of some kind,adds to the quantity and quality of the fruit.

There is no necessity for the market to be overstocked with the fruit, as it pays well to make it into wine. Three quarts of blackberries and three pounds of sugar, with the addition of a little water, will make a gallon of excellent wine, highly recommended for its medicinal properties, and worth $2.00 per gallon, while new; and its value increases with age. All the poorer berries, those that are too ripe to ship to market, may be properly converted into wine at home; and only the finest and most perfect fruit sent to market, which will always command a fair price.

What Kinds to Plant.

Having tested over thirty varieties of blackberries, besides many seedlings of our own growing, we would name as those which are

best established: Wilson's Early, Dorchester, Kittatinny and New Rochelle.

The Snyder, more recently introduced, is remarkably hardy, a strong, vigorous grower, very productive, though rather small, compared with several of the preceding varieties, yet being hardy and productive may always be relied on for a full crop of fruit.

The Hoosac Thornless, so highly recommended on account of having *no thorns*, may be rated with Dodge's Thornless, Newman's Thornless, and all others of that class, which have no other merit, their fruit being too insignificant to claim attention. The white, red, and purple blackberries, such as Crystal White, Col. Wilder and Dr. Warder, all novelties in their way, but of no practical value in point of profit to fruit growers, have been discarded.

Clarkson's Early, of which we received a box of ripe fruit on the 27th of June, a few days before Wilson's were ripe, may prove to be a valuable variety. Bush and upright grower of medium size and very productive. Berries fair size, being three-quarters of an inch in diameter, or over two inches in circumference; ripens uniformly, the whole crop coming off in a short time. Like the Amsden, Alexander, and Beatrice Peaches, their great value consists in their earliness. Being first in market gives an increased value to any good fruit.

Wilson Jr., is a seedling from the Early Wilson, raised in 1872, which has fruited two years. Being so well pleased with its great productiveness, large, early and luscious fruit, we had the plant taken up in the latter part of November, 1876, the roots cut into pieces and bedded out, and now have over 1,000 strong plants growing, which are from one to three inches in height, and from which, in the course of another year we hope to plant a field of them. The fruit is quite equal to its parent in earliness, size, and other good qualities, and being at least 25 years younger, or a quarter of a century later since it started from the seed, will be likely, by having a more vigorous constitution, to resist the attacks of insects, which probe the canes of the Wilson's Early, causing enlargements and obstructing the flow of sap, and to escape the fruitless double blossoms so abundant on the old and weakly Wilson bushes.

The California blackberry, with its long, mulberry-shaped fruit, very early, sweet and delicious, would be a great favorite if the canes would endure our climate, but being only half hardy they must be protected through the winter, which will be a serious drawback to its extensive cultivation in this vicinity. It sends up no suckers, but propagates by tips, same as Doolittle raspberry.

The Delaware, a seedling from the New Rochelle, is very large, and an excellent blackberry; ripens with the Kittatinny; bush a very strong, vigorous grower of the largest class, and appears to be perfectly hardy.

The Sable Queen, Sinclair, Holcomb, Cumberland, and many others that we have fully tested here, were not found to be equal to the four varieties first named, and were discarded.

Origin of the most Valuable Varieties.

It is worthy of notice that all the most valuable varieties in cultivation have been found growing wild, and were selected and saved on account of their superiority over others, and from the thousands of seedlings raised, none have yet proved superior to their parents. May it not be attributed to the fact that sufficient care has not been taken to mix the pollen of different varieties?

Having grown seedlings for many years without favorable results, we have now adopted the plan of planting some of the best varieties near each other, and drawing the branches of different kinds together and tying them with tarred rope yarn, so as to insure the admixture of the pollen of many flowers, thereby combining qualities in their seedlings which could in no other way be found in the same fruit.

If as much care and attention were bestowed in selecting and propagating new seedling blackberries as have been with the strawberry and grape, we might yet obtain varieties even superior to those that are now cultivated.

Yield and Profit.

The yield and price of blackberries vary, like other fruit crops, with the surrounding circumstances. We have known some plantations to yield annually $400 per acre, and upwards, for several years in succession, while others did not pay more than half that amount. Having kept a record of the yield and sale of our blackberries for fourteen years past, we find the average to be about as follows, viz: Price fourteen cents per quart, and yield 2,200 quarts per acre; which gives the following results:

Commission at 10 per cent	$30.80
Picking 2,200 quarts at 1½ cents	33.00
Use of boxes	10.00
Pruning, cultivating, &c	34.20
Net profit per acre	200.00
Gross sales 2,200 qts. per acre, at 14c	$308.00

Sometimes we hear of extravagant reports, calculated from the product of a small lot up to what ten or twenty acres under similar circumstances would yield. A safer rule is to take the acres and see what they have produced. By refererence to the report of the West Jersey Fruit Growers' Association, who appointed committees to collect the returns from all the fruit growers in the neighborhood, it will be found that 776 acres of land, in strawberries, raspberries and blackberries produced the sum of nearly $200,000, or about $250 per acre.

The cultivation of blackberries should always have strawberries and raspberries to precede them, as the same pickers, crates and baskets will serve for all, and there is less difficulty in keeping the pickers to finish up the raspberries where there is a field of blackberries ready to enter when the others are done. —*Wm. Parry.*

CHOICE WINTER FLOWERS.

A Ramble through the Newport Greenhouses. Tons of Blossoms—How they are Grown, and the Prices Paid for Them.

NEWPORT, R. I., Jan. 9, 1877.

We hear much of Newport in summer, but of Newport in winter little; and yet the attractions of one season are quite equaled by those of the other. The flowes no longer bloom on the lawn or around the doorstep, but they are still here in the greatest abundance. The conservatories are all full, many of them to repletion. Those that are owned by florists are well patronized, and the conservatories of non-residents are taxed to meet the owners' wants in town. From the latter boxes of flowers are sent to the city mansions on regular days the winter through—superb boxes of roses, carnations, lilies of the valley, violets, heliotropes and other flowers, valued alike for their fragrance and their color; and like boxes are daily sent by florists to their customers—dealers in the larger cities. The quantity of flowers raised is marvelous, and the demand is never slack till the advent of spring and the return of blossoms in the garden.

The Newport Greenhouses.

In these conservatories will be found all that is rare and beautiful in horticulture. From the rafters hang orchids from the jungles of Asia and the swamps of South America; and in the shady spots will be found the most delicate ferns. Here is a banana rejoicing in a wealth of broad leaves and a pendant bunch of fruit that will be slow to ripen; tubs of azaleas not yet in bloom, for they will be kept back till Easter; a scarlet passion flower hanging in festoons overhead, heliotropes trained to run on a wall like a vine, and orange and lemon trees, in fruit or flower at one and the same time; with thousands and tens of thousands of other plants that are equally beautiful and are sure to attract attention. But there are no flowers more admired than the orchids when they are in bloom.

Orchids are supposed to require a great degree of heat so great that it has been found necessary by persons who would cultivate them to any extent to build houses for the express purpose, the heat required being too great for other plants save the pineapple and banana. But a few years ago the idea was broached in England that the thing was overdone, and that while orchids from the hot, damp jungles of Asia might need excessive heat, those from Brazil and the Andes, on the contrary, did better with a cool treatment, and bloomed more freely in a temperature of 10 degrees. Experience has not confirmed this, but it has been found that they will do well in the atmosphere of an ordinary greenhouse.

Some Statistics of Flower Selling.

But the florists who raise flowers only for the market give little heed to the culture of other than paying plants—plants that yield a direct return for the time and trouble expended on them; and so large has the business become that men engaged in it find it to their interest to take up one or two varieties to the exclusion of all others. One florist, for example, makes a specialty of lilies of the valley, raising them in the greatest quantities, while others only raise enough to meet a local demand. Another, who is also a great grape grower, devotes himself particularly to roses, and has spared no expense to perfect his collection, having made repeated visits to Europe to secure all that is desirable in his department. A third divides his time between violets and roses. Some notion of the business may be formed from the number of flowers sent from here to market in Boston, Providence, New York and Philadelphia, but chiefly New York, between the first of November and the first of May. In 1871 there were shipped about fifty-six hundred dozen rose buds at an average wholesale price of one dollar twelve and a half cents per dozen; in 1872 about eighty-five hundred dozen at an average of one dollar a dozen; in 1873 about twelve thousand dozen at an average of eighty-seven and a half cents; in 1874 about seventeen thousand dozen at an average of seventy-five cents; in 1875 about twenty thousand dozen at an average of sixty-two and a half cents, and during the present season about twenty-five thousand dozen at an average of fifty cents per dozen. Thus, with a constant decline in the price, there has been a rapid increase in the quantity raised. Of violets there are a hundred thousand raised and forwarded, one florist supplying one-half that number; of carnations fifty thousand; of lilies of the valley more than one hundred thousand; and of mixed flowers from fifty thousand to one hundred thousand. This is exclusive of flowers raised for this market, and exclusive also of the yield of private conservatories, which are sent to the owners as often as once a week, and frequently at shorter intervals.

The Flowers that are Sold.

It is the bud of the tea rose that attracts most attention. Formerly it was the japonica that stood the highest, but the latter is now only cultivated to form a variety, for it has no market value. One house in England has been engaged in raising camellias for fifty years, having for that purpose a house two hundred feet long, eighteen feet wide and fourteen feet high, stocked with *Chandleri*, *Elegans Formosa* and other leading varieties, some of them ten and twelve feet high and producing two thousand buds in the course of a season.

The Rose Tree Jungles.

One who has not seen these beds of roses can have no idea of their size and beauty. There are long houses—house after house—filled with bushes. In some of these houses the bushes are so massed together as to seem almost like a jungle—tea roses, as high as one can reach, and covered with the greatest profusion of buds all fresh and vigorous and free

from blemishes and insects, the roots fed with a rich compost, and the water with which they are showered warmed by steam to the proper temperature. There is not only art in cultivating the rose, but also skill and experience in bringing the buds into market in a salable condition. A full-blown or even a half-blown rose has no market value. It is only the bud, just ready to open, that finds many admirers. We may well imagine, then, that the plant is carefully watched, and the bud cut the moment it is sufficiently developed. When cut, it is put into a chest, where it can be kept moist and at a low temperature till it is time to pack the daily yield in moss and cotton and forward it to its destination. Treated in this way the buds will appear on the dealer's counter in a distant city as fresh as when cut from the parent stem.

Some of the Favorite Roses.

Additions are made every year to the list of popular roses, which soon give way to others. Comparatively few run through a succession of years. Here and there one comes into notice with qualities that enables it to hold its own against all competitors; the Noisette roses, *Marechal Niel* and the *Gloire de Dijon*, for example; the one yellow and the other buff, which, though they have been known for a number of years, are in such demand that they readily sell at twenty five dollars per hundred at wholesale. Some of the old favorites that are still marketable at fifty or sixty cents per dozen, are the *Bon Silene*, a pink bud; *Pauline Labout*, flesh color; *Isabella Sprunt*, orange yellow; *Madame Falcot*, orange, and *Niphetos*, pale lemon to white. Some of the choicest new varieties are the *Prince Camille de Rohan*, a rich dark maroon; *Monsieur Paul Veron*, a pale soft rose, of great size and very full; *Madame Lacharme*, the most popular white hybrid, and *Captain Christy*, the best blush hybrid. These all sell readily at twenty-five dollars a hundred. Of tea roses, the favorites are the *Duchess of Edinburg*, very pale flower, and quite new; *Empress of Russia*, pale pink; *Perle de Lyon*, so large and fine that it requires a good judge to distinguish it from the *Marechal Niel*, *Cornelia Cook*, a large white rose, and *Jean Ducher*, a large and fine salmon, inclining to yellow. These command twenty dollars per hundred.

The Rose in History and Tradition.

In certain districts in Italy the red rose is looked upon as emblem of early death, and to scatter its leaves on the ground is thought to be an evil omen. In the reign of Henry VIII., "to smell the Redde rose and to washe the temples with the water of the Redde rose" was accounted "an evell to the brayne;" which superstition probably grew out of the belief that the oil of the red rose was an astringent and that of the white rose a laxative. On the 10th of June the Jacobites wore a white rose in their button holes to mark the birthday of the Pretender—a custom that was continued down to a very late date. The rose was once used as a token of office, and as such was worn by ambassadors, as appears from the state papers of Edward VI.

Violets.

There are many varieties of the violet known to the florists, but the Neapolitan is the favorite for winter culture. It is a strong, healthy grower, very prolific, and offers a full double flower, highly scented. Its treatment is very simple, but withal it is exacting, and if its requirements are not met the returns will be small. It needs light, some warmth (bottom heat is best) and a dry air. Dampness is fatal to it. When coming forward, preparatory to blooming, it should be watered, but when in flower it does better if the surface of the soil is kept dry. Air it needs, and it is usual to give it an ample supply when the temperature will allow. At no time after it begins to bloom should the light be shut off. When, in the spring, the rays of the sun become so powerful as to fade out the color, some judgment must be used in screening it at midday. If violets are left immersed in water for a time, they will throw off their fragrance and impart it to the water; and an ancient Gaelic receipt makes the violet even more potent: "Anoint thy face with goat's milk in which violets have been infused, and there is not a young prince upon earth who will not be charmed with thy beauty." Athens was called the "violet-crowned city," and Napoleon was known not only as "the Little Corporal," but also as "Papa la Violette." Violet is the flower of the Napoleon family, and is worn by its supporters. So great was the demand for violets at Chiselhurst at the time of the death of the late Emperor that the ordinary penny bunch sold readily for six pence and even a shilling. Of native violets there are eight or ten varieties in this country, and while they are more or less fragrant their odor is not to be compared with that of the cultivated plant. One has little difficulty in finding in the moist places in the woods in early spring the spade leaf, the hood leaf, the arrow leaf, the white and other varieties with which we have been familiar from childhood.

Carnations and other Flowers.

Mrs. Quickly said of the dead Falstaff that he did not like carnation ; possibly he felt that it did not suit his complexion. There are many varieties of carnations, but they may all be classed under three heads—*Flake*, *Bizarre* and *Picotee*. The *Flakes* are striped in two colors on a white ground ; as, for example, the *Attila*, which is scarlet and white. The *Bizzarre* has irregular stripes on a plain ground, and the *Picotees* have a border with a narrow margin of a darker color, or one profusely dotted with small spots. Its edge is serrated, or cut. In colors we have the *Bella Zora*, or salmon pink, striped and mottled with crimson ; the *Cassandra*, a bright cerise ; the *Union*, a crimson and white, and many others. To have the carnation in perfection the petals must be symmetrically arranged, the colors bright and clear, the contrasts strong and marked, and no blending of color with another. The white, wherever it appears, must be of spotless purity, and there must be no splitting of the full and well-developed pod. This last is difficult to manage. Cultivators who raise but a few may tie the pod to prevent the splitting when it is ready to bloom ; but this cannot be done where carnations are raised in considerable quantities.

The lily of the valley blooms readily in winter under proper treatment. The bulbs are kept in a dark place till wanted, and when brought out they must be gradually accustomed to the light, for a sudden exposure injures them. A week is required to bring them from the darkness of a cellar to the strong light of the forcing house. When they are wanted they are subjected to a bottom heat of sixty or seventy degrees. The art of raising lilies for market in winter is so well understood that a florist can take an order for a given day with the certainty that he can fill it, for he knows exactly how long it will take for the bulbs to blossom. It is only the flower that we get in forcing lilies of the valley, for the leaf does not come forward when the plant is subjected to this treatment.

But something green is wanted to bind up with flowers, whether lilies, roses or carnations. To this end the rose geranium is cultivated, for its leaves afford a delicious perfume with the desired color. Smilax is also highly esteemed, for it is very graceful and has a bright, fresh color. At one time there was a great demand for smilax, not only for ordinary use, but also to loop up dresses, wreath the hair, and add to the charm and grace of baskets of cut flowers. It will not easily go out of fashion, for its place cannot be filled, but it is not so much called for as it once was. The culture requires care and attention, for every shoot must have a string on which to climb, otherwise the vines would soon become hopelessly tangled. Attention is also paid to forcing lilies, callas and azaleas —all white flowers—for which there is at Easter a great demand. They are all beautiful and fragrant, particularly the white lily, which will fill a house with its perfume.—*Champlin.*

Christmas Blossoms.

In the interesting letter concerning the flower trade between Newport and this city, which we print to-day, the writer says that "it is only the flower that we get in forcing lilies of the valley, for the leaf does not come forward when the plant is subjected to this treatment." This reminds us of the result of a recent experiment in floriculture in this city. About two weeks before Christmas one of our German fellow citizens cut one or two branches from a lilac bush growing in the neighborhood of the High Bridge. These branches he brought home with him and placed them in his living room, in water, which was made warm three or four times a day. Under this treatment the lilac branches put forth several bunches of blossoms, and by Christmas day these had assumed all the characteristics of the familiar lilac flower except the color—the purple was lacking, the flowers being wholly white. No leaves, however, strange to say, had appeared—the forcing process in this case, as in the case mentioned by our correspondent, affecting the flower sooner than the leaf.

By the same method our friend also produced cherry blossoms, thus adding the charm of nature to the artificial devices by which our German fellow-citizens add so much to their celebration of the day of "Christ Kindel."—*Editor Post.*

FRENCH LAND OWNERS.

In France, an area about half as large again as the United Kingdom is owned by nearly 5,500,000 proprietors of agricultural land, of whom 5,000,000 of peasant farmers own one-third of the whole area, with what result is every day becoming better known and more fully recognized in this country. The industry and thrift of these peasant owners are marvelous, and spread their effect through the whole society of France. The gross farming produce of France may not be so great as in England, but this is equally observable when comparing the large farms of France, of which there are more than 130,000, with the large farms of this country. As compared with the small farmers of France, hiring the lands of others, the small owners unquestionably are vastly better in every respect, and they hold their own even beside the large farmers. There may be some defects in the system of small owners; the process may be carried too far in France; but at least it has raised the status of the lower classes there, has almost abolished pauperism in the rural districts, and has endowed the people with such universal habits of thrift as are almost unknown in the people of the same class in this country. It is not the fact, as commonly stated, that the peasant proprietors of France are loaded with debt ; the average mortgages on these farms are known to be no more than 10 per cent. on their value ; while the best evidence that they are able to accumulate money, is to be found in the fact that the peasants have been the main subscribers to the great loans which have been raised in France, and that at the present time the French debt to the amount £1,000,000,000 of our money, is held by 4,000,000 of persons, while British consols to the amount of £700,000,000, are held by not more than 250,000 persons. It will be said, of course, that the climate and soil of France differ from England so much that no comparison can be drawn between them. This may be admitted as regards the central and southern parts of France, where the cultivation of the vine and olive is specially suited to peasant owners ; but its northern and western provinces are in no way different from the greater part of England. The garden of France is unquestionably Normandy, the climate and soil of which differ in no essential quality from those of the south of England, and which especially resemble such counties as Kent and Somersetshire. In

Normandy there is a greater variety in the ownership of property than in any other part of France; large estates with resident owners are numerous, but still more so are small properties; there are an immense number of peasant proprietors, but they do not monopolize the land as in some parts of France. "If I had to point out the happiest part of France," says Monsieur de Lavergne, "I should not hesitate to select Normandy." Population there increases slowly in proportion to wealth; while its wealth has increased four-fold since 1789, its population has increased by one-third only. In many rural communes there is not a single pauper. The writer adds: "*La plupart des Normands n'ont pas lu Malthus, mais ils pratique instinctivement ses conseils.*" The case of Normandy is especially instructive, as it shows what is the result of a happy combination of every variety of large owners and small owners, of land farmed by tenants, and of peasants farming their own land. In the more northern provinces of France property is even more divided, and gives admirable results, though perhaps the net produce after taking into account the number of cultivators is not so great.—*Fortnightly Review.*

A MODEL FARM.

In taking a sleigh ride a few days ago, we passed through a portion of Manor township. If there is anything that will make a Lancaster countian feel proud of his county, it is to drive through such portions of it as Manor-twp. and notice the unmistakable evidences of thrift and prosperity that greets the eye on all sides.

Our drive took us into the neighborhood of Washington borough; from Lancaster to the Susquehanna, over the Manor turnpike to Millersville, and from thence to Washington borough by the direct road. We cannot recall a single farm or residence which did not bear evidence of the thrifty habits of our Lancaster county people; no tumble-down buildings or fences, that are the rule rather than the exception in some sections of the country.

The mild damp weather of Friday and Saturday promised to put the tobacco hanging in sheds into condition to handle, and as a natural consequence, tobacco was the prevailing theme of conversation, which is not a matter of surprise when we reflect that we are in the midst of a small area (less than half of Lancaster county) that furnishes the markets of the world with about one-fourth of all the leaf tobacco grown in the United States.

Prominent among the large and successful tobacco growers in this district, we might mention Mr. John S. Mann, whose fine farm lies about 1½ miles from the river. Mr. Mann produces annually from fifteen to twenty acres of the weed, and as an example of the quality and quantity per acre, we might say that from a lot sold by Mr. Mann to a New York firm, this season, through their agent, Mr. Isaac Kaufman, of Mountville, he realized at the rate of $680 per acre, strict measure.

It must be remembered, however, that in order to continue the successful culture of tobacco, the farmer must employ means to counteract the exhaustive influence of tobacco cropping on the soil. This can only be done by the liberal use of stable manure, and since this article cannot be purchased here in large quantities for love or money, the farmer must resort to means for producing it on the farm.

A visit to Mr. Mann's stable convinced us that he is a man (n) "that don't do things on a small scale." Thirteen milk cows furnish the dairy products for the family, the surplus going to the Columbia market. Twenty-five head of fattening steers that will rival, in point of size, the Centennial prize cattle by the time Mr. M. puts them on the market, grace his stable. Among his horses, which are all of the best, we noticed a promising looking Percheron stallion, three years old, and weighing 1,600 pounds, having been exhibited by Mr. M. at the late State fair held in this city. Proceeding to the pig-stables we find them stocked with improved Berkshires, whose clean, sleek appearance is sufficient evidence that they receive all the care and attention the most fastidious pig could desire. In short, all that came under our observation in a brief visit of a few hours gave evidence of first-class farming combined with good business management.

Returning to the house from which we started on our tour of observations, and which we have allowed, rather inadvertently, to occupy the last, but not least place in our remarks, we find it presided over by Mrs. M., ably assisted by her accomplished daughters, whose reputation for hospitality is so well known as to require no comment.

There are other farms and farmers that may be the subjects of further communications; the example of Mr. Mann as a model farmer and business man, is one deserving of notice and worthy of emulation by young men and others engaged in the same line of business. If there are other tobacco farmers who can show a better yield per acre than that referred to by us, we will be glad to hear from them.—*Intelligencer.*

CLEARING LAND BY DYNAMITE.

Experience at clearing lands, both in removing stumps and large boulders with dynamite in Scotland has been a success. The following account is given of a late trial in an Edinburgh paper:

"A spadeful of earth was removed from the side of a stump and a hole driven into the stump with a crowbar. Into this hole a cartridge of dynamite was pressed by means of a wooden ramrod, then a detonating percussion cap, with a fuse attached, was squeezed into a small cartridge or primer of dynamite, and inserted into the hole in the stump in contact with the charge. The hole was filled up with loose earth, about a foot length of the fuse being left bare. A match was next applied to the fuse, and sufficient time was taken for the powder to reach the percussion cap to allow the operatives to retire a safe distance. When the explosion occurred the trunk was literally blown out of the ground, some of the fragments, weighing nearly twenty pounds, being thrown to a distance of over a hundred yards. The destruction of the stump was complete. In breaking up big boulder stones, the dynamite was simply placed on top of the stone, covered with wet sand, and fired with the fuse in the ordinary way. The result was the reduction of the boulders to fragments the size of a walnut. It was effectually proved by the experiments that land can be speedily cleared of formidable obstructions to good cultivation by the use of dynamite, and the committee of the society who watched the operations expressed themselves as highly satisfied with the results.

FARMING VS. PROFESSION.

The Maine *Mirror* gives the testimony of a New Hampshire boy, now a resident of Wisconsin, a fine scholar, a graduate of Dartmouth, and a law student in Merrimac county, who just previous to his admission to the bar, took a cold which rendered him very deaf, and no medical skill was able to restore his hearing. The affliction compelled him to give up his chosen profession and he went west very much broken down in spirits. For ten years he has been farming, cultivating about 200 acres of prairie land, and, as he expressed it, making a good living and salting down something every year. And he declares that if, knowing what he now knows, he was to begin his active life over again, he would do just as he was compelled to do so unwillingly ten years ago; that is, he would throw aside his profession and settle down upon a farm. Said he, "There isn't much glory on a farm, but you get a good, sure living. You are your own master; you can't starve or be turned out of business; and as far as the work is concerned in these days of horse power, a man needn't kill himself farming any more than at any other business. It is brains that win on a farm as well as everywhere else, and the smart man is going to ride, while the stupid one goes a-foot in the corn-field as well as in the bar or pulpit. I should like to have my hearing again, but I wouldn't leave my farm if I had it."

PENNSYLVANIA STATE AGRICULTURAL SOCIETY.

This society held its regular meeting at Harrisburg, on January 17th. Dr. J. A. M'Crea, of Philadelphia, was chosen President *pro tem.* on account of the death of Hon. George Scott, the late presiding officer. After a report relative to the appointment of a committee to memorialize the Legislature for the passage of an act for the protection of sheep from dogs, and some other routine business, the committee appointed to draft resolutions relative to deceased colleagues, reported as follows:

"The Executive Committee of the Pennsylvania State Agricultural Society, in behalf of the whole society, is called upon to express profound regret at the loss, by death, of three of its members—one of whom was its highest officer—all of them active, prominent and intelligent members of this committee; all called away from the pursuits of life since our last meeting. It is, therefore, our duty, upon this occasion, to express the sincere sorrow we feel at this unusual bereavement.

"Mr. George Scott, of Columbia county, previous to his election as president of the society in 1875, had filled with credit many important positions. During his administration of our affairs, no word of complaint was heard. Often these are troublesome, and happy the incumbent who escapes them. The duty imposed upon our late colleague was so prudently performed and so efficiently discharged as to win the praise of all with whom he came in contact. He gave his time and means with liberality to further the success of this society.

"Mr. Alexander Speer, of Allegheny county, was chosen a vice president in 1874. A gentleman largely engaged in manufactures, modest in the expression of his unusually correct views, popular and courteous in intercourse with his colleagues, and attentive and correct in the performance of his duties, the loss of a gentleman of his high character is greatly to be deplored.

"Mr. Benjamin G. Peters, of Dauphin county, was for a long period a member of the Executive Committee. Always prompt and energetic in the discharge of every trust assigned to him, a decided yet courteous counselor, he was called away in the midst of an active and prosperous business career, by a sudden and shocking accident. His death is most regretted by those that knew him best—a tribute of the highest character. This Executive Committee therefore,

Resolve, That this expression of regret at our loss be entered upon the minutes of the society, and that copies of it, under the seal of the society, signed by the president and secretary, be transmitted to the representatives of the families of Messrs. Scott, Speer and Peters."

The resolution was unanimously adopted.

The committee appointed to offer premiums at the Centennial Exhibition, reported that as the awards had not yet been reported to them, no money had yet been paid.

Mr. SMULL offered the following:

"*Resolved*, That a committee of three be appointed whose duty it shall be to examine what legislation exists in other States, not found in ours, upon the subject of agriculture—such as fences, roads, etc., and other matters interesting to farmers, and make report to this society."

Messrs. Smull, Kennedy and Egle were appointed as such committee.

The following resolution was adopted:

"*Resolved*, That the tender made by *The Practical Farmer*, a publication issued in Philadelphia in the interest of agriculture, to publish the proceedings of this society, and other matters of interest, in a condensed form, is thankfully accepted, and that the secretary be requested to furnish the same."

At the evening session the act creating the State Board of Agriculture was read before the Executive Committee, and a committee was appointed to consider the matter, and to devise ways by which this society can best aid the new State Board in its efforts to promote the cause of agriculture and the interests of the farmers of the State, and Mr. Rhey read a paper relative to the productive interests of the country.

On Thursday morning, after the discussion of some miscellaneous matters, the annual election of officers was held, with the following result:

President—Jno. W. Hammond.

Vice Presidents—Jas. A. M'Crea, Geo. Blight, A. L. Kennedy, Wm. S. Bissell, A. D. Levering, D. H. Branson, Wm. S. Holstein, Tobias Barto, S. S. Spencer, Daniel H. Neiman, Joseph P. Conner, Ira Tripp, J. S. Keller, John A. Smull, James E. Carmalt, J. B. Potter, S. Baker, John S. Miller, Daniel O. Gehr, L. A. Mackey, Geo. Rhey, John Murdoch, Jr., Wm. Speer, John M'Dowell, J. B. Lawson, J. D. Kirkpatrick, Thos. J. Edge.

Additional Members Executive Committee—A. Wilhelm, Abner Rutherford, John H. Ziegler, William Taylor, R. S. Allen.

Ex-Presidents Members of the Board—Frederick Watts, D. Taggart, Jacob S. Haldeman, Thomas P. Knox, A. Boyd Hamilton, Amos E. Kapp, John C. Morris, J. R. Eby.

Treasurer—John B. Rutherford.

Corresponding Sec'y—Elbridge M'Conkey.

Recording Secretary—D. W. Seiler.

Chemist and Geologist—S. S. Haldeman.

Assistant Chemist and Geologist—Hugh Hamilton.

Librarian—W. H. Egle.

The following was then adopted:

"*Resolved*, That a committee of seven (including the President and two Secretaries) be appointed by the President, to whom shall be intrusted the general charge of the society during the interval between the stated meetings of the Executive Committee, including the invitation of proposals for holding the next annual fair of the society—the selection of location, inclusive of the dates thereof, the issuing of premium list and general arrangements for said exhibition. Also, that when this committee adjourns it adjourn to meet on the third day of the next annual exhibition, at such hour and place as may be designated by the official head of the society."

A circular from the National Agricultural Congress, which is to meet in Chicago in September next, was read, and Messrs. Small, Kennedy and Knox were appointed delegates to attend the meeting.

Dr. Kennedy offered the following, which was adopted:

"*Resolved*, That we regard the instruction in theoretical and practical agriculture afforded by the Pennsylvania State College, as the distinguishing feature of the institution.

"*Resolved*, That we call upon the authorities of the college to perfect said institution to its fullest extent, and that a committee be appointed to correspond with them on the subject, and report to the Executive Committee."

Messrs. Kennedy, Rhey and Kirkpatrick were appointed as a committee on the subject.

After the passage of a resolution authorizing the Executive Committee to employ a competent person to canvass the State to secure exhibits at the annual exhibition, and some other miscellaneous business, the society adjourned.

PENNSYLVANIA FRUIT GROWERS' ASSOCIATION.

The eighteenth annual meeting of the Pennsylvania Fruit Growers' Association was held at Lancaster on January 17th and 18th, in the Board of Trade room. Tables reaching the entire length of the room were well covered with fine apples, several of which were comparatively unknown and attracted great attention, particularly the "Ewalt," from H. M. Engle, and the "Major" from A. S. Sheller. The meeting was called to order at two o'clock, p. m., by the President, Mr. E. Satterthwait, of Jenkintown. H. M. Engle, of the general fruit committee, read a very interesting report, in which he noted the fact that the first meeting of the society was held in Lancaster seventeen years ago, and some extracts were given from the inaugural address of the first President, in which the work to be done was outlined.

Mr. ENGLE reported the apple crop of 1876 as being one of the largest for many years, Rambo, York, Imperial and Smith's Cider having been among the best varieties; but that notwithstanding the large crop, apples are now being shipped into the State in large quantities. The pear crop was reported as badly injured by blight; peaches were good in some sections, and their cultivation should be encouraged, especially in the valley of the Susquehanna river; Mixon, Stump, Early and Late Crawford and Smock, are among the best varieties. Plum culture was reported as on the increase, but the curculio manages to have his "trade mark" in almost every orchard. Grapes were abundant, with Concord as the most popular variety, and Martha, Telegraph and Ives constantly growing in favor; other small fruits were generally abundant.

The greatest enemy to the fruit crop is the apple tree borer, for the destruction of which the knife and wire were recommended. But little has been done to check the codling moth, which is a grave mistake. After the reading of the report, the best method of destroying the moth was pretty fully discussed, and the general opinion seemed to be that almost the only effectual method of killing the insect is to trap it while in the pupa state, by placing bands around the trunk of the tree, and killing the insects found under them.

The subject of changing the name of society from the "Pennsylvania Fruit Growers' Society" to "The General Horticultural Society of Pennsylvania," was then taken up, and after an animated discussion was decidedly negatived.

Mr. W. P. BRINTON, of Christiana, then read a very interesting and exhaustive essay on "Peach Culture" In the discussion which followed, Mr. Brinton said that he would always plant his trees on high ground, and plant shallow. Mr. Brady said he would dig a hole two and a-half feet square, and one and a-half feet deep, so the roots would have an abundance of mellow soil; he would not plant the tree deep, and would prune off all the branches.

Mr. ENGLE said a very common reason for planting deep was to keep the tree from being blown over, but that the roots would hold the tree more firmly if planted in their natural position.

Mr. GROVER said that in fixing upon the depth at which to plant, we should follow nature as seen in the seedling, and plant the trees at about the same depth at which they had grown.

Mr. MEEHAN objected to the cultivation of the peach orchard. His own orchard is in grass, which is mowed twice during the year, and receives an annual top-dressing, and always bears well.

For the best varieties, Mr. Brinton recommended Crawford's Early, Old Mixon, Stump and Crawford's Late.

Mr. HILLER had found Old Mixon and Crawford's Late the most profitable; Crawford's Early, Ward's Late, Troth's Early, Hale's Early and Susquehanna had all done very poorly with him.

After some further discussion, the society adjourned until evening, when the subject of pruning peach trees was taken up and pretty thoroughly discussed, the general opinion being that about one-third of the previous year's growth should be taken off.

Mr. MEEHAN advocated close pruning on weak trees, but less upon stronger growers.

Mr. SATTERTHWAIT pruned his trees to make them grow fan-shaped, so that he could cultivate between the rows, but shortened in the branches but little.

After some further talk during which the "yellows" and the effects of frost were touched upon, the subject of "Blackberry Culture" was introduced, and an essay on the subject by Wm. Parry was read, and will soon be published in *The Farmer*. The essay was so complete and exhaustive that little remained to be said on the subject, and Mr. Meehan proceed to give a report on "Fruits at the Centennial." Although Pennsylvania is one of the best fruit growing States in the Union, she made almost no display at the Centennial, but Lancaster county made the finest display from the State. The speaker then gave a very interesting outline of the work which had been accomplished in improving our fruits during the past century. One hundred years ago we had no strawberries excepting a few inferior English varieties.

Among the first of the improved varieties was Hovey's Seedling, introduced about fifty years ago. Longworth did much for the improvement of the strawberry by the discovery of the pistillate and staminate varieties, and caused almost a strawberry mania—but the later discovery of the Wilson's Albany, a hermaphrodite variety, caused a great revolution. Many excellent varieties have been introduced recently, but the Wilson still holds its place. Among currants the Red Dutch, although it has been propagated by cuttings for more than 2,000 years, is still the best. One hundred years ago we had none but wild blackberries, and even thirty years ago few were noted in the nurserymen's catalogues. The present fine varieties have been developed entirely within the last century, and much the same may be said of the raspberry. Gooseberries and peaches have been improved but little, though some advance has been made in peach culture by the introduction of earlier and later varieties. Pears have been improved more than any other fruit; the varieties of 1776 having almost entirely disappeared. American grapes are the product of the century, and varieties now in cultivation equal any of the foreign ones. In cherries but little improvement has been made, and plum culture has been abandoned in many part of the country on account of the curculio. Apples have improved but little in quality, but many new varieties have been produced, which, by their adaptation to particular localities, are of great value. Crab apples are due to American cultivation, and chiefly to the attention given them in the Northwestern States, where many valuable varieties have been produced.

On Thursday morning, President Calder, of the State College, gave an interesting account of the present condition and work of the college, and Mr. Carter of the work done on the Experimental Farm at West Grove.

MR. STAUFFER then read an essay on "Noxious Weeds," which elicited considerable discussion.

The report of the Centennial Committee was then presented. The committee held several meetings, and applied to the Legislature and to the State Centennial Board for a small appropriation, to pay freight on such fruits as should be sent, the committee offering to give their time, and to defray their own expenses while making the display, but no aid was granted them and consequently no display was made. The report concluded as follows: "We attribute our failure to the usual indifference of our State Legislature as a body, in regard to all agricultural and horticultural interests" — words which should make every member of the Legislature blush with shame.

A letter was read by Mr. Hoopes, asking the society to state what legislative action should be taken to encourage the planting of forest trees, but the members differed so widely in their ideas on the subject that the matter was dropped, with the understanding that at the next meeting Mr. Meehan should read a paper against legislative action, and President Calder one in favor of it.

The "Apple Tree Borer" was then talked of at some length, the general experience being that the knife was the only remedy, though Mr. Bissell said he had succeeded in protecting his trees by the use of a thick wash made with soap suds, clay and linseed oil, applied each spring.

At the opening of the afternoon session, Mr. Sands, Secretary of the Maryland Horticultural Society, on behalf of his society, invited the Pennsylvania society to meet with them at the next meeting of the American Pomological Society, to be held in Baltimore, on September 12, 13 and 14. The invitation was accepted, and a committee was appointed to collect fruits for an exhibition at the time. The following officers were elected for the ensuing year:

President—Josiah Hoopes, of West Chester.

Vice Presidents—H. M. Engle, of Marietta; Geo. H. Small, of Harrisburg; John I. Carter, of West Grove.

Recording Sec.—E. B. Engle, of Marietta.

Cor. Sec.—W. P. Brinton, of Christiana.

Treasurer—Geo. B. Thomas, of West Chester; and the place for the next annual meeting was fixed at Williamsport.

"Cheap Fruit Houses" were then discussed and several plans for their construction were proposed, but all agreed in the necessity for having ice to keep the temperature low. Mr. Lint and others had succeeded in keeping fruit well in a common spring house.

On the subject of "Trees for Windbreaks," the society was pretty evenly divided, some members valuing them highly, while others thought them a disadvantage.

After some talk on the best methods of keeping winter vegetables, the potato question was taken up, most of those taking part in the discussion regarding the Early Rose and Peerless as the best varieties.

At the evening session Prof. Rathvon read a very interesting essay on "Insect Longevity" and Mr. Miller one on "Fruit Culture," both of which we shall give to our readers soon. The remainder of the session was occupied by a miscellaneous discussion. The meeting was one of the most interesting ever held by thesociety, the attendance being large, and the essays and discussions unusually interesting.

Mr. Hiller, of the Committee on Fruit, submitted the following report:

APPLES: H. M. Engle & Son, 20 varieties; Prof. I. S. Geist, 1; Levi S. Reist, 22; all from Canada, and 11 varieties of his own growing; Peter Lint, 1; A. S. Sheller, 3; Hiller & Son, 9; John Brady, 3; James Huber, 2; Dr. J. P. Eshleman, 6; J. Frank Landis, plate of fine home-raised lemons; Thomas Harvey, 1 variety, for a name; Geo. D. Stitzel, pound pear; Reuben Weaver, 4 varieties apples; J. N. Engle, 2 varieties for name. The Rome Beauty is a very showy, desirable fruit. Ewalt is the finest apple in apperance on exhibition, and is worthy of planting. The York Imperial has no superior in this section, in bearing and keeping qualities. The "Millport Sheep-Noses," from Mr. Reist, are a beautiful apple of medium size, and are extraordinary yearly bearers. The "Major" fully retains its reputation as to quality of fruit and annual bearing; it is especially worthy of further trial.

CASPER HILLER,
ALF. S. SHELLER,
HENRY M. ENGLE.

The report was unanimously adopted and the committee discharged.

Mr. HOOPES offered the following resolution which was unanimously adopted.

Resolved, That the thanks of the society are due and are hereby tendered to the Lancaster County Agricultural and Horticultural Society for their kindness and hospitality, not only to the individual members of our association, but to the Society at large, for furnishing us with a commodious and comfortable room to meet in, and every convenience for displaying our fruits. Also, to the press of Lancaster city for so kindly noticing our meetings and the very thorough and courteous manner in which they have reported our discussions.

President SATTERTHWAIT called upon Professor Rathvon to give a history of the codling moth saying that there was no subject of deeper interest to pomologists than the destruction of this moth. The Professor, in response, spoke at length as to the origin and habits of the moth, saying that he believed it difficult to catch them when fully matured. I will briefly relate its history. Those that survive the winter are in the pupa or quiescent state, spun in a sort of cocoon under the loose scales of bark on the trunks of trees, or any other cover that is accessible. These evolve in early summer, as soon as the fruit is as large as a common "marble," in the form of a small moth. When the female becomes fertilized, she seeks the young apple and deposits one or more eggs in the lower end of the fruit. There they hatch, and one, sometimes two, enters the apple from that point and feeds therein until its larval condition is fully matured. At first it is a minute white worm, but as it approaches its pupal period it becomes of a pinkish color. It then cuts its way out of the apple, whether it is hanging on the tree or lying on the ground, and seeks a shelter under which to pupate. Then is the time to set a trap for it, whatsoever the form may be. A straw band around the trunk of the tree affords a good shelter for pupation. This is renewed about every ten days, and the old one, containing the pupæ, is burned.

For this straw-band some have substituted a band made of any kind of old woolen, linen, or cotton

cloth, wrapped around the tree in such a way as to form a good artificial shelter, and this is taken off periodically and passed through a clothes' wringer, which crushes the pupæ. (Not a saturated cloth by any means, they like a dry place.) There are successive broods of these "codlings," but not so many as there appear to be. The females do not deposit their eggs all at the same time, nor in the same place; and, therefore, the same brood will be found in different stages of development. Surrounding circumstances will materially alter the normal process of development, hence, we may find the worm in the apple sometimes in mid-winter, and we may also find the moth emerging from the pupa long before there is even a flower or leaf on an apple tree. The temperature of the surrounding atmosphere, either out in the open air or in a warm cellar or chamber, will produce this effect. These moths often spin and pupate in bins, barrels and boxes containing apples, and I have seen them come forth from such places, in the moth form, in the spring of the year, or in early summer.

It is not certain that they may easily be caught in a sugar trap of any kind. I have never caught any by such means. They belong to a family allied to the house moths, many of which never partake of food of any kind in the moth state. Some years ago, Mr. Shaeffer, then president of the Pennsylvania Horticultural Society, of Philadelphia, sent me about one thousand of miscellaneous insects which he had caught in wide-mouthed bottles containing sweetened water, which he had hung on his trees, and out of the whole number there were none that I could distinctly recognize as a "coddling." There were various species of flies, hornets, wasps, bees, yellow jackets, beetles, lace wings and nocturnal moths; but, I remarked at the time, that there were no curculios, and only a very few that might possibly have been coddlings, but these were so completely washed with the liquid that they could not be recognized. But the genera *Arctia*, *Argotis*, *Noctua*, *Spilosoma* and *Anysopteryx* were well represented. I have known them, however, to hover around and dash against a brilliant light, fended by a glass globe or chimney. The remedy above alluded to is about as good as any in use, although there are other forms of it. Anterior to this, however, is gathering the fruit as fast as it falls, and scalding it or feeding it to swine.

The foregoing very brief and imperfect synopsis of the Pennsylvania Fruit Growers' Society is taken partly from the *Practical Farmer*, of Philadelphia, and partly from the *Examiner and Express*, and the *Intelligencer*, of Lancaster. Our journal was in a state of "suspended animation" at the time, and therefore our intentions to publish the proceedings in full could not possibly be carried into effect. As the proceedings will be published in book or pamphlet form, we do not deem it essential to publish any more of it in our paper, except, perhaps, the essays, as soon as we find space and opportunity to do so.—Ed

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The regular meeting of the Lancaster County Agricultural and Horticultural Society was held on Monday afternoon, Jan. 1st, in the Athenæum rooms. The following members were present:

President Calvin Cooper, Secretary Alex. Harris; P. S. Reist, Henry M. Engle, D. S. Smeych, S. P. Eaby, Jacob Bollinger, Wm. McComsey, Ephraim Hoover, John C. Linville, Casper Hiller, I. L. Landis, J. B. Erb, Martin Kendig, Prof. S. S. Rathvon, E. K. Hershey, John Gingrich, Elias Hershey, Levi Pownall, Peter C. Hiller, J. Frank Landis, Christian Espenshade, Henry Buckwalter, John Huber.

No report was made by the committee on crops.

John C. Linville, read an essay on "Tobacco and its abuses." He gave a history of the introduction of tobacco into England; of the unavailing efforts of the king and others to prevent the spread of the use of the weed; of the almost universal adoption and use of it among moderns; of the filth attending smoking and chewing; of the effect it has in blunting the finer senses, and causing a taste for coarser food and more stimulating drinks. He regarded it as a great curse, causing the user a greater expense than that for food. Although it is the most profitable crop that can be grown in Lancaster county he discouraged its cultivation and hoped there was a sufficiently high sense of morals among our farmers to eventually bring about its extirpation from the soil. It was generally admitted that it exhausted the soil, and a continuance of its growth would no doubt render farm land almost worthless. He urged smokers and chewers to give up the habit they had contracted as tobacco was neither food, drink nor clothing.

Mr. Pownall spoke of the excuse made by those who use tobacco that when the habit is once acquired it is almost impossible to discontinue it. He said he had living with him an old colored woman, who had used tobacco more than 40 years. She quit smoking six years ago. He thought if she could reform so sad a habit at her great age, that younger *white* men could do the same.

Mr. J. S. Erb knew that when the habit of using tobacco was once acquired, it was very hard to break off. One of his own tenants had vainly tried to discontinue the use of it, and found it impossible to do so without greatly affecting his health.

Mr. I. L. Landis, thought tobacco was like almost everything else, it might be used advantageously or it might be abused. It is the same way with food or beverages—those who use them to excess suffer for their indiscretion. He was interested in the growth of tobacco because of its great commercial value to the county. The revenue derived from its sale in this county exceeds that of any other crop. It tends to keep the balance of trade in our favor. While many other sections of the country were suffering from stagnation of business, Lancaster county was comparatively prosperous, and this prosperity was largely owing to the value of the tobacco crop.

Mr. Kendig thought the habit of chewing a very disgusting one; though he did not think moderate smoking to be of any great harm. He raised tobacco because he made money by it; as soon as people ceased buying it he would ceasing raising it. He believed the raising of tobacco impoverished the soil, and that our farmers, unless they were careful, might ruin their farms, as has been done in the South, though our farmers were much more practical and scientific in their farming than the Southern planter, and the danger was therefore not so great.

Mr. Engle could not agree with some of the speakers. From a moral standpoint tobacco was an evil and nothing but an evil, and from a moral standpoint alone we should view all such matters. The abuses of tobacco are patent to all, and he had never yet been able to see any of its uses. It is a virulent poison, and if a large dose will kill, a small one can do no good. All will concede that the first chew or smoke will make a boy or man sick; the appetite is then in a normal condition, and that is the time at which a person is most competent to judge of it. It is only after the appetite has become perverted that tobacco will be endured and finally craved. It benefits nobody except the grower, manufacturer and trafficker. But how many families have been brought to want by the use of it, and how many others have had their health impaired or ruined? As to the argument that large revenues are derived from tobacco, it may be replied that a still larger revenue is derived from intoxicating liquors, and yet there are none that will advocate the manufacture and use of these from a moral standpoint.

Mr. Linville said there could be no doubt that tobacco growing exhausted the soil. He further argued that chewers and smokers interfered with the rights of others, particularly in halls, cars and other indoor places. He said a railroad conductor once attempted to put him in a smoking car, telling him it was a first-class car, when, in reality, it was not a first-class pig pen.

Other members argued that tobacco exhausted the soil, and the discussion was dropped.

Mr. Engle stated that the rainfall for the past month was 4 1-16 inches. The lowest point of the mercury was zero, the coldest average day 10½ degrees above zero, and the average temperature for the month 30 degrees above zero.

The question of flesh vs. vegetable diet, postponed from last meeting, was resumed.

Mr Erb believed in meat-eating. He recited the story of Cain and Abel, and referred to Abel's sacrifices of animals as being acceptable, and Cain's vegetable sacrifices unacceptable to the Lord.

Mr. Eph. Hoover said he was last month reported as saying that he would banish pork from the earth. What he meant to say was that he would banish it from his own table. He would even qualify this statement by saying a good word for well made and well cooked sausage. He thought that persons engaged in indoor work never needed nor would be benefited by the use of pork as a part of their food.

Mr. I. L. Landis presented a sample of hickory nuts of a superior quality grown on a farm in Manheim township. He asked members to take some of the nuts and perhaps they could cultivate them. The tree on which they grew was very prolific and seldom failed to bear.

Mr P. S. Reist presented seven different kinds of grasshoppers, from Kansas; or rather grasshoppers in seven different states of development.

Mr. E. K. Hershey presented a gavel for the use of the president.

President Cooper read a short address, this meeting being the last of the year for which he was elected. He recounted the action of the society and the general events of the Centennial year, so far as they related to agriculture and horticulture.

The address was received with applause, and Mr. Engle followed with some further remarks, recommending among other things that a course of lectures be added to the proceedings of the society.

A brief discussion took place as to the best day of the week on which to hold the stated meetings of the society and the best means of increasing the membership.

Mr. Erb said as the Lancaster county *Farmer* was about to be discontinued, he thought the society should take some measures to have their proceedings published.

Mr. Reist proposed the appointment of a committee to wait upon Prof. Rathvon, editor, and Mr. John A Hiestand, publisher of the *Farmer*, and ascertain if some means cannot be devised to continue the publication. He understood that the subscription list was about six hundred, and the publishers wanted not less than a thousand to make it pay expenses.

Mr. Kendig endorsed what Mr. Reist had said.

Mr. Engle said he would obligate himself to receive fifteen new subscribers to the *Farmer* for 1877. He would like to know how many others would labor to secure subscribers.

Prof. Rathvon said that financially considered he would not have cared if the *Farmer* had gone down seven years ago. He had never received one cent for his editorial services, but his local pride and love of labor had induced him to stick to the work. The late publishers had not made any money out of the *Farmer*, but had continued to publish it in hope that it would pay hereafter. The present owner of the *Farmer* was willing to continue the publication if one thousand *bona fide* subscribers were secured.

Mr. Eby again urged the appointment of a committee to wait upon the publisher to see if the continuance of the publication could not be secured.

Mr. Engle had no objection to the committee, but thought the only way to accomplish the end in view was to pour in upon the publisher new subscribers.

Mr. Erb suggested that this society guarantee the publishers one thousand subscribers, and then go to work and get them.

Mr. Landis, Prof. Rathvon, Mr. Erb, Mr. Pownall, Mr. Reist and several others spoke in favor of sustaining the paper.

Mr. Reist said that a person cannot judge of the value of a paper by the number of subscribers it has. The very worst paper in Pennsylvania, a paper whose editor has no less than twenty-five libel suits pending against him, has a larger circulation in Lancaster than any other paper in the state.

[This unexpected hit at the Philadelphia *Times* caused quite a titter among the members who did not seem to share Mr. Reist's opinion of the merits of of that great daily.]

The motion of Mr. Reist to appoint a committee to wait upon the publishers of the *Farmer* and ascertain if it cannot be continued, and if not, whether some other publisher will not undertake its publication, was adopted, and the chair appointed Peter S., Reist, I. S. Landis and H. M. Engle, said committee.

The election of officers for the ensuing year being in order, the society proceeded to make nominations.

Mr. Engle moved that Calvin Cooper be re-elected by acclamation.

Mr. Cooper hoped the motion would not be pressed but that he would be excused, and some other member chosen.

Mr. Cooper was not excused, and was re-elected by acclamation.

A committee of five was appointed to select candidates for the other offices.

The committee reported the following:

Vice Presidents—Henry M. Engle, Levi S. Reist, Israel L. Landis, Casper Hiller, Levi Pownall.

Recording Secretary—Johnson Miller.

Corresponding Secretary—Alexander Harris.

Treasurer—Levi Groff.

Executive Committee—M. D. Kendig, Ephraim Hoover, John C. Linville.

Librarian—Simon P. Eby.

Botanist—J Stauffer.

Entomologist—S. S. Rathvon.

The selections made by the committee were confirmed, and the gentlemen named unanimously elected.

President Cooper announced that the Pennsylvania fruit growers' society would meet in the board of trade rooms, this city, on the 17th of this month.

Casper Hiller asked whether hickory nuts can be propagated by grafts or buds. He knew they would not grow true from the nut. He had never had success in grafting. The chestnut tree, however, is very easily grafted.

Mr. Engle had never tried grafting or budding, but he had heard of its being successfully done. He read an article, cut from a newspaper, on the value of the chestnut tree and the manner of transplanting them.

A bill of Jacob Helm, janitor, for $3, ordered to be paid; also a bill from Alexander Harris for $12 for one year's services as recording secretary.

As Mr. S. P. Eby refused to receive any compensation for a very considerable amount of writing done for the society by him, he was, on motion of Mr. Engle, elected an honorary member of the society.

Several specimens of apples presented by Henry M. Engle and Jacob Bollinger were tested.

H. M. Engle, Jacob Stauffer and Israel Landis having contributed books to the library of the society of greater value than $10, were in accordance with the rules, elected life members.

The following questions were proposed by Mr. M. D. Kendig:

What per cent profit of their market value, do our farms pay?

Is any certain color of a cow indicative of superior milking qualities? Referred to H. M. Engle.

The Tobacco Growers.

The monthly meeting of the Lancaster County Tobacco Growers' Association was held in the Athenæum on Monday afternoon, January 15.

In the absence of President Kendig, Mr. John Brady, of Millersville, was called to the chair.

The following members were present: John Brady, W. L. Hershey, I. L. Landis, Peter S. Reist, J. F. Landis, John M. Stehman, Harry Reist, Andrew Lane.

The following new members were elected: Jacob S. Witmer, A. H. Yeager, J. M. Johnston, A. L. Andes, Owen Bricker.

A large number of visitors, most of them tobacco growers, were present. Among them we noticed B. L. Hershey, J. Frank Landis, Andrew Landis, Samuel Leupold, Christian Esbenshade, Henry Erb, Michael Landis, Harry Hostetter, Philip Dotesman, Jacob Hyland, George Hyland, Daniel Forry, Henry Keneagy, Jacob Fuhrman, Jacob Snavely, Jacob Freeman, and Andrew K. Peters, of Chester county.

The minutes of the last meeting having been read, the secretary read the constitution and by-laws for the information of those present.

The condition and prospects of the crop being called for, Mr. I. L. Landis, East Hempfield, said there had been no change in his neighborhood since last month. Little or no tobacco had been prepared for market, and he knew of no sales. The farmers were anxiously waiting for a season of damp weather that they could prepare the crop for market.

Mr. JOHN BRADY, of Millersville, stated that a few sales had been made in his neighborhood. He had heard of one lot that had been sold at 20 cents round, another for 22, and another for 16 round, and another at 20 for wrappers and 5 for fillers. All of these lots were good tobacco and were well prepared, and therefore sold at good prices. Growers and packers were alike waiting for good weather to prepare the leaf for market, and he thought from the present appearance of the weather that they would not have long to wait.

Mr. A. LANE, of Manheim, said the severity of the winter had kept back the work of preparing for market. He had heard of no sales since last meeting.

Mr. W. L. HERSHEY, of Landisville, knew of a few lots that had been sold—one at 22¾, and another at 23¾ round. The growers were waiting for damp weather to strip and prepare their stock for market. The tobacco in his neighborhood was of fine quality.

Mr. I. L. LANDIS suggested that as the essayist (Mr. Groff) was not present, the subject of his essay, "How should tobacco be stripped, and in how many grades should it be assorted," might be informally discussed at the present meeting.

The suggestion being agreed to, Mr. Brady said that he thought it unnecessary to assort tobacco in more than two grades, if the crop was good and of uniform growth, but where the growth and quality were irregular, it had better be sorted in three grades, wrappers, seconds and fillers. In handling the tobacco great care should be exercised to avoid tearing or in any way damaging the leaf, and in tying it up care should be taken to sort it in hands of equal weight and length. More money can be got out of it in this way. The dealer that purchased one or two crops from a farmer and found his tobacco to be properly put up and of good quality, would never afterwards have any trouble in selling it at good prices. Dealers can seldom be deceived, and if deceived once, they will have nothing further to do with the deceiver. Mr. Brady said he knew a tobacco grower (and a preacher at that) who had sorted his tobacco and put all the short and bad hands out of sight in ranks against the wall, and when the buyer came showed him the good tobacco, which was in the front rank, but the buyer immediately reached back and pulled out the bad tobacco by handfuls, to the great discomfiture of the seller. If there's a bad hand of tobacco in a bale, that is the very one the buyer is apt to pull out, and then, of course, he has no faith in the man that baled it, and will not buy except at a figure so low as to assure him against being cheated. In sorting tobacco honesty is the best policy. In the neighborhood of Washington there are growers who are so careful in growing, curing and sorting their tobacco that dealers have entire confidence in them, and buy their tobacco at the highest prices—sometimes without even seeing it.

Mr. LEE agreed with what had been said as to the importance of using great care in stripping and sorting the leaf. He had been growing tobacco seven years and never separated it in more than two sorts, wrappers and fillers.

Mr. I. L. LANDIS read an article on stripping and packing tobacco, (recently published in the *Intelligencer*,) and commended the rules there laid down to the careful consideration of the members.

Mr BRADY said a neighbor of his, Jacob Warfel, a noted tobacco grower, always planted, cut off, stripped and marketed his tobacco at the earliest possible period, and always got good prices. He said he put no less than 200 bushels of lime per acre on his tobacco lands, and wherever the lime was most plentiful the tobacco was the largest. He plowed down the lime with barnyard manure. Other farmers had derived equal advantages from heavy liming.

JOHN M. STEHMAN said he thought he had one of the best tobacco farms in the county and he was sure he had one of the best tobacco farmers (E. M. Bricker.) Each succeeding crop was better than the preceding. He thought he was doing pretty well when he got 15 and 5 for his crop, but he could now get 30, 15 and 5. He manured heavily; say fifteen four-horse loads of barnyard manure to the acre. His farmer was not only careful in planting, but in cultivating, in cutting, in stripping and in sorting. In cutting and hanging up the leaf, care was taken that it should not be bruised; and in stripping great deliberation was used, not more than four hundred stalks being stripped in a day, and every leaf being carefully examined and sorted, and all defective and worm-eaten leaves being placed by themselves.

Mr. STEHMAN had no reason to doubt that Lancaster county tobacco would soon rank higher than Connecticut. We have a richer and a deeper soil and we have plenty of manure behind it, while the worn out soil of Connecticut has to depend largely on manufactured fertilizers.

Mr. BRADY made mention of a farmer that kept his men at work in the harvest field while he neglected his tobacco, and the result was his tobacco was almost worthless. Tobacco should never be laid down after it is cut off; it should at once be carefully put upon the scaffold. He had heard that extreme cold weather injured tobacco, and had been told by a buyer that the present crop would suffer on this account. He thought all tobacco houses should be furnished with a deep and damp cellar, with some water in it, if possible, so that by opening the trap door the tobacco in the shed above would become damp enough to strip at almost any time, without waiting for damp weather.

Mr. WITMER agreed that great care should be exercised in the growing and curing of tobacco. He had suffered by entrusting to "the girls" the stripping of a small lot, and they had made a bad mess of it; they did not properly assort it; tied good and bad leaves together and the result was it was not marketable. A neighbor of his, who had tried to raise a little tobacco, neglected it and it was almost eaten up with worms. Mr. Witmer suggested that a local company should be organized to sell the tobacco raised in the county, and thus avoid the great waste of time and money resulting from the employment of eastern buyers.

Mr. A. H. YEAGER, of East Lampeter, had grown a little tobacco, but was well aware that he could not compete with the western townships. Manor and Hempfield could get 10 or 15 cents a pound more than Lampeter, though the soil of Lampeter was in no respect inferior. He believed it was because the western townships had learned better how to grow and handle the crop. He was pleased with this association, believing that it would accomplish good work.

Mr. I. L. LANDIS recommended great care and strict honesty in assorting and putting up tobacco. He believed our soil was unsurpassed for its growth and all that was now necessary was to attract buyers by fair dealing. He had spoken at a former meeting of the advantages which would result from having a fine display of tobacco at the Centennial Exhibition, and he had used his best endeavors to secure such display. He had collected such specimens and had at his own expense procured a show case to display them in; but the exhibit fell far short of what Lancaster county should have shown. And now the question arises, how shall we bring our tobacco to the attention of the world? We may talk about it among ourselves, but there are no buyers here to hear us. Very full reports of our proceedings are made in the newspapers, but even this is not enough. Having missed the grand chance of making a fine display at the Centennial, should we not make application for sufficient space in the permanent exhibition soon to open at Philadelphia? Kentucky, with her coarse tobacco, made a display at the exhibition which cost $15,000 or $20,000. By concert of action Lancaster county can, at a very small cost, make a fine display at the permanent exhibition. The space will cost nothing; there will be no expense except the furnishing the tobacco and the proper cases in which to display it. He proposed the appointment of a committee to inquire into the expediency of making the exhibit.

The chair appointed Messrs. I. L. Landis, John M. Stehman and Peter S. Reist, as said committee.

Mr. W. L. HERSHEY presented a hand of very fine tobacco leaf, which was much admired by members.

On motion members were requested to bring samples of their tobacco to the next meeting of the society.

On motion the question of stripping and assorting tobacco was continued for discussion at next meeting.

The chair appointed Mr. Jacob M. Frantz to deliver an essay before the society at its next stated meeting.

Adjourned.

RENEW your subscription for THE FARMER for 1877, as we intend to make it one of the best agricultural papers in the *country*.

The Linnæan Society.

A state meeting of the Linnæan Society was held on Saturday, the 27th of January, President, Rev. J. S. Stahr, in the chair. Six members present. The minutes of the previous meeting were read and approved and dues collected. The few donations to the museum were examined. In one bottle a common mouse (*Mus musculus*) differing from others simply in the absence of all signs of a tail; also a beetle allied to the meal-worm beetle, (*Ipththinus Pensylvanicus*), per Mrs. Gibbons. A long and stout specimen of a sugar cane, (*Saccharum Officinarum L*) from Mr. Wm. Blickenderfer, grocer, North Queen street, taken from a hogshead of New Orleans sugar. A fine bunch of the heads of the "Clawson White Wheat," and a bottle of the cleaned seed, by the Lancaster County Horticultural Society. A fine fossil (*Terrabratula risca*) from the Miami Valley, per Rev. J. H. Dubbs.

The American Almanac for 1830, No. 7 of Field and Forest, Patent Office Gazette, an account of the "Buck-shot war" of 1830. Part II of the proceedings of the Academy of Natural Science, Philadelphia up to September, 1876; the 3d annual report of the Zoological Society, of Cincinnati.

To the historical department five envelopes, containing 56 scraps from papers; also, (omitted in last month's report,) two genuine bank-bills of the Southern Confederacy, one of $20, the other $100, per Mr. Blickenderfer.

The following papers were read: On the sugar cane and its botanical relations and history, per S. S. Rathvon, No. 556; Mr. D. McN. Stauffer gave a description of the mode of cutting the cane, boiling, crushing, and the evaporating process, as witnessed by him in Louisiana. Mr. Rathvon read a paper on the locust leaf mining beetle, with a natural locust leaf glued to the paper to illustrate the effects of the insect—the *Europlata Saturalis*, No. 557. A communication of some length, with illustrations (and very interesting), from Mr. A. F. Berlin, of Reading, Pa., in which he refers to the finding of two kinds of "stone pestles," among ancient tribes of Europe and America, and mentions certain customs, that lead him to think the one kind were only used for crushing corn, the other in a species of religious ceremony, which was new to the members present. Rev. Prof. Dubbs also read a letter from Mr. Berlin, in which illustrations are given of the similarity of fishing implements used by the early Scandinavians and North American Indians, as well as other things relating to the stone age, in which he called the attention of the Society to several interesting facts. An illustrated Paper, showing the remarkable delineations of frame work—of agricultural arrangement, surrounded with immense plumes of fern like crystals and scrolls, the skillful work of Jack Frost, on the large plate glass window of Messrs. Rathvon & Fisher's clothing store, northeast corner of North Queen and Orange streets, as witnessed on the morning of January 4, 1877. The straight (or slightly curved) long horizontal lines, shaded perspectively, and beset at right angles, like windows or door frames, between them, was a new feature in frost-work, which is often highly ornamental in fern-like leaves; but this, for its peculiarity, was truly remarkable, and deemed worthy to be put upon record by a description and drawing, per J. Stauffer.

Mrs. P. E. Gibbons gave a verbal statement of how the tailless mouse was caught, and how it suggested Darwinian ideas, as it seems to never have had a tail. This led to the mention of other malformations, which had nothing to do with Darwin's notions. She also stated that she had arisen early in the morning to notice the late conjunction of the planets. The members present having indulged in their morning naps, confessed to not having witnessed it.

A motion was made that Dr. Walter J. Hoffman, of Reading, Pa., be elected a corresponding member of the society. His zeal in natural science and high standing in several societies, was well known, and on motion he was unanimously elected, and notified of the same. The recording secretary was reminded to notify members of the arrearages of dues. No further business offering, on motion adjourned to Saturday, February 24.

RECIPE TO CLEANSE WOOL.—Hunt Bros., of the "North Bloomfield custom woolen mill," New York, once gave the following recipe for cleansing wool:

To two pailfuls of water, add a quart of soft-soap and half a pint of common salt. Heat from 150 to 180 degrees—or a little warmer than the hand can bear. Put in all the wool that will stir conveniently, and let it remain fifteen minutes, moving it in the kettle occasionally. Then take it out; let it drain; return the drained liquor to the kettle, and add all the water needed. Repeat the process, and occasionally add a little soap and salt. After the wool is sufficiently drained, simply rinse it out in cold water, and you will have it white and soft. Never let wool boil in the liquid, as that will fix the gum, render the fibre stiff and gray, and unfit to make soft, flexible yarn. Fine wool needs more time in the kettle than coarse. Taggings may be cleansed in the same manner, by clipping off all the hard matter that cannot readily be compressed between the thumb and finger.—*Rural New Yorker*.

For The Lancaster Farmer.

TO MY FRIEND LENA.

"Dearest friend," callest thou me:
Would that I might carol free
Notes, that all unuttered dwell
In my heart's deep inner cell,
I would warble unto thee
Strains of sweetest melody.

But the choicest gems of thought,
Stay within the mind unwrought,
For their lustre, holy bright
Shrinketh from the crimson light,
As the gentle violets hide
Far away from pomp and pride.

"Dearest friend," thou namest me,
Listen while I sing to thee,
For thy words of friendly cheer.
Spoken kindly in mine ear,
Wake sweet music in my heart,
Courage to the lay impart.

Hence what e'er my lot may be,
Sailing o'er life's changeful sea,
'Twill my lonely hours engage,
Turning to sweet memory's page,
There to trace those words of thine,
Breathed in eloquence divine.

—*Mary L. Groff, Greenwood Park, Jan.* 1, 1877.

DOMESTIC ECONOMY.

Bread Making.

I do not generally have "luck" making yeast bread in cold weather. If I set the sponge the night before, it chills, and the bread is only tolerable, not heavy nor sour, but dark, and soon dries out. For a few times I have made salt rising bread, and find it a delightful substitute—fine and white and light, quite as good as hop yeast, only for the insipid, innocent taste.

One of my neighbors says, "Salt rising' who told you how to make it?" just as if I had not always known how it was made. I wrote down my recipe for her, and I append it here, hoping that some woman may be benefited.

Put a pint of lukewarm water into a large earthen bowl, then add half a teacupful of new milk, a good pinch of salt, an even teaspoonful of soda and a large spoonful of sugar. When dissolved stir in sugar enough to make a thick batter, beat it well and place the bowl in a pot of warm water, cover it up and let it stand in a warm place. Be watchful that the water is kept at the same temperature. Stir it occasionally for a couple of hours, then let it stand. If this is done early in the morning, say five or six o'clock, it will be up to the brim of the bowl about noon—if not set until seven, or later, it may not rise till two or three o'clock.

If water comes on top of the rising, stir in a little flour. Let it ferment until it reaches the very top of the bowl, then have your pan of flour warmed ready, and wet it up with lukewarm milk and water. Do not make the dough too stiff; if you do the bread will incline to dry out soon.

Set the loaves in a warm place to rise. I mix and mould out into loaves immediately. Do not hurry too fast; let the pans rise full before putting the loaves in the oven bake with a moderate fire and you will be delighted with your nice loaves and their delicate brown color.

This is a pleasurable change from yeast bread, especially if your yeast has not stood the cold weather and was touched with the chill that has been so merciless and so cruel. I do not say that my way of making salt rising is the only and best way—nearly every woman has a plan of her own; any of them is good if it will make good lively yeast and good bread. My mother used to make excellent bread, and I remember very distinctly that she made the yeast of barely lukewarm water, flour, and a pinch of salt. I think the soda and sugar hasten or assist fermentation; it looks reasonable that it should.

If one's patience is tired by a sack of poor flour, a very good quality of bread may be obtained by the use of salt rising when hop yeast would fail. Or, try bran rising—made by stirring up clean bran and warm water at night, the same as for cow feed; set it in a warm place, and in the morning, or soon after, it will puff up with very lightness; then strain through a coarse cloth, and use the bran water to wet up your flour; proceed as with salt rising bread, and you will be delighted with a very fine-grained, sweet, nutritious bread. The elements of Graham bread are all in it. It is well to experiment in bread making and just see what gratifying results will follow your efforts. You will find a great many new new things.

A Word to Housewives.

My sympathy for all who are compelled to bear the burden of the management of "servants" is very great, indeed; but how few housekeepers there are who take the course so necessary to interest the "hired girl" in doing the work of the kitchen thoroughly and well? My experience has compelled me to learn the important lesson of personal supervision; especially in the preparation of the pastry, as most girls, if left to this work unaided, are either incompetent or become careless and negligent. There are few who will do it well. Not only is the cake heavy and the pies hard and indigestible, but extravagance and waste is often the case in this department of the culinary art, if left to the girl. I do all my pastry cooking, and enjoy it. Some time ago a friend of mine called my attention to a new invention which has aided me very much in my work, being tired of the drudgery incident to the inconvenience of having any materials stored away in storerooms and pantries. After having seen this, I said to myself "Eureka," and decided to have one. It is now a pleasant task for me to stand beside this ingenious kitchen storehouse, which occupies no more room than a kitchen table, and contains all the implements and materials used in doing my work, without moving one step, and with little fatigue I accomplish my task. Bridget sees me enjoy these daily duties, and is inspired by my presence to make extra exertions to do her work; and the result is, we get along pleasantly, and I have everything as I desire it.—*Chicago Tribune.*

How to Pour Tea.

There is more to be learned about pouring out tea, and coffee than most ladies are willing to believe. If those decoctions are made at the table, which is by far the best way, they require experience, judgment and exactness; if they are brought on the table ready made, it still requires judgment so to apportion them that they shall prove sufficient in quantity for the family party, and that the elder members shall have the stronger cups. Often persons pour out tea who, not being at all aware that the first cup is the weakest, and the tea grows stronger as you proceed, bestow the poorest cup upon the greatest stranger and give the strongest to a very young member of the family who would have been better without any. Where several cups of equal strength are wanted you should pour a little into each, and then go back, inverting the order as you fill them up, and then the strength will be apportioned properly. This is so well understood in England that an experienced pourer of tea waits till all the cups of the company are returned to her before she fills any a second time, that all may share alike.—*Housekeeper.*

Origin of Dessert.

The service of sweets and fruits at banquets originated in Milan in the fifteenth century. It was unknown in France under Louis XIV. No dessert at all appears in Moliere's picturesque descriptions of the banquets given by the Grand Monarque in 1664 and 1666, and so far as we know the first dessert ever put upon a great table in France was at the marriage festival of Louis XV., when his poor little Polish bride, Marie Leeszinka, was brought from her simple home at Weissombourg to share the first throne in Europe. Under the first Napoleonic empire the dessert, as we now know it, was developed and established by three great artists whose names should not be suffered to die, Desforges, Delorme and Dufoy. It was by the last-named of these that the pyramids of iced-cream, then known as "*fromages glacés*," were first served; but he was careful always to serve with these and the other confectioneries, puddings and sweets of all sorts, genuine cheeses, "for the benefit," as he tells us candidly, "of those who need a second thirst."

Valuable Recipes.

Worms on Turnips.—Ashes scattered over old soils will commonly operate against the inroads of worms upon turnips planted in them.

Rendering Lard.—We, at the suggestion of a neighbor, took the "sugaring off pan" to try our lard in, and found it more expeditious than kettles.

Bride Cake.—Whites of ten eggs beaten till hard 2 cups of pulverized sugar; 1 cup of flour; 1 tea spoonful cream tartar; put all except the eggs into a sieve and sift them on the eggs.

Fruit Cake—Superior.—1 lb. flour; 1 lb. sugar; 1 lb. butter; 12 eggs; 4 lbs. raisins; 4 lbs. currants; 1 lb. citron; 2 wine glasses brandy; 2 wine glasses wine; 1 nutmeg; 1 tablespoon cloves; 1 tablespoon cinnamon; 1 tablespoon molasses; will make ten or twelve loaves of good size.

To Eradicate Dandruff.—Wet the head with lukewarm water, then rub on enough good castile soap to make a stiff foam; rub it in well with the ends of the fingers, then wash out in two waters. Do this at least twice a week until a cure is effected. You should never touch the head with a fine comb, and should bear on very lightly with a coarse one.

Sore Throat.—Soak a small piece of bread, about the size of a hazel-nut, and then take a pinch of Cayenne pepper; mix and roll up in the form of a pill, which the patient must swallow, when in about three hours he will be relieved from all pain. In a severe case a second dose may be requisite, which has never been known to fail.

Iron during Moulting.—A good article to use in the water given your moulting fowls to drink is the tincture of iron. It is very handy and cheap, and should be accessible constantly during the critical time when old fowls are changing their plumage. It is strengthening, palatable, and works like a charm in its way as a stomach tonic. A tablespoonful of the tincture to a quart of water is sufficient. To be had at any drug store.

Vegetable Soup.—Take four potatoes, three turnips, one carrot and three onions; cut them into small pieces and put them into a stew pan, with a quarter of a pound each of butter and ham, and a bunch of parsley; let them remain ten minutes over a brisk fire, add a large teaspoonful of flour; mix well in, moisten with two quarts of broth and a pint of boiling milk; boil up, season with salt and sugar, run through a hair sieve, put into another stew pan, boil again. Skim and serve with fried bread in it.

Indian Bread.—Rosella gave us a receipt "as our grandmothers made it," but it isn't as *my* grandmother makes it, and I don't believe it is near as good. Here is my grandmother's recipe: One quart of corn meal and one teacupful of molasses or sugar, scalded together; cool with water until milk warm, and then add one pint of rye meal or flour, and one cup of yeast; mix and let it rise three hours, then stir it well and put in a small pan. Bake three hours. If you use milk risings it will not need to stand more than half an hour before baking. If it gets too light it will fall.

Cough Syrup.—This is the season for coughs and colds, and I feel as though any one knowing a good cough medicine should make it known. Cough syrups are plentiful, but they soon wear out; and you don't always know what you are taking. We know the following is good: White pine gum and lard equal quantities; disolve or melt; strain if any bark; then add three times as much sale sugar; simmer twenty minutes, stiring frequently; take it off and stir till cool. Take a pill of it after coughing spells. White pine gum can be purchased at any drug store. Now don't think your cough is so slight it will cure itself, or so bad this won't relieve it. But people of weak stomachs can't all keep it down.

Freckles.—The following is clipped from an exchange. We recommend caution in using any material on the face or skin as more harm than good may result: In many females of a sanguine temperament, freckles, even if removed for a time, will be sure to return, and, therefore, may be said to be incurable. But in nine out of ten cases the following will effect a cure: In the morning on rising, take a teaspoonful of lac-sulphur in a few teaspoonfuls of milk. Then, for external use, apply the following: Corrosive sublimate, four grains; alcohol, one ounce. Mix. Remember, ladies, that the latter mixture ought not to come in contact with the lips. After a few days' using the skin will begin to very slowly peel off, and the freckles disappear. Twice daily is sufficient to apply it. A French dermatologist recommends the following for the same purpose: Take muriatic acid, one-half ounce; alcohol, one ounce; rain water seven ounces. Mix, and apply well with a sponge three times daily. When in England, a gipsy woman informed me that she used horseradish, boiled in milk, for removing freckles. She cured a number of young girls, but whether or not she told me the real secret of the means employed I am unable to say, having never given the preparation a trial.

LIVE STOCK.

Hens in Winter.

Every person who keeps hens for profit is exceedingly anxious that they should furnish eggs during the winter, for the reason that they are then more scarce, insufficient to supply the demand, and consequently high priced.

There are several conditions necessary to attain these desirable ends: the first is to obtain a desirable variety or breed of fowls. This is a difficult matter, for many of the breeders of fowls are profuse in their recommendation of the perpetual or winter laying qualities of the particular breed in which they are interested, all of which is exceedingly confusing to the innocent farmer who has no time or opportunity to study the good qualities of any breed. If possible, it is safe to get a hardy breed; the White Leghorns are a good fowl and reasonably good layers, but are a little inclined to be tender. A poultry breeder of careful observation considers, for farmers' use, a cross between the White and Brown Leghorn preferable to any other variety. There are those, however, who believe the Partridge Cochins are the best breed, for the reason that they are said to be good winter layers.

But aside from breeds, another essential to success in winter keeping is, that the fowls have warm quarters. This is absolutely necessary, for there is no breed of hens that can be expected to furnish eggs if allowed to shift for themselves, and secure such quarters as an open shed or old barn affords. They are exceedingly averse to severe cold weather and also continuous moisture; for this reason they should

be provided with a warm and protected shelter for winter where they may be confined except upon exceedingly pleasant and warm days. Their houses should have a southern aspect so that, being supplied with windows, it may receive the heat and light of the sun. It might not be an unprofitable thing to have a fire-place and chimney, that in extremely cold and damp or frosty days a fire may be built for the additional comfort of the fowls. At all events the room should be reasonably warm, if possible, above the freezing point, not only for the safety of such eggs as might be laid, but also to admit of the introduction of dry gravel and lime, plaster, ashes, etc., in which the fowls can dust themselves or obtain substance for shelling their eggs. This should be away from the roost, where it would become mixed with the droppings of the roost, and after being used a time may be used to sprinkle with the manure to preserve all its good qualities as well as to serve as a deodorizer. The saving of the manure of fowls is no small item, and will go far toward payment for the keeping.

Finally, very much of the laying qualities of hens depends upon the keeping. In the first place, especially if hens are allowed to run at large in the summer, it must be remembered that they are deprived of such share of animal food as they are able to secure during summer; then to meet this demand, they should be provided, occasionally, with scraps, pieces of meat or something of that nature. Then there should be a variety fo food, such as scalded meal, perhaps wet up with milk, buckwheat, oats, corn, chopped cabbage, apples, boiled potatoes, and in fact anything that will give a relish; and occasionally, to warm up the system, in using the wet up Indian meal, stir in a little ginger or ground pepper or mustard; it is also a good thing to give, occasionally, a little sulphur in order to insure the good health of the fowls. Old scraps of grease will have a very happy effect upon the confined animals, as their music after eating will fully demonstrate. The principal secret of success in keeping hens in winter is contained in four letters combined in the word *care*.—*William H. Yeomans.*

Raise Your Own Cows.

A writer in the Berks and Schuylkill *Journal* says: Many dairymen sell their calves, and buy cows when wanted, but that is not a good practice, as I claim that cows can be raised cheaper than they can be bought—that is, really good cows, which have a large flow of milk, and are a breed or grade valuable for beef. Dairymen should breed from stock that is extra valuable for milk. Such cows are obtained by degrees. They may be grades of pure bloods; but when obtained it is very unwise to sell the calves of such cows to the butchers, because in a few years one runs out of such good stock if he sells his calves, and then he is compelled to take cows of an inferior grade, as first-class cows are seldom offered for sale. It does not follow that when good cows are obtained their calves will always make equally good milkers; but like generally produces like, and farmers can keep up the good qualities of their dairy stock better by raising than by purchasing their cows. For milk, and also for beef, a short-horn and Ayrshire grade, or a short-horn grade crossed on Ayrshire cows make a very valuable dairy stock. An old and feeble cow should never be bred, if her calves are to be raised, as disease is hereditary. In regard to the points of a good cow, in order to perpetuate a healthy constitution in her offspring, I annex the following from the journal of the Royal Agricultural Society of England: "The head small; muzzle fine and tapering; nostrils large and open; the eyes full and lustrous; the ears small and not too thick; the head well set on the neck; the distance between the ear and the angle of the jaw short, but the width behind the ears considerable (no dairy cow should have a short thick neck); the chest wide and deep; the girth, taken immediately behind the shoulder, should correspond with the length from behind the ears to the rise of the tail; the carcass of a barrel shape, for a thin, flat-ribbed animal eats largely, thrives badly, and is usually liable to diarrhœa; there should be but little space between the prominence of the hip and the last rib; the quarter large; the measurement from the prominence of the haunch backward to the rise of the tail and downward to the hock as great as possible; the lower part of the haunch thick and broad; the hide thick and pliant; smallness of bone is a sure indication of early maturity and aptitude for fattening."

Ayrshire Cows.

The report of the Ayrshire agricultural association gives the following points as the standing of superiority in Ayrshire dairy cows:

Head short, forehead wide, nose fine between the muzzle and eyes, muzzle moderately large, eyes full and lively, horns wide set on, inclining upward and curving slightly inward.

Neck long and straight from the head to the top of the shoulders, free from loose skin on the under side, fine at its junction with the head, and the muscles symmetrically enlarging toward the shoulders.

Shoulders thin at the top, brisket light, the whole forequarters thin in front and gradually increasing in depth and width backward,

Back short and straight, spine well defined, especially at the shoulder, the short ribs arched, the body deep at the flanks and the milk veins well developed.

Pelvis long, broad and straight, hock bones (illium) wide apart and not much overlaid with fat, thighs deep and broad, tail long and slender, and set on level with the back.

Milk vessels capacious and extending well forward, hinder part broad and firmly attached to the body, the sole or under surface nearly level, the teats from two to two and a-half inches in length, equal in thickness, and hanging perpendicularly; their distance apart at the sides should be equal to about one-third of the length of the vessel, and across to about one-half of the breadth.

Legs short, the bones fine and the joints firm.

Skin soft and elastic, and covered with soft, close woolly hair.

The colors preferred are brown, or brown and white, the colors being distinctly defined.

Great value is attached to the above form and points by the dairy farmer, and he quickly takes them in when effecting a purchase, so that a mistake is rarely made.

The Leghorn Fowls.

Undoubtedly this breed prodnees the most prolific layers known; and as the sale of eggs at the prices they have been bringing is far more remunerative than that of chickens, it follows that the Leghorn stock is the most profitable to keep. The "White Leghorns," however, are to my mind the most desirable; in beauty of form and plumage they far excel all others. The purity of their plumage, contrasting so strikingly with the large and brilliant combs and wattles, and thir proud and graceful creatures. There can be no mistaking the points of a pure White Leghorn, while the brown is open to doubt as to its purity, for the latter resembles in many points common fowls so closely as to require the judgment of an expert to detect the differenee. As egg-producers, the white are even superior to the brown, numerous instances being shown wbere accurate account bas been kept of hens exceeding the production of two hundred and fifty eggs in one year.

As to the crowing of the young cockerels at the age of six weeks, I am not prepared to vouch, for I think that is putting it rather strong; but I am satisfied the white mature quite as early as the brown.

There is no investment, either for pleasure or profit, that yields a larger percentage than this; and the wonder is, that so many persons who possess all the facilities for raising fowls, are content to buy the stale and too often spoiled barrel eggs at the store, when by a little outlay of time and means they could at all times have an abundant supply of good, fresh eggs; and the pleasure derived from raising and attending fowls would more than compensate for the trouble.—*White Leghorn, in Germantown Telegraph.*

Facilitating Draught of Horses.

A number of careful experiments have been made on this subject during the last summer in Switzerland and Germany. It has long been known that a "dead pull," that is, the drawing of an inelastic and rigid body, was harder than were the body was elastic. In the experiments just mentioned an iron tube was filled with circular pieces of rubber, alternating with discs of sheet iron. The circles of rubber and those of iron were perforated in the centre, admitting the passage of an iron rod attached to a cap at one end. These tubes were interposed at the attachment of the shafts or else were placed between the collar and the tugs, with the effect that the horse, instead of being obliged to "throw himself into the collar," starts the vehicle by a gradual effort.

The force required to start and also that required to pull a vehicle were carefully measured by a dynamometor, both with and without the elastic tubes. It was found that, for steady traction, the gain with the tubes amounted to seventeen per cent; whilst for starting, the necessary effort was diminished by over twenty per cent. Similar experiments, in which cooled springs were used, gave analogous results. In view of the great advantage obtained by this simple means, it should come into general use. One object of this publication is to diffuse the information and prevent this useful principle from being hampered by a patent.—*Philadelphia Ledger.*

How to Buy a Horse.

It is recommended that in purchasing a horse it should be borne in mind that there is a direct relation between the horse's forehead and his disposition and qualities. The face must be very broad between the eyes, but it should taper a little as it approaches the ears. If the breadth is carried all the upwards, the top of the head will be too wide, the ears ill set, and the horse probably sulky. As in the human being, so in the horse, a great deal of the expression of the countenance depends on the eye. It is a most marvelous index to the working of the mind within. A glance at it will often reveal the benevolent feeling, the surly disposition, or the vicious propensity that is about to manifest itself. The reason of all this must be most obvious, when we remember that it is in direct communication with the brain—the material instrument through which the mind operates. The eye of the horse should be kindly, strong, bold and fiery, yet gentle-looking. It should not show much white, as that often indicates a vicious disposition. A horse that is looking back so far as to expose the white of his eye, is generally on the alert for mischief, and is not to be trusted with his heels. The eye gives a strong indication both of the temper and temperament of the animal; and it is easy to judge from it whether activity or sluggishness prevails most.

Farm Horses.

Perhaps there is no animal on the farm more indispensable than the horse of all work—to plough, to mow, to rake, to go to the mill, or meeting on Sunday, or the doing of other things quite too numerous to mention—when Dobbin must be harnessed, notwithstanding we have the declaration of Holy Writ, that "A horse is a vain thing for safety." How to breed horses that combine good work qualities with good road qualities, is a question that deeply concerns farmers, and one that should be more thoroughly and skilfully discussed in our agricultural journals. While columns are filled with the art of breeding trotters and runners, little is said of the art of breeding such horses as we have described above, or in other words, the horse of all work, the kind of horses that all farmers want, must and will have, if there be skill enough developed in the art of breeding to produce them; and if not, to demand it forthwith, for them it will be forthcoming; for that demand creates supply, is law in the world of commerce. Shall we hear from our numerous readers and contributors on this very important subject—something that is practical and shall tend to diffuse light where darkness now so universally prevails?

Balky Horses.

There is a great deal said just now about the balking of horses, the causes of it and the remedies. As long as we can remember, this singular fit of obstinacy of the horse has been discussed, and all sorts of plans for overcoming it given. But what will answer for one horse may not for another. The cause of it is doubtless neglect and ill-treatment of the colt or when and after it is broken to harness. Sometimes stopping a few moments will be sufficient to start the animal again freely of his own accord. Kind words, patting, a handful of grass, an apple, or a little pepper put upon the tongue will induce him to go ahead as if nothing had been the matter. Whipping at all times, and especially in this case, is the worst resort. We have ourselves induced balky horses to start by some of the means above recorded. Sometimes the mere turning of the head and letting the animal look in a different direction, then rubbing the nose with ths hand, has answered; so has tying a string around his foreleg, below the knee, and drawing it very tight. Various resorts of this kind should be tried, but never force.—*Germantown Telegraph.*

Management of Geese.

Three or four geese to one gander are all that are advisable, and a less number, even, is perferable. They commence laying in April, though sometimes not until May, and require for a nest a box about three feet square, with a few inches of soil on the bottom. Soft meadow hay forms a good lining for it. Each goose requires a nest, otherwise the eggs must be gathered daily.

After the goose has laid her litter (from ten to fifteen), she will arrange her nest in sitting order and line it with feathers. If the eggs have been taken from her, they should now be returned and she allowed to cover them. As the process of incubation is of considerable length—from twenty-eight to thirty days—she must be encouraged to leave the nest often for food and exercise. A supply of clean water and vegetable food, raw and cooked, should be given, to keep her in a healthy state. An occasional visit to a pond of water can do no harm, provided it is not prolonged till the eggs become chilled.—*Poultry Journal.*

Rats and Mice.

The invasion of rats and mice is really getting to be a serious infliction. Walls are undermined, drains are converted into channels or thoroughfares to gain admittance into cellars, and so into the house; granaries heretofore considered rat-proof are suddenly invaded and their contents confiscated without leave or license. There seems to be little use in waging war upon them, as their numbers only indicate an increase after each assault. Should there be a heavy fall of snow with prospect of staying long, it would be well for fruit-growers living where these pests abound to protect the bodies of young trees by stamping the snow about them. This will prevent the mice from gaining access to the trees, and break up their run-ways under the snow.

Salt for Chickens.

A writer in the *Cultivator* and *Country Gentleman* strongly recommends salt as a remedy for chickens suffering from gaps. He asks what do we use salt for in almost everything we eat? It not only furnishes no nutriment, pleasure, or anything else, but is absolutely a poison; and that the reason we take it is to prevent undue germination of worms within us. The old-time Hollanders used to punish their criminals by giving them unsalted food, and they were thus soon literally devoured by the worms which engendered in their own stomachs. Now, what causes gapes in chickens? Worms. What is given to animals to prevent this? Salt. But all the books, etc., say salt will kill chickens. So it would if you took too much, as they often do through the habit of bolting their food without mastication and tasting. In brief, and in fact when the weather is damp and cool, always put about as much salt in chick's feed as you would in your own bread, and I will answer for the life of every one.

Feed Horses Regularly.

Almost of more importance than the form in which food is given to horses are the frequency and regularity of their meals. The horse's digestive organs are not constructed for long fasts. Long intervals without food produce hunger, and hunger begets voracity; food is bolted, and indigestion and colic follow! This is doubly true and dangerous with horses doing hard work. They come to their long deferred meal not only hungry but exhausted; not only is the food bolted, but the stomach is in such a state as to be incapable of thoroughly active digestion, and is overpowered by half the amount of food it would otherwise digest.

Make Feed Racks.

A stormy day improved by making a few racks to hold hay and fodder for cattle, sheep and horses, will return large profits before summer comes, in saving the feed from being trampled under foot and in the mud, and thus wasted and destroyed. Plenty of feeding racks about the barnyard is an evidence of a careful, painstaking farmer—and only such can make anything now-a-days. It is not those who make the most that thrive best, but it is those who save the most of what they do make. The secret of success is in saving all that can economically and wisely be saved.

To Keep Chickens Clean.

Powdered or broken charcoal is invaluable in the poultry house in keeping it wholesome for fowls, and making a most valuable manure. The fowls will consume a part of it, and are not so liable to disease as where the premises are limited and confined. Wash your roosts occasionally with kerosene. This prevents the accumulation of lice in the poultry houses, and fumes of this pungent oil permeate the feathers of your fowls at night and drive the vermin from their bodies. Or sprinkle a little carbolic powder on the roosts.

Safeguards Against Rats.

Rats are accomplished rope-walkers, and are able to make their way even along very small cords. Consequently so long as they can mount upon the line nothing edible suspended therefrom is safe from their attacks. A correspondent of the *Boston Journal of Chemistry* use wires, upon which circular pieces of tin are strung, and hangs his meat, grain etc., between the tin pieces. The rats cannot pass the tin circles, because as they attempt to climb over them after walking out on the wire, the pieces revolve.

AGRICULTURAL.

Lime as a Fertilizer.

Lime is a necessity in agriculture, and if the soil is destitute of it, it must be supplied, or the ground becomes hard and lumpy, and ceases to produce. Some writers claim that lime, of itself, gives no fertility, but this is a mistake, for I have seen good results from its use where it has been applied on old roads and worn-out fields where there was almost no vegetable matter in the soil. A neighbor had a piece of land which was a high chestnut ridge, and so poor that it would not produce mullein stalks or ragweed. He first applied fifty bushels of lime per acre, and sowed in wheat and seeded with clover. The wheat crop was not very good, but the clover did well, and when it was full grown, it was plowed down and the land sown in wheat. That was six years ago, and the field has produced good crops ever since. Last winter, about the first of February, I commenced to haul slaked lime on to an old meadow sod, for corn. On the first acre I put one hundred and twenty-five bushels; then I thought that too thick, and on the rest of the field I put eighty bushels per acre. I planted the field in corn in May, and where the lime was the thickest the corn came up of a better color, and kept ahead all through the summer, and when I came to husk it, I could tell the very row where the hundred and twenty-five bushles were spread; the fodder was heavier, and the grain deeper on the cob than where only eighty bushles were applied. I have seen wheat fields where only one-half of the field was limed, and the other half manured with barn-yard manure, without lime, and could tell to the very drill row on that part of the field that was limed; the straw was stiffer and the grain larger than on the part where no lime was applied. I could give many instances in favor of lime as a manure, and when the farmers of this country use as much lime as they do barnyard manure, there will be less complaining about poor crops. I hope that some of your many readers will give their views and experience with lime.—*J. N. B., Slippery Rock, Pa.*

"A Broadway Farm."

Stewart, Astor and Vanderbilt are gone, and now the richest representative of the old families of New York is Peter Goelet, an eccentric old bachelor who lives on the corner of Broadway and Nineteenth street, in the most expensive section of the street. Goelet's wealth is estimated at from twenty to thirty millions, the most of it having been made by his great-grandfather and grandfather in the hardware trade. It is the old story. A French emigrant commenced the hardware trade before the revolution, and by hard work made money. Every dollar made was invested in farming lands a mile or more from the store down town, and for three generations this has been the rule. What were farming land then is covered with six story buildings now, and what the first Goelet bought for twenty dollars an acre is worth to-day hundreds of thousands. There are two left of them, Peter, the bachelor, being the best known. He occupies several lots on the corner of Nineteenth street and Broadway for a residence; the property being worth, probably, two hundred thousand dollars, and he keeps it that he may have room for a cow, a dozen guinea hens, a stork or two and a fine lot of chickens. "Uncle Peter," as he is called, has a passion for this kind of farming, and he keeps this splendid property idle that he may indulge his whim. He doesn't put a dollar into pictures or books; he has't a single piece of sculpture, he never takes part in any public enterprise; but the money that other men put into such things he squanders on his cow and chickens. Counting interest, it costs him twenty thousand dollars per year to keep that cow, which makes the milk come, I should suppose, at about a dollar a drop. It is a queer sight—a cow feeding quietly in the busiest part of New York. But this is Goelet's whim, and perhaps it is as sensible as many other men's whims. He is over seventy, and has not a child to leave his vast estate to. His nephews and niece are all very rich, but as they have not "Uncle Peter's" quiet tastes, they will not object to adding his millions to their own.

Sowing Clover on Grass.

The agricultural editor of the Reading *Times and Despatch* says: Farmers may succeed in making clover grow on grass land, if the sod is not thickly covered with grass, open in places between the tufts, so as to admit of harrowing in the seed. Sow the seed quite thick as early in the spring as the ground will admit, and be dry. Then run a fine tooth harrow over the land till the seed is covered, or the most of it mixed with the loosened earth; then roll the land, and in due time a crop of clover will appear; but it will be in danger of being smothered by the grass, perhaps; and if it be, when the grass has grown high enough to be cut by a mower, it should be cut and fed green to stock; and if plaster be sown on the land, as soon as the clover appears, it will get such a growth in a few weeks that the grass cannot check it. Fields that are not well covered with grass, may be improved in this manner, or other grass seed may be sown instead of clover, and several kinds of grass seed would be better than one kind. Perhaps it would be better to pasture such lands till the new seeding gets a good growth, rather than cut the grass when it is but a few inches high. There is no good reason why farmers should not experiment in this way sometimes. Then let them seed down a plowed field to grass next spring, without the usual grain crop. I have known a good crop of hay to be cut the first season on fields thus seeded; and be sure that you seed with several kinds of grasses, which produce a firmer sward, and one that will stand the frosts of winter better than one kind will.

Good Yield of Corn.

Wm. Lambie, Ypsilanti, Mich., reports a yield of 900 bushels of ears of corn on ten acres, at a cost per bushel of 7 cents in the ear. The interesting feature is the cost per bushel, rather than the yield per acre. As the land was a reclaimed marsh, and was quadrupled in value in the process of producing corn at 7 cents per bushel, it may be considered a sample of first-class farming.

HURTICULTURE.

Some Hints on Grafting.

Sometimes disease will fasten itself on to a tree and pervade its whole system; and when grafts are taken from such a tree the trouble goes with it. In this way a diseased condition is often distributed quite unconsciously by the propagator. Sometimes this peculiar condition does not produce actual disease, but there is a sort of lack of vigor which leads to inferior results. For instance, we often find people with Seckel pear trees that have but moderate sized or small fruit; and other people who are able to boast of their large Seckel pears. If grafts are taken from these they generally continue to produce large or small pears as the case may be. Yet we know that all these came from one original Seckel pear tree and that in some way the degeneracy or improvement came about without any seminal agency whatever. The whole difference has been made general by propagation. Now, some people say when a person has a large or fine Seckel pear, the land or the culture just suited it; and if the grafts are taken to other trees under other circumstances the excellence fails and the fruit reverts to its original inferior condition. But it is not always so. Indeed, it is but seldom that the large and perfect form fails to carry its excellence with it, when the graft goes to a distant stock.

Now this fact shows how very careful we should be in selecting grafts, to take them only from the best known specimens of the kind we can get. It may also be a question whether it will not pay sometimes to graft over again with the same kind, when it is approved, but a better tree exists. For instance, with the Seckel pear. Supposing one has a tree that gives but a small fruit, and a neighbor has one which is large and fine, grafts from that will give the large kind; and it may be worth while to sacrifice a year or two of poor fruit in order in time to get much better ones.

Independently of all this, there are often fruit trees on one's place that are so poor as to be better to have the whole character of the tree changed, and this is the blessing which the art of grafting confers.

It may be as well to say at this season that grafting is generally more successful when the grafts are taken off early. As the season progresses the sap accumulates in vessels, as every one knows who has pruned a grape vine. If cut late in the spring the vine bleeds; but it does not if cut now. Pear trees do not exactly "bleed" if cut late, but there is much more sap in the branches in spring than there is now. We cut early to avoid this, and bury the scions in the earth or anywhere where they will be absolutely at rest without being absolutely frozen.—*Germantown Telegraph.*

Succession of Fruits.

The so-called small fruits, occupy quite a large place in the general list of fruits for every month. Those who have never enjoyed the luxury of a dish of fully ripe strawberries of such varieties as the Charles Downing, Boydens' No. 30, or even the Wilson—which may be, and should be, on every man's table in May and June, with the usual accompaniments of cream and sugar—are to be pitied, especially if it is not by their own negligence that they lose one of the most delightful exercises of a well furnished table. In natural succession the strawberries are followed by the various sorts of raspberries, red, black and yellow, all very "pleasant to the eye and good to the taste," and these in turn are followed by the blackberries; and although these fruits ripen through the summer months, and are best relished when fresh from the vines or bushes, we can have them almost as good during the late and all the winter months, even until they are supplanted by crops of the succeeding year. The old system of preserving fruits in sugar, pound for pound, as the old rule had it, has been entirely superseded by a process of canning, which preserves much more of the real flavor and quality, costs less, and is, therefore, superior to the former mode.

In addition, and for variety, we have during the summer months the delicious cherry. Who, that has been favored as your humble servant has, on more than one occasion, to visit when the fruit was at its prime, orchards like those of the late Dr. Hull, of well-merited horticultural fame, and to have the choice without limit of nearly or quite twenty varieties of sweet cherries, can ever forget such an event? And who can deny the exquisite flavor and gratefulness to the palate, of a dish of Early Richmond pitted cherries, as we have them for side dishes at Thanksgiving, Christmas, New Years' dinners or suppers? Indeed, I like them and have them home-grown much oftener than on such festive occasions.

As the months roll on we have the apricot, the nectarine, the peach and the plum in varieties for the months of August and September, and with these and for the balance of the year, the pear and the king of fruits, the apple, and the last named in almost infinite variety and of various flavors, sweet, acid, subacid, and mild sub-acid, etc., to suit the different

tastes of men, women and children. If varieties of apples are well chosen, we may have them from July to the succeeding July, for it is a very common thing to see on our fruit stands the Golden Russet of the preceding year with the Early Harvest or Carolina Red June of the present season.—C. W. MURTFELDT, BEFORE THE KANSAS HORTICULTURAL SOCIETY.

Heat for House Plants.

Most of our plants are injured by too much heat. For a general collection of house plants, it is not best to allow the thermometer to be above seventy, and if they could be kept in a room where the thermometer would usually range much above sixty-five it would be much better. In the night time fifty is enough. Give a little fresh air every fine day, and all the sunlight attainable. An effort should be made to give moisture to the atmosphere, for our own good, as well as the health of the plants. This can be done in various ways by evaporating water: but when plants are in a separate apartment, like a little greenhouse, it can be done more conveniently and effectually, although this separate apartment be only a bay window, with glass doors, separating it from the living room. In this, water can be used freely, by sprinkling, etc., and a moist atmosphere preserved. The temperature, with this arrangement, can be kept lower than would be comfortable in the living room, and the plants are saved from dust and many evils which we manage to endure and live, but which generally prove too much for the plants.—*Vick's Guide.*

Thinning Fruit.

Additional facts come before us every day, showing the importance of thinning fruit on the trees early in the season. E. Mood, of Lockport, New York, stated some years ago that while the large, handsome peaches on his thinned trees brought a dollar and a half per basket, the same sort on crowded branches sold for only half a dollar. More recently, Mr. Dyckman, of White Haven, New York, has cited instances where his thinned crop readily brought two dollars and a-half per basket, and unthinned only one dollar and a quarter. There is less difference when the trees are young and bear large specimens, but as they become older and more productive, the difference becomes very distinct. But the increased price is not the only advantage. An overloaded tree is soon exhausted. A large orchardist in Ohio lost 3,000 trees by the cold of winter, after a very heavy crop; while trees which had not borne were uninjured. It is much easier to thin out poor specimens early, than to hand-pick all, and then assort them.

Tar on Fruit Trees.

According to the experience of Mr. Henry Reynolds, of Montgomery county, N. Y., tar is a perfect remedy for scarred and sun-cracked apple trees. He says that by coating with new tar the trunk of a favorite fruit bearer that was cracked and so decayed that the bark was dead and would peel off, he has restored it fully. He applies it to all the branches that show signs of decay. Since practicing this cheap remedy, he has not been troubled with insects. By applying tar to the trunk, and clearing away the surface at the roots so as to let it run down on them, peach trees badly damaged by borers are fully restored. Replace the dirt, and you will have no more trouble with the tree for two years or more. If the tar is applied to young trees, the borers will not trouble them at all. He states that the coating should be applied in the winter, or early in the spring.

Grafting Currants.

The Rural New Yorker says: Lovers of the currant and gooseberry have reason to feel jolly over the success which seems to attend grafting them upon the Missouri currant (Ribus aureum), which is not liable to the attacks of the borer. Besides, they are exempt from mildew. And thus by a single happy hit the two great drawbacks to currant and gooseberry cultivation have been overcome. The beauty of these little trees when loaded with their pretty berries, as displayed at the Centennial, is of itself enough to secure their general cultivation. It would be well for those who intend experimenting with grafting currants to bear in mind that there is a great difference in the varieties of the Missouri currant, some making better stocks than others.

Apples in England.

The London *Garden* says that Convent Garden market is piled high with barrels of American apples, which are more abundant now than ever known before. The English apple crop was small the past season and apples being very abundant here, they have poured into the London market. There are large supplies also from France and from Holland, the former being sold at a dollar per bushel, and the latter lower. American apples, if good, sell much higher.

LITERARY NOTICES.

OAKLAND STUD OF PERCHERON-NORMAN HORSES. M. W. Dunham, importer and breeder, Wayne, Du Page county, Illinois, thirty-five miles west of Chicago, on the Freeport division C. & N. W. R. R. This is simply a royal octavo pamphlet of thirty-two pages, being an illustrated catalogue of the horse-stock of Mr. Dunham, the enterprising and widely known importer and breeder of the famous *Percheron Normans*, which are becoming so popular in this country. The pamphlet, which is beautifully gotten up, opens with a splendid illustration of "Success," the first Percheron-Norman stallion imported to Illinois from France, by Mr. Dunham, which is followed by "Mignonette," "Jean Bart," "Cardinal," "Tempest," "Primate," "Duke of Perche," "Apollo," "Napoleon III.," "Viola and "Adelaide," all of whom, with descriptive notices, will appear in our journal during the course of the coming year. This stud consists of seventy-eight individuals, including stallions and mares, of foreign and American breeds. We must confess that we are not a connoisseur in horse flesh, but to our eye there is something beautifully grand in the apperance of *Napoleon III.* After the first outlay, it perhaps costs as little to keep a good horse as a bad one, save the difference between efficient grooming, and absolute neglect. Eighty-six of these horses have been sold since August, 1874, at prices, the lowest of which was $250.00 and the highest $5,500.00, but seventy were from $1,000 to 4,500. This is a fair exhibit of their value, and illustrates their appreciation by the stock owners of our country, from Maine to Wisconsin and Iowa. If our farmers desire good working and pleasure stock, we commend them to the stud of Mr. Dunham.

THE NEW GUIDE TO ROSE CULTURE. The catalogue of the Dingee and Conard Company of Rose Growers, West Grove, Chester county, Pa., is a royal octavo pamphlet of 47 pages, and many illustrations, on fine cerulean tinted paper, and excellent type, and is now before us. The catalogues of the various florists, seedsmen and nurserymen of our country, constitute the cheapest, most practical and accessible treatises on flower garden, lawn, field, forest and vegetable garden botany, of anything that is published on that subject, and the one before us, on its specialty, is not inferior to the best of them. The study of these, aided by a Botanical Text Book, is sufficient to impart as much popular knowledge of the subject as is of interest to the masses. Here we have lists of 275 roses, alphabetically arranged, including ever-blooming, hybrid, perpetual, moss and climbing; 40 of which are entirely new; with short descriptions and modes of culture.

THE NATURALIST'S DIRECTORY, containing the names of naturalists, chemists, physicists and meteorologists, arranged alphabetically, with an index arranged according to departments. By Samuel E. Cassino, and published by the Naturalists' Agency, at Salem, Mass. This is an exceedingly well executed pamphlet of 75 pages, interspersed with about the same number of blank pages, for the purpose of making additions and corrections. It is a demi 8vo. in form, and printed on fine calendered paper, with tinted covers. It is, perhaps, as perfect as such a work could possibly be made, under all the circumstances, in a first edition, and in order to make future issues more complete, the author and compiler respectfully solicits notices of omissions that occur in the present issue. Also notices of scientific societies wherever they may exist in North America, to add to a new edition which will be published in December, 1877.

"REPORT of the Geographical and Geological Explorations and Surveys west of the one hundredth meridian, in charge of First Lieut. Geo. M. Wheeler, corps of engineers, U. S. A. Under the direction of Gen. Humphreys, Chief of Engineers U. S. A. Published by the War Department, in six volumes.

Our acknowledgments are due to our distinguished fellow-citizen and Congressional Representative, Hon. A. Herr Smith, for a copy of the fifth volume of this admirable work, the contents, material, and execution of which reflects as much credit upon the government, its officer and employees, as any work ever published by Congress. This volume is a solid quarto of 1,020 pages; it is devoted exclusively to zoology, and includes mammalogy, ornithology, herpetology, ichthyology, entomology, conchology, &c., properly and beautifully illustrated.

AN ESSAY ON PEAR BLIGHT, read before the *Potomac Fruit Growers' Association*, Washington, D. C., by JOHN BRAINARD, together with an introductory note by J. P. Kirtland, M. D. This is a royal octavo pamphlet of 16 pages, on a most interesting subject, and one that has exercised the minds of fruit growers for a century, at least. This little work is well gotten up, and is illustrated by six wood-cuts, including fourteen figures, representing healthy parts of the pear tree and also those infected by "blight." It bears date September 5th, 1876, and therefore contains the latest views upon a most intricate subject. If it does not contain all the truth, it at least makes a nearer approximation to it than anything we have yet seen on *blight.*

POTATO PESTS. Being an illustrated account of the Colorado potato-beetle, and the other insect foes of the potato in North America, with suggestions for their repression and methods for their destruction. By Charles V. Riley, M. A., Ph. D. State Entomologist of Missouri.

Published by the Orange Judd Co., 245 Broadway. New York.

Price 50 cts. in paper, 75 cts. in boards. This is a handsomely printed little 12 mo. of 108 pages, containing also a map of North America, illustrating the original home, the territory occupied, the territory invaded, and the most direct line of march of this notorious pest; with 49 figures, illustating this and others insects injurious to the potato, as well as those carnivorous and parasitic species which infest and prey upon the *Colorado Beetle.* It should be in the hands of every farmer and gardener in the country.

AND now here we have before us, No. 1, volume 1—January 1877, of the *Nebraska Farmer*, McBride & Clarkson editors and proprietors, published monthly at Lincoln, Nebraska, at $2.00 in advance per annum. This is a remarkably well gotten up quarto of 24 pages, not including four extra pages of advertisements, and additional covers. It is printed on fine calendered paper, faintly tinted, and everything looks fresh and new. Its literary qualities are unexceptionable, and located as it is in the vicinity of the State Agricultural College, it must necessarily be the reflector of the best agricultural thoughts of the State. We cordially welcome it to the ranks of agricultural journalism, and heartily wish for it a long and successful career. This first number impresses us very favorably, and we have already appropriated a valuable paper from its columns. Communications of all kinds to be addressed to *The Nebraska Farmer*, Lock Box 41, Lincoln, Nebraska.

POTTER'S AMERICAN MONTHLY, an illustrated magazine of history, literature, science and art; 1877. John E. Potter & Co., Philadelphia, Pa., $3.00 a year; 25 cents a number. This is a demi-quarto of 80 pages, and is an exceedingly interesting work in all that relates to American history especially. Its material and typographical execution are unexceptionable. The February number is before us, but it is slightly mutilated, having lost the 147th and 148th pages (department of "notes and queries." We understand one of the pages contained a paragraph inquiring about the "Old Barracks" of Lancaster, and we presume it was appropriated for the purpose of answering it. We are writing not 100 yards from the ground on which the Old Barracks stood. Occasionally an *old button* of the British soldier's uniform is found on or near the spot—one in 1873.

DESCRIPTIVE SEED CATALOGUE, for 1877, WILLIAM RENNIE, Toronto, Can. A beautifully illustrated octavo pamphlet of 80 pages in tinted calendered paper, and finely embellished covers. Containing a description of the managment of hot-beds and cold-beds, together with introductory and explanatory remarks for the information of his patrons, price lists, etc., and an index. This little work contains a vast amount of botanical agricultural, horticultural, and general information relating to fruits, flowers, field crops and garden vegetables, condensed in a small space, together with fine illustrations of fields, lawn and garden implements of all kinds, with the name and the prices of each attached. Since we have been to the Centennial we have great faith in Canada, and Mr. Rennie seems to be a fair representative.

R. H. ALLEN & Co's descriptive catalogue, containing complete lists of vegetable, flower and field seeds, roots, plants, and garden requisites, 189 and 191 Water Street New York. This is a demi-octavo pamphlet of 64 pages on fine calendered paper and tinted cover. The few illustrations it contains are implemental and finely executed, and moreover of the latest, most improved and useful kinds. Nothing can more forcibly exhibit the progress that is being made in the agricultural world, than the full and splendid catalogues that the nurserymen and seedsmen send out annually to their customers; and more can be learned of them about practical botany (except scientific classification) than can be from most works on that special subject unillustated.

WE CALL the attention of those of our readers who contemplate purchasing seeds or plants, to the advertisement of Peter Henderson & Co., of New York. The greenhouse establishment of this firm covers two acres of greenhouses, and employs upward of fifty hands. Millions of plants are shipped, by express and mail, every year, to every State and Territory in the Union. Their Seed warehouse is the most extensive in the city of New York, and every order received is certain to be filled promptly, with the very best quality of seeds or plants, and as they are producers as well as dealers, everything for the garden will be sold at low rates.

WE respectfully call the attention of our readers to the advertisements in this number of the *Farmer*, and would admonish them that our journal is now the best and most widely extended advertising medium published in Lancaster county, and comes into the hands of the most moral and financially substantial citizens of our commonwealth, as well as of the country at large.

My annual Catalogue of Vegetable and Flower Seed for 1879, rich in engravings, will be ready in January, and sent FREE to all who apply. Customers of last season need not write for it. I offer one of the largest collections of vegetable seed ever sent out by any seed house in America, a large portion of which were grown on my SIX seed farms. *Printed directions for cultivation on each package.* All seed *warranted to be both fresh and true to name;* so far, that should it prove otherwise, *I will refill the order gratis.* The original introducer of the Hubbard Squash, Phinney's Melon, Marblehead Cabbages, Mexican Corn, and scores of other vegetables, I invite the patronage of *all who are anxious to have their seed directly from the grower, fresh, true, and of the very best strain.*

New Vegetables a specialty.

JAMES J. H. GREGORY,
12-10-4m] Marblehead, Mass.

HOME GUEST on trial for three months. The HOME GUEST is declared the best family paper now published. Each number contains an illustrated Fashion Department, a department on Writing and Penmanship, edited by Prof. Gaskell, also a column of Chat with Readers, Puzzle Department, Letters from Children, Domestic Receipts, History, Poetry, Biography, and a host of reading to interest and instruct. The whole, including a copy of the most beautiful chromo of the day, on trial three months for only 30 cents.

Address the publishers,

J. LATHAM & CO.,
419 Washington Street, Boston, Mass.

E. R. O.

"EUREKA R. OIL, *tis forty degrees higher fire test than the law requires*," can be burned in any LAMP where the chimney burner is used, is *warranted not to explode*, under forfeiture of $100.

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Also, WHOLESALE DEALER IN HEAD LIGHT, COAL OIL and BURNING FLUID.

N. B. A large assortment *latest styles* of CHANDELIERS, BRACKETS, BRONZE LAMPS, BURNERS, &c., &c., constantly on hand. 10-9-6m

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☞New descriptive Circulars now ready.
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Address: **LOUIS BAGGER & Co.**, Solicitors of Patents and Attorneys at Law, Le Droit Building, Washington, D. C.

$5 to $20 per day at home. Samples worth $5 free. Address STINSON & Co., Portland, Maine.
10-2-1y*

LISTEN TO THE MOCKING BIRD.—The Prairie Whistle and Animal Imitator can be used by a child. It is made to imitate the song of every bird, the neigh of a horse, the bray of an ass, the grunt of a hog; birds, beasts and snakes are enchanted and entrapped by it. Is used by Billy Birch, Charley White, and all the Minstrels and Warblers. Ventriloquism can be learned in three days by its aid. Sent upon receipt of 10 cts., 3 for 25 cts., 7 for 50 cts. 15 for $1. Address, J. W. COTTRELL & CO., 218 Fulton Street, New York. 10-5-1m

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TRINITY HALL, BEVERLY, NEW JERSEY.

Established 1867. English and French Home-School for Young Ladies. Varied advantages of the highest order. Number of pupils limited. Fall term begins Sept. 19.

For circular address Miss R. G. HUNT, Principal.
10-8-2m]

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Arrangements have been made with the old established and reliable **Douglas Silver Plating Company** to supply every subscriber of this paper with this valuable Silver Tableware as a Premium Gift. **This Elegant Set of**

SOLID SILVER PLATED SPOONS AND BUTTER-KNIFE

Is of the latest "Rose" pattern, making the most useful and beautiful Gift ever offered to subscribers. To secure this valuable Premium, you have merely to cut out the following premium order, and send it to the **Douglas Silver Plating Company, Chicago, Ill.**, for redemption, together with amount necessary to pay actual cost of packing, postage or expressage, etc. Under our contract this **Silverware is to cost you nothing** except the actual cost of packing, postage or expressage, etc., which you are required to send with the premium order, and the Silverware is then

DELIVERED TO YOU FREE.

PREMIUM ORDER

☞CUT OUT THIS ORDER, AS IT IS WORTH $5.00.☜

DOUGLAS SILVER PLATING CO.,
88 Randolph Street, Chicago, Ill.

Enclosed find $1.00 to pay actual cost of packing, postage, or expressage, etc., upon a full set of your Solid Silver Plated Spoons and Butter-Knife, and I agree, upon receipt of the same, to show them to my friends and acquaintances in my neighborhood.

Cut out the above premium order to show that you are a subscriber of this paper, and enclose it, with $1.00, to DOUGLAS SILVER PLATING CO., 88 Randolph st., Chicago. And you will receive a handsome set of solid Silver Plated Spoons and Butter-Knife by return mail.

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10 pictures of actresses and singers sent for 10 cents. NATIONAL MONTHLY, Washington, D. C.

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We have the largest stock of general Hardware in the State, and our prices are as low and terms as liberal as can be found elsewhere. 9-1-1f.

A NEW BOOK.

How to Raise FRUITS.

A HAND-BOOK OF

FRUIT CULTURE,

BEING A GUIDE TO THE PROPER

Cultivation and Management of Fruit Trees, and of Grapes and Small Fruits,

with condensed descriptions of many of the best and most popular varieties, with upwards of one hundred engravings. By THOMAS GREGG. Price $1.00.

A book which should be owned by every person who owns a rod of available land, and it will serve to secure success where now there is nothing but failure. It covers the ground fully, without technicalities, and is a work on

Fruit Culture for the Million.

It tells of the cost, how to plant, how to train, how to transplant, location, soil, selection, diseases, insects, borers, blights, cultivation, how to prune, manuring, layering, budding, grafting, etc., including full description and management of Orchard Fruit, such as Apples, Peaches, Pears, Plums, Cherries, Quinces, Apricots, Nectarines, etc. It is a most complete

Guide to Small-Fruit Culture,

with many illustrations and descriptions of the latest varieties of Grapes, Strawberries, Blackberries, Raspberries, Gooseberries, Currants, etc.

The work shows the value of Fruit, and how to use it. Sent by mail, post-paid, price $1; or THE FARMER and How to raise Fruits, will be furnished at $1,75. Address

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22 South Queen st. Lancaster, Pa.

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10-2-3m] **P. O. Box 238, Rochester, N. Y.**

$1 a Year {To subscribers in the county. SINGLE COPIES 10 CENTS. To subscribers out of the county. $1.25.

THE LANCASTER FARMER

Lan. Agri. & Horticultural

DEVOTED TO AGRICULTURE, HORTICULTURE, DOMESTIC ECONOMY AND MISCELLANY.

"THE FARMER IS THE FOUNDER OF CIVILIZATION."—WEBSTER

Prof. S. S. RATHVON, Editor. LANCASTER, FEBRUARY 15, 1877. LINNÆUS RATHVON, Publisher.

THE FARMERS HOME ORGAN.

The Lancaster Farmer;

A MONTHLY NEWSPAPER,

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PRACTICAL ENTOMOLOGY

Made a prominent feature, with special reference to the wants of the Farmer, the Gardener and Fruit-Grower.

Founded under the auspices of the Lancaster County Agricultural and Horticultural Society.

Edited by Prof. S. S. RATHVON.

THE LANCASTER FARMER having completed its eighth year under various vicissitudes, now commences its ninth volume under, it is hoped, more favorable auspices than attended its former volumes. When the publishers of the last two volumes assumed the responsibilities of its publication, it was with a determination to make such improvements as would place the farmer's organ of this great agricultural county in the very front rank of agricultural journalism. That this has been accomplished we think our readers will bear cheerful testimony. If reasonably sustained, our aim is to make it still more interesting and instructive under its new proprietorship. In this, however, we need the co-operation of every friend of the enterprise.

The contributions of our able editor, Prof. RATHVON, on subjects connected with the science of farming, and particularly that specialty of which he is so thoroughly a master—entomological science—some knowledge of which has become a necessity to the successful farmer, are alone worth much more than the price of this publication.

THE FARMER will be published on the 15th of every month, printed on good paper with clear type, in convenient form for reading and binding, and mailed to subscribers on the following

TERMS:

To subscribers residing within the county—

One Copy, one year,	$1.00
Six Copies, one year,	5.00
Ten Copies, one year,	7.50

To subscribers outside of Lancaster county, including postage pre-paid by the publishers:

One Copy, one year,	$1.25
Five Copies, one year,	5.00

All subscriptions will commence with the January number unless otherwise ordered.

All communications intended for publication should be addressed to the Editor, and, to secure insertion, should be in his hands by the first of the month of publication.

All business letters, containing subscriptions and advertisements, should be addressed to the publisher.

LINNÆUS RATHVON,

22 South Queen Street, Lancaster, Pa.

RATES OF ADVERTISING.—Ten Cents a line for each insertion. Twelve lines to the inch

CONTENTS OF THIS NUMBER.

PENNSYLVANIA RAILROAD SCHEDULE.
Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*	2:40 a. m.	4:05 a. m.
Way Passenger†	4:50 a. m.	7:50 a. m.
Niagara Express	9.35 a. m.	10:40 a. m.
York Accommodation	9:40 a. m.	Col. 10:10 a. m.
Mail train via Mt. Joy	11:20 a. m.	1:00 p. m.
No. 2 via Columbia	11:20 a. m.	1:20 p. m.
Sunday Mail	11:29 a. m.	1:30 p. m.
Fast Line*	1:55 p. m	3:10 p. m.
Frederick Accommodation	2:00 p. m.	Col. 2:35 p. m.
Harrisburg Accom	6:10 p. m.	8:10 p. m.
Columbia Accommodation	7:20 p. m.	8:00 p. m.
Harrisburg Express	7:25 p. m.	8:40 p. m.
Pittsburg Express	9:25 p. m.	10:50 p. m.
Cincinnati Express*	11:30 p. m.	12:45 a. m.

EASTWARD.	Lancaster.	Philadelphia.
Atlantic Express*	12:40 a. m.	3:10 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation	9.28 a. m.	12:30 p. m.
Pacific Express*	1:20 p. m.	3:45 p. m.
Sunday Mail	2:00 p. m.	5:00 p. m.
Johnstown Express	3:05 p. m.	6:00 p. m.
Harrisburg Accom	5:50 p. m.	9:00 p. m.

The York Accommodation, west, connects at Lancaster with Niagara Express, west, at 9:35 a. m., and will run through to Hanover.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 1:55 p. m., and runs through to Frederick without change of cars.

The Pacific Express, east, on Sunday, when flagged, will stop at Middletown, Elizabethtown, Mount Joy and Landisville.

*The only trains which run daily.

†Runs daily, except Monday.

The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., FEBRUARY, 1877. Vol. IX. No. 2.

GENERAL READERS.

It does not follow as a matter of course that the general reader, or those persons not in any way engaged in agricultural pursuits, will find nothing to interest or benefit them in the columns of an agricultural paper. Indeed, it may be truly said that the entire community has a direct interest in the success of agriculture. It is the basis of all the other interests of any district, State or nation; and where agriculture cannot be successfully pursued—save in a very exceptional case—no other interest will prosper. Therefore, all have a moral or material interest in it, whether they are mechanics, merchants, commercialists, professionalists, or retired gentlemen. Daniel Webster has truly said, "*The farmer is the founder of civilization;*" for if no farming were done in the world, it would truly be an incomparably poor and impoverished place for any human being to sojourn in, under the present constitution of human society, and would carry us back to that primitive age when men lived in huts and caves. Coeval with the very creation of man, he was commanded to "dress the garden of Eden and keep it," and when he fell from his original integrity, the injunction to "eat his bread by the sweat of his brow" was wisely imposed upon him, all of which involved the occupation of agricultural labor.

Had our forefathers, when they first settled in this country, confined themselves to the building of cities, towns and villages, and conducting all their affairs therein, and had not gone forth and scattered over the land, felling forests and tilling the soil, and had continued thus to the present time, our country would have made a meagre show at the "Great Centennial Exposition," if it would have been able to survive the wreck of time at all.

True, a few fishing towns on a barren coast, or a Venice "built in the sea" may occasionally flourish for a time, but even these could not long exist if it were not for the agricultural productions which they receive from elsewhere in exchange for their own local productions. All the material which supports commerce, manufactures, mechanics, and whatever other interest that is necessary for the development and progress of the human family, comes out of the soil, and is directly or indirectly related to agriculture; and surely an occupation which is so intimately connected with the welfare of human society, must be of sufficient interest to human beings to elicit some recognition of its literature that is more than merely passive—a literature that is practical, useful, beautifying, ennobling and happifying.

There are fruit, floral, vegetable, domestic and economical questions discussed in agricultural papers, which reach into every household, whether in town or country, and whether the occupant cultivates a farm, a garden, or only a single flower-pot in the window; and it may well be regarded as an indolent, a sellish, or a shiftless family, where these things are entirely ignored. There is no "hub," or general centre where *all* the knowledge on any subject is monopolized. Knowledge is diffusive, and although in its diffusion much may get abroad that is trivial, or even worthless, yet, it all may contain more or less grains that are useful to some one; and, if people will bestow a reasonable degree of culture upon their minds, they will soon be able to sift the subjects brought before them in reading—be able to gather and appropriate the wheat and blow the chaff away. The earth produces nothing that does not contain more or less dross—nothing, a portion of which is not rejected as useless. This seems to be a condition of the things incidental to fallen humanity, and therefore it is not surprising that many useless things should get into print. But, even under these circumstances, it often transpires that what is not useful or interesting to one, may be not only useful, but of great importance to another.

Many important enterprises, sublime ideas, great events, and useful inventions have been suggested and subsequently elaborated, through some small hint received in reading a newspaper, a magazine, or a book—some practical thought that was in harmony with the experince of the reader, but which he felt too diffident to make known, and might have abandoned, but for such support. It is even so in domestic economy: in the different professional callings; in matters relating to popular science; in agricultural affairs, and in mechanics, manufactures and in commerce.

Many long years ago we heard of a young man learning the first rudiments of a profession—which he subsequently applied himself to and followed during his whole life—in an occupation which, as a whole, had no relation to it whatever. It is thus that the readers of an agricultural journal may find something in its columns that may be useful to them, no matter what their secular occupation may be. On the platform of domestic economy, at least, the whole civilized portion of the human family is in sympathy, and finds a common ground. This is so because of the homogeneity of their physical wants, and their mutual dependence upon each other. Think of this and subscribe for the *Farmer*.

A SPECIAL APPEAL.

From the very peculiar situation in which we have been placed for the last month or two, we are compelled to make an apology to our readers for not only our late appearance, but also for the absence of our usual quantumo of original matter and contributions from our friends. Being now fairly on our feet again, we shall endeavor hereafter to be "up to time" with our readers. And here we would respectfully ask our contributors to lend us their generous aid in making the *Farmer* the reflex of the sentiment of the practical men of the county—including agriculturists, horticulturists, floriculturists, gardeners, tobacco growers, bee keepers, millers, mechanics, machinists, cheese manufacturers, dairymen, miners, limeburners and industrial pursuits in general. We entertain a becoming pride of our name, our locality, our resources, our wealth, and our productions, and we desire to have them properly represented abroad; and if we can succeed in doing so, we feel that they will not be to our discredit. *That* has heretofore been our aim, and we will endeavor, with the aid of our friends, to continue it so. Then, gentle patrons, please "bear a hand," and help us on. And we would respectfully desire to impress the fact upon the farmers of Lancaster county, and our readers in particular, that in order to sustain their local journal as it ought to be sustained, as their representative in the agricultutal interests of the county and the country, they ought to continue their efforts to increase our subscription list. There is no reason why Lancaster county should not be a leading county in agricultural literature, as well as she is in her public and private schools; her iron, zinc and nickel mines; her tobacco culture; her dairy productions; her fanning mills and other implements of husbandry; her flour mills, and in her general domestic produce. She is an empire in herself, and she ought to aspire to the literary dignity of an empire. She need not necessarily withhold her patronage from other worthy journals; but, under any circumstances, she should extend a liberal patronage to her own *home journal*. We disclaim egotism, or we could satisfactorily illustrate that the whole county, as an agricultural district, has been enhanced in general esteem abroad by the existence of the *Farmer*.

TO SUBSCRIBERS.

As the publisher of the *Farmer* has commenced the enterprise without any surplus of pecuniary means, and as material and labor are things that demand *cash*, he respectfully admonishes his patrons that their subscriptions will be thankfully received; therefore, they will confer a special favor by calling upon the editor, corner of North Queen and Orange streets or at the *Examiner and Express* office, No. 22 South Queen street. Money by mail should only be sent by a post-office order, but where this medium is not accessible, they can avail themselves of the visits of their responsible friends.

Those outside of a printing office have a very imperfect conception of the difficulties of "making both ends meet" in conducting a journal on a limited subscription list. Where the issues are counted by tens, twenties, and thirties of thousands, there is "plain sailing."

TO OUR CANVASSING FRIENDS

We feel a special thankfulness to our friends Messrs. Henry M. Engle, Israel L. Landis, Peter S. Reist, Levi S. Reist, Calvin Cooper, Martin D. Kendig, A. B. Kise and D. Resh, for the zeal and the persevering industry they have exhibited in procuring subscriptions for the *Farmer*. The efforts of twenty—in Lancaster county—of such men, would put our journal on such a footing as would be a pleasure in conducting and improving it, and place its pecuniary condition beyond the reach of financial disaster. We hope those good friends and others who take an interest in the moral and material progress of our county, will continue their labors, as opportunity may offer. Everyone can do a little; if it is only the obtaining of a single subscriber, and these "little things" will ultimately become the aggregate of an efficient sustaining power.

THE AYRAULT CATTLE.

Some of our readers may be able to recall these fine animals, which were on exhibition for a short period at the Sorrel Horse hotel, West King street, Lancaster, in the early part of the present year, and which were represented as "the two heaviest and best cattle ever exhibited in America." The "Queen" was a heifer seven years old, and weighing 3,700 pounds, and the "Champion," an ox four years old, and weighing 3,300 pounds. These cattle were owned and raised and fattened by Mr. Geo. Ayrault, well known as a cattle grower and breeder, of New York State, and had been on the return from the Centennial Exhibition, where the proprietor had offered $500 to any one who could excel them, or either of them. To our view the ox was a fine and symmetrically formed animal, but the heifer seemed unwieldy, as all she things are when they attain gigantic proportions. If excessive large size is an essential qualification in the estimate of cattle, these certainly possessed that merit: and with all our fine stock, we dont think anybody in Lancaster county, *just now*, can take up that $500; and perhaps they don't care about doing so. Large as they are, there is probably more *profit*, as a general rule, in cattle of lighter weight.

If every subscriber of The Farmer would just try and make an effort to add a new one to our list, it would soon put us on a sound footing.

THE FIRE FLY.

NEWPORT, Perry co., Pa., Jan. 31, 1877.

Dear Sir: We have found a "Firefly" in our fernery, which is covered by a glass shade, and it illuminates very nicely in the evenings. Please tell me if it was likely to have been lying dormant when the ferns were removed in the fall, or if it has been hatched from eggs laid on the plants last summer. I think it quite a curiosity, and would like to increase the stock next summer, if it is possible. M. B. E.

You may have taken into your fernery last fall either a dormant *larva*, *pupa*, or an *imago* of this insect, but hardly its eggs. The time would have been too short for the development of the beetle, even if you *had* taken in the *eggs*, which are not likely to be extant in the fall. It is well known that these insects normally appear during the month of June, which is their nuptial season, and before the end of July they have all disappeared. After the females are fertilized, they lay their eggs on the ground, fastened to some object, as moss, roots, grass, and protected from the sun. Both the *larvæ* and the mature insects are carniverous, feeding on other soft-bodied insects, and especially on small* snails; and here would come in the difficulty in attempting to raise them. By the time fall comes, the *larvæ* are well advanced, if not mature, or changed to *pupa;* so that you may have taken your subject into your fernery in one of those forms. The development of insects depends more upon the surrounding temperature than upon the season of the year.

Many species which we only find in the spring and summer, will evolve in mid-winter when the normal conditions are favorable.

In passing up North Queen street on the 3d of February, we found a group of men standing opposite the Keystone Hotel, looking at a swarm of bees, which three or four years ago located itself under the eaves of the roof. They were out and on the wing in thousands, and as lively as they are in summer; but as the weather has changed to extreme cold, you might look in vain for them to-day (17th.) In their vital energies they are governed by heat, and not by days, or months or seasons.

A distinguished foreign entomologist discovered that some species of "Plant-lice" (*Aphids*) would produce fourteen generations in a season, and then deposit the necessary eggs to carry them over to the next season; and hence the books told us that this was the limit of their viviparous producing power. But another foreign entomologist removed a colony to a green-house, before they had produced their oviparous brood, and found that they continued to produce viviparously as long as the normal temperature was supplied, even up to the twenty-sixth or thirtieth generation. Of course, not having seen your insect, we cannot tell exactly what species you refer to, (for we have more than one luminous species) but we presume it is the "common firefly," *Photinus scintillans*, Say, of which our meadows, gardens, lawns, fields and woods, become so luminously gemmed during early summer; and the *larvæ* of which must necessarily destroy millions of minute noxious animals.

THE GUAVA.

"This tropical fruit is now becoming quite extensively disseminated over the Gulf States, with the prospect of proving quite remunerative to its owners. The genus Psidium of Linnæus contains several species very different in their characters and flavors. The fruit varies in size from a plum to an orange, and ripens continuously for nine months in the year. Considering, among other good qualities, the rapid growth of the tree, its early fruiting and large crops, I presume there will be little difficulty in supplying the demand. A correspondent in Florida states that the best four varieties for cultivation are P. pyriferum, L.; P. aromaticum, Aubl.; P. pomiferum, L.; and P. lineatifolium, Pers. Surely the time is rapidly approaching when our northern markets will be supplied with all manner of tropical productions from our own shores."—*N. Y. Tribune.*

Bring them along; but until they arrive, let us have a little more talk about them, to see whether we shall like them or not when they *do* come.

"This genus of tropical fruits belongs to the natural family *Myrtaceæ* and the Isosandria *Monogynia* of Lin."

"There are seven or eight species of the guava known to botanists—some natives of Asia and others of tropical America." (Rind 367.)

"The White Guava—"*Psidium pyriferum*—is the best, and also the most abundant in the West Indies. When wild, the white guava is a shrub, rather than a tree, as it seldom exceeds eight or nine feet in height; but when introduced into gardens, it attains the size of an ordinary apple tree, with a trunk about six feet high and six inches in diameter. The wood is very hard and tough; the leaves are from two to three inches long, and grow in pairs opposite each other; the flower is white, and has a very agreeable flavor; the fruit is rather larger than a hen's egg, of a sulphurous yellow, very smooth, and has a peculiar smell; it is covered with a rind of some thickness, within which are seeds, contained in a pulp without a shell. The pulp is flesh-colored, sweet, aromatic, and very grateful to the palate. It is used as a desert fruit, and also preserved with sugar; and guava jelly is esteemed one of the finest conserves that come from the West Indies. By proper culture it may be brought to be a large and handsome tree; but when wild, it remains shrubby, and overruns the land.

"The Red Guava—*Psidium pomiferum*—is a much larger tree than the white; the trunk often attaining the height of twenty feet. On poor soils, however, it is apt to be rugged and shrubby. The leaves are of a light green; the flowers, white; and the fruit shaped like a pomegranate, and having an agreeable odor when ripe. As a fruit, however, many of the authorities represent it as very inferior to the white guava; but it is probable that they have found it in the wild state, for it appeared to be much improved by culture."

"The mountain guava, found in the woods of Jamaica, is not much esteemed as a fruit tree, but it grows to a large size; the wood is of a beautiful dark color, finely curled, easily worked, susceptible of a high polish, and therefore much valued as a timber tree." In a paper read to the Horticultural Society (England) Mr. Cattley, of Barnet, gives an account of a previously undescribed species of guava. The fruit is nearly spherical, of a fine deep claret color, growing at the insertion of the leaves, and contains from twenty to thirty seeds, inclosed in a pulp, which is sweet, and slightly acid. Independently of the value and beauty of the fruit, this is a highly ornamental plant, may be propagated freely by cuttings, and bears at the age af eighteen months. It is understood to have come from South America, and has an external texture resembling the fig: its internal consistence and flavor bear a considerable resemblance to those of the strawberry. With proper treatment, it is one of the most free growing of all tropical fruits."

"This guava which has received the name of 'Cattley's Guava,' (*Psidium cattleyanum*) promises to become a very valuable addition to stone-fruit both for its appearance, and its flavor, merits attention. There is a specimen in one of the hothouses belonging to the Horticultural society, which is a thriving and elegant tree. It is about ten feet high, and trained something in the shape of a fan, till the outside branches have a width of sixteen feet. The bark is a soft ash color, with a very slight trace of brown, and smooth, but not glossy. The leaves are beautiful, the blossoms abundant. That the fruit would, properly managed, come to the same maturity in the average of situations of this country, as in those places of which it is a native, there cannot be the least doubt: and it has this advantage over most other fruit trees, whether indigenous or exotic, that it produces two crops in a year."

From all we have read upon the subject, the fruit of the guava is destined to become as plentiful in this country as oranges, hence we admonish our readers in advance.

TABLE CUSTOMS.

I want to add just a few words upon this subject, which I think worthy of more consideration than is generally accorded to it. How well I enjoy being with a family where the dining table is made a place of pleasant social enjoyment. In looking back to my "childhood home," there is no time remembered with more pleasure, than the bright happy faces and social good times around our family board. A pleasant meal, enjoyed by a cheerful company—how much life and health there is in it! But an untidy meal, eaten in silence, how much dyspepsia and bad temper in it! It is not so much what is put upon the table, as the way in which it is prepared and arranged.

This, my dear sister, depends upon us. Do not try to get a great variety. A few dishes, nicely prepared, so as to cultivate a fine taste, and not thrown together and seasoned until the condiments are all you can discriminate. The farmers eat too much fried food. It is conducive to dyspepsia, which has a great train of evils. So let me beg of you to use the kettle and oven more, and the griddle less. There is no finer art than cooking, and not one that is so terribly murdered. But I am getting too far from the case in point.

Give, if possible, the table a festive look—a few flowers, if you have them cultivate the finer feelings—a dish of nice ripe fruit, clean linen, bright glass and silver, with a few dishes nicely prepared, are within the reach of all. So many think it makes little difference how things come up, if the family only are present; but when "company" comes, work themselves tired trying to have things nice, and do not enjoy the society of their company from being out so much. This is not as it should be. If we want only something good to eat, let us go to work and get it at home. If we want a good social visit with a friend, let us have her spend the time with us, instead of in the kitchen and dining-room. "But," says one sister, "it is too much work and trouble to have things in trim all the time, I wouldn't get anything else done." Not so. There is nothing that saves time so much as order and regularity. Learn to economize time, by keeping ahead of your work. This can be done by proper management, and saves confusion, hurry, and many steps. You will have time for thought, then, which is necessary in order to do anything as it should be done. We want to live; but the mere animal necessity is lifted up and glorified when the charms of pleasant conversation and mutual courtesy surround the custom. There is a spiritual life that is to be fed and sustained; and it is starved where there is no grace, not only before, but during a meal.

One great trouble with the farmer is, he is in too much of a hurry. If there is any place where he should leave cares, and the pressure of business behind, it is when he enters the dining room. When there, he should take his time, and feel at rest. "But," says one, "we cannot." Let me whisper, it is habit, make your arrangement, both in work and mind, to spend at least one-half hour at your meals, in bright, genial, sparkling talk; while you refresh the "physical man," you can do it better by also refreshing the "spiritual man." Let the children join in the conversation. There is no sense in compelling an intelligent child to sit like a deaf mute at a table, though, on the other hand, they should not monopolize the conversation, and be allowed to ask strings of questions. Teach them, by example as well as precept, to make their appearance at table, neat and tidy. Smooth hair, clean hands and nails, the general appearance inviting; and each try

* On one occasion Mr. Geo. Hensel, of this city, found about two hundred of the common fireflies banqueting on a large snail, in his garden, and we found about fifty so occupied, on our own premises.

to be as agreeable as possible to each other. Fathers and mothers, this will do more than you dream, in making your children grow up real gentlemen and ladies. Sisters, let us hear from you on these home subjects more. They are of vital importance to us. We can learn much, if we only will, from each other, through this "Home Circle Department." We can make it worth a great deal to us, if we will only use it. Let us all write for it, and give free expression to our views.—*M. L. Macy.*

We heartily endorse every line of the above able paper—on a most important moral and domestic subject—which we find in a recent number of *Colman's Rural World*; and, although we have entertained similar sentiments for many years, yet, we confess we have never yet been fortunate enough to realize them in ultimates; for the reason that they occupy a higher and more cultivated plane than that which obtains among the masses of our people, even where they are "well to do in the world." The God-appointed meal—whether at morning, noon or evening, or at any other orderly and convenient period—is not made the occasion that it ought to be, either morally, socially, or physically, and probably never will be, until a race of refined and practically educated women assume the absolute control of the domestic arrangements of the household. Never until the meal is more or less characterized by a spiritual realization of that presence, which nearly nineteen centuries ago enunciated the divine injunction—"Eat this in remembrance of Me." Not merely eaten thus on special or set occasions, but, "As often as ye eat it." The maternal head of a house who is only solicitous about setting an orderly and tastefully arranged table for occasional or transient visitors, and not habitually for her own family, notwithstanding all her slavish labor and her morbid anxiety, may be doing less to fit her for that beatific realm where "order is the first law," than she thinks she is. And even if she is doing her very best, so far as she knows how, and she is cursed with a profane or perverse family who severally drop down into their seats at irregular periods—from sheer habits of self-indulgence—and then irreverently "bolt" their food and hasten away again, without a recognition of the wants of anybody outside of themselves, if she possesses those refined sensibilities which are so essentially the distinguishing characteristics of a true woman, she must regret that she did not cultivate and inculcate these principles when her children were young.

It is true, that many women—perhaps most of them—are constantly burdened with domestic labors, and so constantly "behind time" with their work, that they have little opportunity to practice tidiness, and therefore they "rough it" through in the most "shilly shally" kind of way, and pay little attention to domestic order, and especially table order. But, this state of things is more the result of misconception, shiftlessness and illiteracy, than of *fact*. They fail to make a proper discrimination between essentials and non-essentials. The meal is often deferred, half an hour perhaps; without any compunction whatever, merely because it is fancied that there is something else that ought to claim their first attention. Nothing would disgust a family of boarders more—especially if they were employed by the day, and had a specific period allowed for the consumption of their meals—than such a wanton delay. Are our obligations to our families less imperative than they are to those who are total strangers?—*Ed.*

NEWSPAPER-MAKING.

It isn't boy's play, reader, to make a newspaper. Everybody can't do it, although most people think they can. More excellent qualities of head and heart are required in an editor than in any other calling or profession in the world. He talks to more people than the pulpit does, and talks to people of all grades of life and of all shades of belief. If conscientious—and no man who is not has any business in the editorial chair—he feels the responsibility of his position as if it were a mountain on his soul. He knows that the welfare, moral growth and peace of the community depend largely upon his daily or weekly utterances. Many times does he draw his pen through lines which express his sentiments, but which he fears may be misunderstood, and do harm to some of those whom he desires to make better, and not worse. It is not an easy position—it is scarcely a desirable one; and yet, if he happens to express a sentiment which does not suit the reader, the latter is uncharitable enough to lose no time in censuring him. The editor does not always think as the reader does; he can't. If he did, and never expressed a sentiment except such as the reader cherished, what would be the object of taking his paper? It is certainly foolish to pay for a journal which simply contains a rehash of what we have long before thought of ourselves. But, reader, when you are induced to find fault with the editor because he says something that doesn't suit you, remember that you can't get a paper under the sun, if it amounts to anything, that will not sometimes say things that you cannot agree with.—*Western Rural.*

The above, from the *Rural*, is so well and so appropriately said, that we can find but little to add; and yet it does not recount one-half of the responsibilities which rest upon the head and heart of an editor. Even if he did not write a line of original matter, there are onerous labors attached to his function, of which the outside world has very little knowledge or appreciation. The labor of looking over two or three scores of exchanges and culling therefrom what may be best adapted to the localities of the greatest number of his readers, involves more time and research, by far, than is occupied in writing original papers; and when he thinks he has catered to the highest and most substantial interests of his patrons, some trivial objection will be made by the superficial or morbidly critical reader. Somebody has said, "the man who attempts to please everybody is a fool"—and perhaps there is no sphere in which the folly of such an attempt would become more manifest than in that of an editor, however desirable such an end might be.—Ed.

STRANGE SUBSTANCES IN A HORSE'S STOMACH.

Somewhat over a year ago Mr. Henry Bennethum, stove dealer, of Reading, was compelled to kill a horse, which had been under medical treatment for some time, suffering with an unknown disease. A post-mortem examination was made, and there was found in the stomach and intestines of the animal a number of stones of different shapes, of a calcareous nature, and exceedingly hard, which had been worn smooth and become highly polished by constant attrition. How the stones came there was a subject of much conjecture. By many it was supposed that they had been mixed with the hay or feed and swallowed by the animal accidentally. The composition of the stones, however, exploded that theory and the matter remained as much of a mystery as ever

More recently about a peck of stones, of the size of turnips, bearing a close resemblance to that vegetable, were found in the intestines of a horse by Mr. Daniel Levan, city scavenger, of Reading. These were supposed by some to have been petrified turnips, although a subsequent examination of them showed, that they must have formed inside of the stomach in small lumps which gradually increased, hardened, and finally found their way into the intestines causing death. To show that these phenomena are not the only ones of the kind that have been discovered in this country, we reproduce the following taken from the Troy (*N. Y.*) *Press:*

John Brown, superintendent of the Troy and Lansingburg horse railroad, has in his possession two specimens of natural phenomena which our scientists would do well to examine, and, if possible, render some lucid explanation of.

One is a large round stone having the appearance of a highly polished piece of marble mottled in appearance and beautiful in color. It is as hard as flint, and exceedingly difficult to scratch or mar in any way, and weighs one and one-half pounds. This was taken from the intestines of a horse that died some time ago, and is probably formed from secretions of dirt and dust that had gathered in the stomach of the animal and which by the process of time had become formed and hardened into this beautiful semblance of polished marble. It had passed from the stomach, and in its passage through the intestinal channels had lodged and caused the animal's death. Another, more singular still in its shape and formation, was taken from the intestines of a horse that died at Cohoes last week. This curiosity is as large as a man's clenched fist, and has the appearance of a calcerous substance. In size, shape, and general appearance it resembles a petrified sponge. This also caused the animal's death in the same manner as the preceding. The only theory advanced thus far in the explanation of this stone is, that at some time the horse had swallowed a piece of sponge, and it had laid in his stomach and in time had petrified.

We are sometimes surprised, when we read such notices as the above—not at the phenomena, however, but at the great wonder manifested at them, just "for all the world" as if such things had never occurred before. As early as 1838 we had the half of one of these concretions in our collection of curiosities, which had been taken out of the stomach or intestines of a horse. A horse had died in Donegal township, out of which three or four were taken, about the size of goose eggs, and two of them came into the possession of an intimate friend, who sawed one of them transversely through and presented us with one-half of it. These were almost spherical in form, and the outer surface was quite smooth. The face of the transverse section exhibited a series of concentric layers, something like would be the appearance of an onion, cut horizontally through. In the centre was a hollow cavity which contained several crushed oat grains. These seemed to be a nucleus around which the substance that composed them seemed to be deposited in concentric layers, the result, probably, of a number of years. They were almost as hard as a marble when they became perfectly dry; and they effervesced very freely, as if they were composed of a large proportion of the *carbonate of lime*; and I think this was the base of the substance. In color, they were something like clay, faintly tinged with blue. We gave it away many years ago.—*Editor.*

THE DANGEROUS AND TERRIBLE QUAIL.*

Each pair of quails produce an average of ten chicks per year—many, in favorable seasons, hatch out sixteen in a brood, and then hatch a second brood. If we estimate only the small number of 500,000 quails in Indiana to start with (though there are probably ten times that number), and take ten per year as the produce of each pair, the figures will simply be stupendous, and we present them to the Indiana Legislature for consideration:

First year, total	3,000,000
Second year, total	18,000,000
Third year, total	108,000,000
Fourth year, total	648,000,000
Fifth year, total	38,888,000,000

We would have to station an army along the Ohio river to prevent an invasion of Kentucky after these birds had eaten everything visible in Indiana. There wouldn't be a bug left in that state, and the birds would require grain to live upon. Estimating a gill of grain per day for each bird, it would require 15,000,000 bushels per day to feed them. We enter our protest in advance, and shall demand, if Indiana does not pass the law, that the state shall raise the

*From a Speech by Senator Harris in the Senate of Indiana.

grain to feed the birds, and shall put up a bird net 300 feet high along the Ohio, to keep their inhabitants from invading Kentucky.

The bill was defeated.

Some people in Indiana seem to have "quail on the brain;" at any rate, the state seems to have "too much quail." When the children of Israel were in need of flesh, as they traveled through the wilderness, the Almighty sent them *quails* as a needed blessing. What a pity that Indiana could not be invaded by an army of flesh-hungry Israelites, to consume her surplus quails, and thus save the time and wind of her legislators. Fifty-five thousand laboring men, in New York alone, are now out of employment, and no doubt would be glad to receive daily consignments of Indiana quails. Why cannot these quails be utilized? Why not organize a *quail-line* as they some years ago did an "oyster line? or, why not send them packed in ice to Europe, or to such parts of the United States as have no quails? Texas is sending millions of pounds of fresh beef to Europe, and we are of the opinion that it would be as easy to send cargoes of quails. If quails are as abundant, and as prolific as the above statement indicates, we should think it as good a crop as any that could be raised in any State. Here in the State of Pennsylvania, we are constantly regretting that our laws are not stringent enough to protect our quails, whilst in Indiana they appear to have too much of that "sort of thing." Send on your surplus quails. We have not had a quail on our table for more than twenty years.—*Ed.*

FISH, FLESH AND FOWL.

The following from a Baltimore paper, may help to illuminate the minds of the people of Indiana as to what disposition to make of their "terrible quails," in order to diminish their numbers *profitably:*

"The exportation of fresh meats, fish, game and oysters has during the last ten years become an important element in the trade of the coast cities. The experience gained in this time in preparing these perishable commodities for transportation has been very valuable, and has converted what was once a doubtful venture into an assured success. The market abroad is rapidly becoming a very desirable one, especially in England and France. Some small trade is done with Germany, but the inhabitants of the fatherland do not take eagerly to this class of American delicacies. In the exportation of fish, all the principal cities of the coast participate in varying amounts, Baltimore is the largest market for fine-grained, delicately-flavored fish, though she does not send directly abroad so many as New York. Salmon, shad, bay mackerel and salmon trout flourish in the waters of her bay and its rivers, which seem admirably adapted to produce the finest varieties of these fish. The fish are prepared for transportation by being frozen. Barrels or other suitable vessels are filled with the fish, and are then placed in a refrigerator until thoroughly frozen. When shipped, they are placed in similar refrigerators on board. The freezing does not appear fo injure the flavor of the fish, though some have claimed that it does. One of the largest dealers in Baltimore has a very neat refrigerator barrel, in which he puts up all the fish he sends any distance. The barrel is lined with zinc, and between the lining and the wood there is a narrow air space, as well as a layer of hair packing. This arrangement very effectually prevents great changes to temperature in the inside of the barrel when closed up. Inside of the metal-lined barrel is a galvanized iron can in which the fish are placed. Around this can a freezing mixture of ice and salt is placed, which is renewed as fast as the ice melts. The water runs off by a pipe at the bottom of the barrel. Fish packed in this manner can be shipped with the greatest ease to any clime, and kept any length of time.

"In the shipping of oysters in the shell great care is exercised in packing. A layer of the oysters is placed in the barrel with their months up. They are then packed with sea grass which is very porous and holds large quantities of sea water, which provides partial nourishment for them. Over this layer of oysters corn meal is sprinkled. On the corn meal another layer of the oysters, packed in the same manner is placed, and so on until the barrel is filled. By this arrangement the oyster can feed nearly as well as if he were on his bed on the river or bay bottom. The grass will hold its nourishment from a month to six weeks, a sufficient time to make the longest voyages. The extent of this trade is difficult to estimate, as it is wholly retail. No house abroad has yet entered into the trade, receiving regular consignments from Baltimore, but negotiations are now pending to effect such a result. Caterers in London and Paris, and American residents abroad are large consumers, and they order directly from Baltimore, or indirectly through New York. An attempt to plant American oysters in foreign waters proved a complete failure. Some five years ago, through the influence of the Turkish consul residing in Baltimore, a number of gentlemen were induced to try the experiment. A vessel was loaded with them, packed in the same manner as they are on the pungies which bring them to the market—that is not packed at all—and of course nearly all died on the way. Satisfied with what they held to be a proof of the impossibility of transporting them, these parties did not repeat the experiment. In the face of the fact that oysters are being sent across every day, which arrive in the best condition, it would be ridiculous to deny the feasibility of the project. Whether the oysters will thrive in those waters is another question, only to be determined by experiment.

Terrapin are shipped from Baltimore both alive and canned. When sent alive they are simply packed in boxes or barrels, without food, ice, or any other accompaniments. Between the months of September and March they do not eat anything, and this is the time during which they are shipped. Those put up in cans are boiled and then hermetically sealed, the same as other canned meats. Those sent abroad go exclusively to England and France, where they are highly prized. Soft crabs, fried and put up in oil cans, are quite largely sent to foreign markets. In game the principal export is canvas-back ducks. A common way of packing them is to tie them by the feet around the edge of a circular basket. This keeps the birds separated, and leaves a space in the centre for ice, if necessary. The basket of ducks is generally placed in a refrigerator and frozen before they are shipped. This method of packing them has proved remarkably successful. One dealer affirms that he has not lost a single basket in five years."

LEEK.

Allium Porrum.

The leek is a member of the onion family, and has been cultivated from time immemorial. It has always been regarded with particular favor by the Egyptians, who eat it raw with their bread, or as sauce for meats. It is frequently associated with the name of St. David, the patron saint of Wales, for the reason that Welshman are accustomed to sport leeks in their hats upon his festival, the first of March. This is a very ancient custom, and we find frequent mention of it in the old writers. Some persons have thought that it commemorates the introduction of the plant into that country by St. David; but more probably, as Shakspeare says, in his Henry the Fifth, it is "worn as a memorable trophy of pre-deceased valor." According to "ancient tradition," in a celebrated victory of the Welsh over the Saxons, in the sixth century, the former under the prelate's directions, were distinguished by leeks which they gathered near the battle ground. As he was supposed to have power to work miracles, it is not strange that their glorious success should have been attributed to this cause. Whatever may be the origin of the custom, it would be quite as remrakable to find a Welshman without his leek on the first of March, as it would to discover a genuine Hibernian without a shamrock in his button-hole on St. Patrick's day. For certain purposes the leek is preferred to the onion. The varieties most worthy of cultivation, and perhaps of equal excellence, are the *London* and the *Scotch.*

CULTURE. — Sow the seed in March or April, as soon as the ground becomes open, and the weather settled. One ounce of seed will yield between two and three thousand plants. Select for the bed a warm sheltered border, and sow in drills, three quarters of an inch deep, and eight inches apart. When the plants have become established, they ought to be thinned out to distances of about two inches in the drill. Frequent and thorough hoeing is of the first importance, while an occasional application of water during a dry time, proves of great benefit. As soon as the seedlings acquire a height of eight or nine inches, they are fit for transplanting.

The leek is best suited with a mellow loam, which has been deeply dug, and made rich by the application of old dung or compost. The sub-soil should be dry, and the exposure rather open. Make shallow trenches across the bed, one foot distant from each other, for the reception of the plants, which are to be drawn from the seed bed, either during showery weather, or after the soil has been rendered yielding by the application of water. Some should be allowed to remain at the distances of six inches asunder in the drill. Shorten the extremities of the tops and roots of those which are taken up, and insert them in the trenches, by means of the dibble, eight inches apart. They ought to be inserted just so deep, that the centre leaves and buds shall not be covered with earth.

In dry weather, give water freely; and, at all times, during the season of their growth, make good use of the hoe. The soil must be kept mellow, and, every now and then, a little should be drawn up around the stems. Some gardeners cut off the tops of the leaves, at intervals perhaps of three weeks or a month, in order to increase the size of the roots. A portion of the crop can be raised as wanted for use, by the beginning or middle of autumn. The plants will stand the winter well; but, on the approach of hard frost, it is customary to store in sand a quantity sufficient for the wants of the family until the ground opens.

FOR SEED. — Remove some of the best plants, in spring, to a warm sheltered border. The flower-stems should be supported by stakes, or tied to the fence, to prevent their being broken down by the wind. Cut the heads when they turn brown, with a portion of the stems attached, by which they are to be tied together in bundles of three or four, for convenience in hanging them up to dry. When the seed becomes perfectly hardened, it can be beaten out at any convenient time.

USE.—From its mild, agreeable taste, as well as on account of its hardiness, the leek is by many preferred to the onion. The whole plant is used in various ways, such as being boiled plain to be eaten with meat, in soups, stews, etc.—*Schenck's Gardener's Text-Book.*

It is nearly forty-five years since we first saw the *leek* in the Philadelphia markets, or knew it to be used in soups, or in dressing for "Fish, Flesh and Fowl;" and yet, in proportion to other vegetables used for the same or a similar purpose, it cannot be considered common, in the markets, nor in the culinary preparations, of Lancaster county. Stewed leeks are certainly as healthful, and to many as toothsome as stewed *asparagus*, and never subject to that objection to the latter which grows out of its stringy or woody and bitter toughness; and which sometimes so deceitfully distinguishes the very finest specimens of it, to the great disappointment of the unsophisticated purchaser, or the patrons of the hostelry.

For The Lancaster Farmer.

GLEANINGS.

Prices of Fertilizers.

No. 1 Peruvian Guano 10 per cent. ammonia standard per ton	$56.50
No. 1 Peruvian Guano 10 per cent. guarantee, per ton	56.00
No. 1 Peruvian Guano, 10 per cent. rectified, per ton	61.50
Mapes' Nitrogenized Superphosphate, per ton	40.00@50.00
Mapes' Bone Superphosphate, per ton	40.00@45.00
Fish Guano (crude in barrels) per ton	18.00
Bone Flour per ton	40.00@45.00
Raw Bones, Ground (pure), per ton	35.00@40.00
German Potash Salts (25@35 per cent.) per ton	25.00@30.00
Gypsum, Nova Scotia, ground, per ton	8.00@9.00
Nitrate of Potash (95 per cent.) per lb.	9@9½c
Sulphate of Potash (80 per cent.) per lb.	3½@4c
Chloride of Potass (Muriate of Potash, 80 per cent.) per lb	2¾@3¼c
Nitrate of Soda per lb	4½@5c
Sulphate of Ammonia (25 per cent.) per lb	5@5½c

—*American Agriculturist.*

Rye turned under is the cheapest manure. It comes in just timely so as to leave the ground not an hour idle.

Use your lime on old, rich ground almost sodden with its repeated manuring. It sweetens and enlivens it, releases all unassimilated fertility—cuts it as alcohol does oil.

If clouds are noticed coming up against the wind, in drought or other times, it is a pretty certain indication of rain, and my observation is that by such storms are our long droughts usually first broken.—*Root's Garden Manual.*

Our position that cultivating and stirring the soil as being the best kind of mulching, is in answer to those who enquire about mulching *entire surface.* We have always advocated mulch *close to* and *under* plants and bushes, and cultivate *between.* Some persons suppose that heavy mulching over the entire surface will keep down the weeds, and make abundance of fruit. No doubt but what a sufficient depth of such would, but it is better to use the mulch usually put on close to and under the plants and bushes, and cultivate between the rows. Strawberries, if not thus heavily mulched between the rows, may be run through between the rows, with a light dragtooth harrow, just to stir up the surface until fruit begins to turn. You made a mistake in *spading* ground between the rows, for by so doing you cut off innumerable small roots.—*Fruit Recorder.*

[The above in reply to a correspondent whose crop failed after spading in place of a mulch. When cultivating the soil to act as a mulch, it should not be stirred deeper than about an inch, and less will do. When the soil is thus stirred up in summer time, the earth so loosened up will dry out and act as a mulch. Should it be stirred to the depth of three inches there will be three inches of dry soil and be very close to the roots of many plants.]

Do Plants Poison the Air we Breathe.

There is a notion prevalent that the presence of growing plants in the sleeping or living room is detrimental to a healthy atmosphere by their giving out poisonous carbonic acid gas in the night time. The investigation of chemists demonstrate that growing plants do exhale an almost imperceptible quantity of carbonic acid gas, which, in very small proportions, is necessary in the air we breathe. They also show that the quanity exhaled at night is but one-sixteenth part of what the same plants *absorb* from the atmosphere during the day, and convert into nearly its own weight of oxygen, thus rendering a poisonous gas, that derives its origin from various sources, into one of the principal elements of pure air.

If carbonic acid gas is emitted from plants in dangerous quantities, it certainly would exist largely in the night atmosphere of a close greenhouse, heated to a tropical temperature and crowded from floor to rafter with rank vegetation. Yet, in my experience, I have never known the slightest ill effects to be realized from night work in greenhouses, neither in cases that have frequently occurred of workmen making the warm greenhouses their sleeping quarters of a night, and even for an entire winter, which, to my satisfaction, affords practical proof that the notion is a fallacy; and the fact that perhaps no healthier class of men can be found than greenhouse operators, who work constantly in an atmosphere where plants are growing, would prove, instead, that living plants exert a beneficial influence upon the air we breathe. —*Home Florist.*—*By A. B. K.*

For The Lancaster Farmer.

BY RAIL TO FREDERICK CITY, MD.

Scenes by the Way—The Tillers of the Soil. Immigration Southward and Westward.

To get away from home for a brief period, far enough not to see your own chimney smoke does one good once in a while. At least it changes the monotony which fixes itself upon us by continuous routine. To take a seat in a railroad coach at Columbia, and be in Frederick City in three hours and fifteen minutes, with as little jolting as if you rode on the main stem of the Pennsylvania railroad, is a satisfaction hardly thought of ten years ago. Whether equal accommodations would be afforded, if the Hanover Junction and Susquehanna, or any other railroad company had control of said line, is not in the province of this article to discuss. Suffice it to say, the Pennsylvania railroad company is not in the habit of doing things by halves. Traveling at the rate of twenty to twenty-five miles an hour does not afford opportunity for close observation; yet sufficient to say that the crop of winter wheat has emerged from under its covering of snow in good condition, except on low and wet lands where there has been considerable heaving up by the recent freezing and thawing, which, should it continue until spring fairly opens would put a less promising appearance upon the prospects of the coming crop, which may be considered fair, by way of the line of said railroad. The soil and geological formations through said section is somewhat varied, but the greater part is red shale, embracing southern York county, the entire width of Adams, thence through Maryland to within about fifteen miles of Frederick city; the latter being surrounded by a beautiful and naturally as fertile a section of limestone land as can be found in the Keystone State. Throughout the red shale region many of the farmers are no doubt land poor, *i. e.*, they cultivate more land than they can do with profit.

Horace Greeley's advice will emphatically apply to the farmers of said region, *i. e.*, to apply their labor and expenses to half the area they now skim over, and fertilize their soil to twice its present depth. It has often been a query with the writer, why in that, as also in other sections of only partially fertile soil, we see so many large and complete barns, in many cases superior to those of much more fertile regions. Another matter is observable, and which is of too general application, *i. e.*, the large number of barns devoid of spouting. The prevalent custom of building bank barns is no doubt admitted to be equal, if not superior, to any other plan, but with the manure bed in front, declining from the barn, and in addition to the rain and snow falling on the manure, all the rain falling upon the half of the roof in addition is drained through the manure pile, a drain that no farmer can afford unless his land is too rich. We may safely calculate that 25 per cent of the richest fertilizing ingredients of the manure pile is in many cases annually carried into the nearest stream.

The various methods of farming in the different sections of country are not always observable at sight. Several visits to Frederick City and its surroundings, and also through Shenandoah Valley, conversations on farm and other topics, with a number of intelligent citizens, has satisfied the writer that there is much room for progress in agriculture and horticulture in that section.

It is doubtful whether there is an equal area to the Monocacy valley in Lancaster county that would bear the exhaustive system of farming so long, and continue to yield such crops.

The custom almost without exception is, to sell all they can possibly spare from the farm, *i. e.*, grain, hay, straw, and even manure. The latter is not a general custom, but a Pennsylvanian who moved there after the war, purchased 150 loads of manure from a neighbor farmer, an old resident, which the new comer liberally applied to save his own land, part of which he double cropped. The result was the second crop paid for all the manure, besides leaving the land in very fertile condition. He could however buy no more manure from that neighbor. In order to continue cropping, large quantities of commercial fertilizers are annually applied, generally from $100 to $500 worth, according to size of farm. By this method fair crops are grown, but the general difficulty is, that each successive crop requires heavier doses, to give satisfaction. Where the continuation of such a course of tillage will lead to, some individuals who have been using patent medicines for a succession of years, might perhaps solve the problem in advance. If there is a single and cheap remedy for the ills to which such lands have fallen heir to, that remedy is clover.

A Pennsylvanian who moved southward since the war, conceded to the writer that he had to some extent adopted the practice of his neighbors, but seceded a few years ago by plowing down a heavy crop of clover, which seemed peculiarly suicidal at the time, but in pointing out the field, said, "the soil seems to have changed, no failure of crops since the clover was plowed down, besides, she soil has lost its former tenacity and is now much more friable; can plow it when the other fields will clog." That similar effects would result in all soils by plowing in clover, is hardly probable, but we may safely say, four-fifths of the lands in any section of our country, that have been run down by the above exhaustive method, would be benefited by the same cheap remedy, at least where clover will grow at all.

The question is still, which way, with many who wish to move on cheaper lands. These can be had either west or south. If the laws and customs of caste could be wiped out of existence, the south would have advantages not to be found elsewhere in the Union. But since the settlement of the colonies, but especially since the enactment of Mason and Dixon's line, the affiliation between the northern and southern people of the country has at no time been of that fraternal nature, like that of east and west.

Some time after the war the tide of immigration seemed to preponderate southward, but has changed into its former westward current as formerly, and until the south will exhibit a progressive spirit similar to that of the west, the latter will retain the lead in the race for population. However, until a spirit will be inaugurated toward less land and better tillage, instead of more acres and closer skimming, the process of impoverishing our best lands will continue. Sometime, however, a change will be inevitable.—*H. M. E., Marietta, Pa., Feb.* 24, 1877.

For The Lancaster Farmer.

BUILD BIRD HOUSES.

This is one of the little odd jobs that should be attended to about everybody's dwellings. We all like to see plenty of nice fruit and vegetables, &c., now I am confident that if we would give them (the birds) more care and protection, they would help us in a very great measure to protect it from the ravages of insects, and also be a considerable pleasure to us in other ways. I wont say what shape you shall make the boxes. Any box about from 5 to 8 inches will do for small birds. They need not be very neat, but shold be well made, and put up so that they don't tumble down, and so that the cats don't disturb the birds. The hole for the entrance should not

be too near the bottom, and not too large either; there should be a stick below the hole for the birds to light on and look in. The roof should extend out over the hole so as to keep out the rain, &c. Don't be afraid that you will have too many birds about the premises; they are the greatest little bug and insect catchers to be found, and it will pay to encourage them to stay about the premises. Better do without dogs and cats than without birds. There are plenty of dogs and cats kept that cost more in a year to feed them than it would cost to have a few bird houses and the *Lancaster Farmer besides*. Money expended for either of these objects is not lost; the birds will reward you for the trouble and expense, so will the *Farmer* tell you how to live better, and make more money. It keeps you well posted in every improvement pertaining to horticulture, agriculture, the garden and farm, and of general importance to your prosperity or welfare. But I have wandered off from my subject, and I will refer to it again by saying: Be kind to the birds.—*John B. Erb, Lime Valley.*

For The Lancaster Farmer.

LICE ON CURRANT BUSHES.

What shall I do with them? I want to set out a new lot, and I find most of the bushes infested with the bark lice. I did not examine the roots, but I notice the lice or scales along the stems and down close to the ground; some stems have only a few, while others are nearly covered with them. Could a liquor or lye be made to dip the sprouts in before planting, so as to kill the lice and yet not injure the sprouts? I mean to dig out a lot of the old bushes, and part them and only save the best young sprouts that have a little root, for planting. I cut the tops off about a foot from the root, and if plants are scarce I use the young canes without roots to make plants. In setting out cuttings of any kind, I always pack the soil very tight for a few inches at the bottom; setting them about six inches deep; leaving one or two eyes above ground. Last season my currant bushes looked miserable; the tops were nearly all half dead or very "scrunty," and not much fruit on them. This was not caused by the lice, (they might have been frozen in the wood;) other seasons my bushes looked well and were full of fruit, and even the lousy bushes were full, but not so large. But I generally thin or cut out in the spring all the scrubby old wood, and all that are wormy or very lousy, and give them a top dressing of manure scrapings, or compost of hen dung. I intend, if I live to plant fruit, to be more careful about planting bushes and trees or vines, so as to have them free from vermin or mildew. I have seen a great many pear and apple trees ruined with lice. Last spring I cut the tops off several young apple trees that were full of lice, and grafted clean grafts on again, and rubbed lard from the grafts down, to keep the lice from getting on the new wood. Now the tops are as clean as they need be, and if I had used the same care in years gone by, I might have saved a good many trees to bear good fruit.—*Old Cultivator, Lime Valley.*

[Just as you treated your trees, so treat your currant bushes, and they will also become "as clean as they need be." Nothing is better for these "Bark-lice" or "Scale-insects" than lard-oil—applied in a liquid state, and when the temperature is not low enough to congeal it. It will not injure the plants, and by the time it is washed off, the lice will go with it.—*Ed.*

OTTAR OF ROSES.

Where the Most Delicate of all Perfumed Essences is Obtained—When the Rose Leaves are Gathered—The Yield.

Among the many exhibits at the Centennial, which, no doubt, attracted a large share of attention and proved especially interesting to the ladies, was the perfumery. Of course that princeliest of perfumes, "Ottar of Roses," was much sought after. Everybody who could afford it purchased a vial as a souvenir of the great exhibition. This perfume was sold in oblong vials containing about four drops of the essence at $1.25 per vial. The vial is never opened, but intended to be laid away in a bureau drawer, where it will perfume the whole room in a short time.

Home Versus Foreign.

The most delicious of all perfumed essences is obtained by the simple distillation of rose leaves. In our climate, roses are not sufficiently highly scented to produce the properly odoriferous essence or oil; and all the druggists can produce from rose leaves is rose water, which in fact is water slightly impregnated with the essence or oil, which is, to a small degree, soluble in it. The most favorable country for the production of the most highly scented roses is the middle portion of European Turkey, at the base of the southern slope of the Balkan Mountains, where the roses are protected against all winds except those from the south, and the flowers thus attain a luxuriance in perfume and in growth, as well as in size, of which those who have not visited these regions can hardly form any idea.

The Centre of the Trade.

The town of Kezenlik, situated in the province of that name, is the centre of the field of cultivation and distillation of the rose leaves. The leaves are gathered all over the province, which is 40 miles long, and is watered by the river Thungha and the many mountain streams which discharge into the same, furnishing the water necessary for the distillation. To give an idea of the extent which this industry has attained, we need only say that there are in that province 128 different villages of which the inhabitants are all employed in the culture of the beautiful flowers. These all live in peace together, Turks and Christians, and they prosper, having become wise by experience, finding that it is better to work than to waste time in religious and political quarrels.

Plantations of Roses.

Almost all the country is occupied in rose plantation and only a comparatively small portions is devoted to raising rye and barley, for the subsistence of the inhabitants and their cattle. The rose grows best on those parts of the slopes where the sun shines most, and which is the least northern in exposure. A light soil is best, and the planting is done during the spring and summer, in parallel ditches three inches deep and five feet apart. In these ditches shoots from old rose trees are laid; they must, however, not be cut from the tree, but torn off, so that each shoot has some portion of the root or bark of the root adherent. They are then covered with earth mixed with a little manure.

How They are Cultivated.

If the land is horizontal, and a mountain stream can be diverted so as to inundate it, this is done to hasten the growth; at the end of six months shoots are seen coming up all along the furrows, and at the end of a year these shoots are three or four feet high, forming regular hedges; at the end of the second year, roses appear, but not in sufficient abundance for them to be gathered. The gathering is commenced in the third year, after which they produce largely, the hedges being, at the end of five years, six feet high. The bushes produce flowers until fifteen years old, when the field is worn out, and must be plowed up. They do not prune the rose bushes at all, as we do; but they cut off every year in the late fall or winter the dead branches.

The Great Harvest Time.

The great harvest commences about May 15th, and lasts until June 2d or 10th; the gathering is done daily in the morning before sunrise, and the distillation is done before 12 noon, so as to have the benefit of all the freshness of the flowers, which is at once driven off by the heat of the day. In hot seasons the roses open more rapidly, and the crop may last but for ten days; but in wet, cooler seasons, the progress is slower and the crop may last for twenty-five days; but then the daily harvest is smaller in proportion, so that the final result is about the same. However, cool, slow weather is preferred, as it eases the daily labor.

About the Distillation.

The stills used are of the roughest kind, and small; they hold from 200 to 240 pints of water, and are carried to the rose bushes to be filled. To twenty pounds rose leaves, 260 pints of water are added, and the whole is distilled at a gentle heat until twenty pints of water are distilled off. This quantity contains nearly all the perfume of the leaves, which are then thrown away with the remaining water, and the still is again filled with 20 pounds leaves and 160 pints of water. This operation is repeated until all the leaves have been used. The water thus distilled off is a strong rose water; and the result of eight or ten distillations is put into a still and submitted to a second distillation, when a strong rose water is obtained; so strong, indeed, that it is unable to contain the essence in solution, and the latter floats on the top of the water. Experience has shown that, for every ounce of ottar of roses, 3,000 pounds of rose leaves are required.

The Annual Production.

The total yearly production of eight districts into which the 160 villages of the province of Kezenlik are divided, is on an average of 3,500 pounds of ottar of roses, of which the district in which the Capital is situated produces half. Some years ago, however, the bushes were exceptionally prolific. Thus, in 1866 6,000 pounds were produced, but in 1872 only 1,700 pounds could be obtained. We ought to add that every rose farmer has his own stills for producing ottar of roses immediately after picking the flowers; and thousands of industrious workers are thus occupied, earning in a single short period of twenty days the products of a year's labor in preparing the soil, planting, and taking care of the growing plants.

Ready for the Market.

When the distillation is over the farmers come from all parts of the province to the Capital to sell their products, those who have large quantities selling directly in the great commercial centers, such as Constantinople and Adrianople. At present, however, an enterprising firm in Kezenlik, considering the delay to which the trade with the last named cities is subject, and the chances of adulteration, have established a depot in Paris, France, from which this delicate and expensive perfume is now distributed over Europe and all the world.

For The Lancaster Farmer.

FARMERS VS. SPORTSMEN.

The lack of harmony between farmers and sportsmen is so well known to every one, and the points of difference that have sprung up between them so wide, that it would seem almost like a piece of impertinence either to state them or offer any plan of conciliation. There was a time when this was not so, nor is that period such a very distant one, but latterly this antagonism—for such it may be correctly termed—has grown with much rapidity, and has now reached a stage of open and undisguised hostility.

Although not personally a sportsman, I had frequent opportunity of witnessing the disagreements between these two classes of the community during the past season; they were neither pleasant nor agreeable to either party, and will continue to become more so with each succeeding season, unless an attempt is made to arrive at some mutual understanding.

It will hardly be denied that nearly every farmer upon whose plantation game is to be found, has been more or less annoyed by the intrusion of so-called sportsmen. Fences have been thrown down, rails broken, gates left open, cattle scared, and, what is worse, sometimes shot, through carelessness. This is no

light catalogue of evils registered against the gunners, and when, in addition, the game-bag of the pot-hunter, as is too often the case, is filled with a miscellaneous assortment of barnyard poultry, the cup of the farmer's wrath is justly filled to overflowing. And when he undertakes to stem the tide of accumulating evils, he has not only the sympathy and co-operation of his fellows, but of all other reasonable men, whether they be farmers or not. As a legitimate consequence of these annoyances, he comes to look with suspicion upon every man who approaches his premises with a gun upon his shoulder. He no longer waits to draw distinctions between these obnoxious visitors, but regards them one and all as nuisances—as a pest and an enemy whom he desires to see as rarely as possible, and to get rid of whom becomes for the time being the chief object of his wishes.

The result of all this is the innumerable series of hand-boards and warnings which ornament every prominent tree on his premises, and oftentimes exceed the number of quail that find shelter on his acres. And when even these notices to trespassers are ineffectual, a disgraceful bout of words, and oftimes a personal collision is the result. I can hardly be wrong in saying these things are not desired by either party. The farmer bears with him, as a consequence, a ruffled temper, while the gunner has oft to mourn the loss of a favorite dog, and goes away full of wrath and breathing vengeance.

Perhaps in a majority of cases the farmer is not so much impelled to take the course he does from his desire to protect the game which finds shelter in his fields: that I believe is frequently a secondary consideration. Quail, rabbits, woodcock, squirrels, and other game, are not such important things in his eyes as they are in those of the hunter. A desire to protect his premises from this undesired intrusion, and his property from unnecessary destruction, are generally the objects he has most at heart. If he has pleasure in hearing Bob White's pleasing pipe, and is aware that the songster is insectiverous, as well as granivorous, and in this way capable of rendering very important services during the spring and summer, he may feel like affording him protection for the good he is able to do. I hardly think, however, this utilitarian view of the case very often influences the farmer; oftener he regards the upland minstrel in the light of a dainty morsel for his table, and therefore worthy of his protection. If, however, this opinion does not guide him, and he is swayed solely by the desire to see this handsome game bird increase without any hindrance whatever, he might in the course of time, if his views could be carried out, see them become a pest requiring abatement, just as the hare sometimes becomes in Nevada and the adjoining territories. There is a possible danger that under certain contingencies we might have too much Bob White, instead of too little, as seems likely at present, in consequence of conflicting interests.

So much for the farmer. The sportsman also claims a hearing. When confronted with the long list of grievances the farmer brings forward, he says in reply, they are general and sweeping, instead of being limited to a class insignificant in numbers. The sportsman worthy of the name deserves no such reproach; he alarms no household and maims no cattle with his random shooting; he does not wantonly destroy the husbandman's property; neither does he commit theft upon any straying poultry. Should he through accident injure anything belonging to the granger, he does not endeavor to cover up the fault, but honorably pays the damage that has been unwillingly inflicted. That the pot-hunter is sometimes guilty of the excesses previously mentioned, he admits, but he himself, as much as anyone, is the enemy of this class of offenders, who shoot game in season and out of it, and whom he is as anxious to suppress as the farmer can possibly be.

He claims to be more interested in the preservation and increase of game than the farmer. He has been instrumental in procuring the passage of game laws and the organization of sporting clubs, which have for their object the protection of game during the period of nidification and reproduction, against the assaults of hunter outlaws, who would as soon shoot Mrs. Bob White while engaged in the pleasing cares of the nursery, as on a frosty morning in December. He does not call the farmer ignorant, churlish and exacting, who sees fit to deny him the right to kill game on his premises; he oftener asks permission to do so than attempts it without license; and when refused, does not pause to bandy words with the proprietor. Under these circumstances, he thinks the farmer's refusal not warranted by the state of the case, but seeks elsewhere to find that pleasure which has here been denied him.

He joins issue, also, with the farmer upon the question which the latter very generally claims as of right—the ownership and exclusive proprietary rights in all game that may be found on the latter's domain. On this point I believe the farmers, as a rule, are mistaken. How can they substantiate their claim to the covey of quail that may to-day be feeding around their grain stacks? Did he breed or raise them? Can he identify them if they are with any others? Do they bear any peculiar marks that may serve to establish ownership? Can he take and dispose of them at will, like any other property? And when they, in search of fresh feeding-ground, fly over his fence into his neighbor's field, are they still his? If he went to bring them back, would he not be as much of a trespasser as the veriest pot-hunter that bags his spring chickens? Beyond all doubt he would. As well might the riparian owner claim the fish in the navigable water course that flows by his broad acres. Game in this State that is not preserved in enclosed parks, or is not in some other way directly, constantly and continuously under control, is in law devoid of ownership. An enclosed and preserved trout pond implies ownership and proprietary rights, but to whom belongs the flock of wild ducks that, in their semi-annual voyage, either from hunger or weariness alight and pass an hour or two on its quiet surface? All game, whether of fur or feather, is governed in the matter of habitat entirely and exclusively by the question of food supply. So long as that is plentiful, they perhaps remain when unmolested, but when a time of scarcity comes, migration comes with it, and what then becomes of your exclusive ownership? Your property takes wings like the riches in the parable, and flees, you know not where! I have not inquired into the law on this point, but it is very evident to me it does not pretend to confer ownership in property that is not identifiable and which no number of statutes can secure to him. Such a law would carry signs of absurdity all over it, and while our State legislators have never impressed the community deeply by the brilliancy of their legislative capacities, I am nevertheless persuaded nothing so illogical or fallacious has ever emanated from that collective body of wisdom.

So stands the case, then, between these two classes of the community. Instead of healing, the breach widens yearly. The point that remains to be considered is, whether there are no means whereby these differences can be satisfactorily adjusted. I believe such a thing possible in most cases. Farmers are, as a rule, very honorable men—none more so. When met in the proper spirit, they are not the unreasonable beings hunters suppose; and when approached in the proper manner, misunderstandings soon give way. Hunters must understand, in the first place, that the right of every man to control and enjoy his own is absolute and indisputable, and whenever any one attempts without permission or purchase to enjoy this right along with the rightful owner, he becomes a trespasser. What shadow of right has the sportsman on the farmer's acres? Where does he get such a right? A man's land is as much his property as his house, and the law calls that his castle. If he may defend that he certainly can the former. Both farmers and sportsmen are agreed upon one point, and that is the necessity and strict enforcement of the game law; they can meet upon this common ground of agreement, and unless they co-operate heartily in enforcing such laws, no amount of legislation will preserve the game in any district: unrestricted shooting soon clears a country of its feral occupants.

Of late, sportmen's clubs have sprung up in every State. They cannot become too numerous, and if they are as choice and careful in their membership as many other associations are, they will be composed of gentlemen. There is no reason why they should not be such in reality as well as in name. I believe it would not be a difficult matter for such an association, known to be composed of honorable men, to come to an agreement with similar associations of farmers living near each other, securing the right to hunt during the proper season, under certain restrictions, and for a fixed remuneration. The farmers would not be loth to increase their revenue from this source, if it could be done without damage to their property. Suppose a sportsmen's club was to secure by purchase the right to hunt game over a tract of 2,000 or 3,000 acres; would it not then be to the interest of the farmers, no less than that of the hunters, to afford the game on the land thus rented or leased all the protection possible? If the game was not preserved, but wantonly destroyed, the sportsmen would decline to rent again, and the revenue of the farmers be consequently curtailed; but if it became more abundant from year to year, as it no doubt would with proper care, the proprietors would be justified in asking increased compensation, and might in time derive a handsome revenue from a source hitherto unprofitable and the cause of innumerable vexations. While I hold the farmer can no more lay exclusive claim to the game on his farm than he can to the moon or stars that shine down upon it, justice demands that he be compensated for all the care and supervision he may bestow upon it.

To many it may seem to be carrying the thing too far to pay for what they have always had for the taking. Granted; but the time will surely come when, without some such arrangement, the sportsman will be compelled to forego his pleasure and pastime in the settled districts, and betake himself elsewhere in search of sport, and that, too, at a far greater expenditure of money and time than the plan I have proposed would cost. It seems to me the only fair, reasonable and possible solution of this vexed question. The conflicting interests of both sides would be merged into a mutual one; game would be better preserved, and the game laws better observed, because both parties would unite their efforts to that end. At all events, the plan is worthy of trial; it can certainly not make matters worse than they are, and may perhaps furnish a solution to the existing difficulties.—*F. R. D., Lancaster, Feb. 22, 1877.*

INFLUENCE OF READING.

In our last issue we mentioned the necessity of having a certain amount of good reading form a part of the occupation and pleasure of well-spent winter evenings. But it is not merely for the "fun of the thing" that we desire all people to make a point of reading something each day; on the contrary, the main reason for so doing is found in the direct and powerful influence which reading will have upon your personal character and life.

We suppose and will venture the assertion, that all minds are moulded and guided more by what they read than by what they hear. There are only two principal methods of influencing our own or other minds; one is by means of oral speech, and the other by written language. And no less a person than President Porter, of Yale College, has said, that in this view, "a good book is of more value than a good man." We think this opinion can be justified by good and sufficient reasons. One or two occur to us now.

First, when a man speaks to another upon any topic which has not received a great deal of previous thought at his hands, his talk or speech will be very likely to have in it a considerable quantity of crude, undigested, hastily-prepared substance. With some grains of good wheat there will, and must be, necessarily, more or less chaff. And sometimes the proportion of the chaff to the wheat is very large. The man, perchance, is on his feet before an audience. He is compelled to think rapidly and speak correctly. What time has he then to weigh matters or canvass probabilities, or look upon different sides of any subject? None whatever. He must speak the thoughts that come first to him, whether valuable or worthless.

But when a man sits down to write, on the other hand, he has time and opportunity for the most careful reflection and consideration. He must think before he can write to any advantage or profit to himself or others. Besides, in writing, the mind seems to be raised to its highest power of productiveness. It condenses and intensifies itself. Consequently, whatever is good in writing is doubly good, whatever is bad is doubly bad. And, furthermore, what is written can be changed, if necessary, before being sent out, but spoken words can never be recalled.

A second reason for this judgment lies in the fact that when a man sits down to listen to a speaker, the speaker's personality and his own come into collision with each other. The hearer is either moved to sympathy and admiration for the speaker personally, or else aroused to secret or open antagonism. *In both cases, the presence of the man himself detracts from the force of his words, considered per se.*

Quite frequently, the influence of the man is much greater than that of his words; in which case we are sure to remember the person, and equally sure to forget what he said. But, on the contrary, when a person sits down to read, the attitude of his mind is more passive than active, more receptive than energetic. He feels the need of information or guidance. He longs for principles and ideas on which to build. And so he throws open the doors and windows of his nature to whatever book or paper is before him, and says practically, "Come in and occupy." Hence the contents of a book or paper fall into the soul, as seeds into the soil; and after the proper time they germinate, spring up, bear fruit and cover the ground, and the result is that indestructible thing we call CHARACTER, which consists in part of mental thrift and healthy growth. So much for the mere *influence* of reading.

TOBACCO.

A Legend Concerning its Introduction in Europe—What the Weed Has Been Known to Do.

An Irishman who had a termagant wife, quieted an outbreak of ill-humor by presenting the lady with a short pipe, of which the cost was one half-penny; and as he did so he remarked, with Quaker-like simplicity, that peace was a good thing at any price. There is much peace in tobacco. A legend even relates that it was introduced into Europe by a man whose professional business was peace-seeking. It was, or was not—for doctors differ—a certain M. de Nicot, French Embassador at the Court of Portugal, who brought tobacco under the notice of Catharine de Medicis, in the year 1560, or thereabouts; whereas, it was probably known in London 1585. In France tobacco was therefore called nicotiane, or "the Queen's weed;" in England it got its more enduring title, because, says tradition, Francis Drake carried away the first samples from Tobago. It was the wild man who taught his civilized brother the calm delights of smoke.

The Best Tobacco

in the world for cigars is, perhaps, that found in Cuba, and the best tobacco in Cuba is grown at Vuelta de Abajo. The best snuff comes from Macouba, a village at Martinique, where the Empress Josephine was born. The best Turkish tobacco is that raised in Macedonia. Tombeki, which is exclusively smoked in narghiles, comes from Persia. When good, it looks like new shoe leather used for soles. Tombeki should be washed at least three times before smoking. It is difficult to understand the source of pleasure derived from tobacco. If it came from the sense of smell, we might engage servants to smoke for us and preserve the whiteness of our teeth, as well as the inoffensiveness of our hair and clothes. If it depended on taste, we should get more joy out of a quid than out of a cigar. It cannot belong to the touch, because chocolate pastiles and some needle-cases feel like cigars in hand. The sight seems to have part in our detectation, because tobacco is almost deprived of its perfume by darkness; yet if its savor depended wholly on light, suggests a sage who has lost all mental coherence of smoky thoughts, tobacco would give more pleasure in the sunshine than in the shadow, and no true smoker has ever piped assent to such a statement.

Von Helmont, traveling in desert places, avers that tobacco protected him for long periods

Against Hunger or Fatigue,

and he declares that he could make immense journeys on foot with no other sustenance. Dr. Stephenson, an American physician, observed that tobacco may be almost counted on as a specific in certain forms of inflammatory erysipelas. He covers the inflamed surface with wet tobacco leaves, and keeps them there till nausea supervenes. A member of the College of Medicine at Stockholm avers that the dried leaves of the potato plant would answer the same purpose, and that far better smoking ingredients may be made from them than from the coarser kinds of tobacco in common use. Much of the tobacco sold at Hamburg and Bremen is mixed with potato leaves. The tobacco which comes from Maryland is the only sort which can be smoked in short pipes without danger to the mucous membrane of the mouth. It mingles imperceptibly with the potato leaf, and the adulteration can hardly be detected. A learned man declares that we are grievously in error who talk of

"Meerschaum" Pipes,

we should say "Kummer" pipes, and commemorate perpetually our obligations to the discoverer of a compound which has nothing to do with the sea nor with its foam. Anselm, who has written a profound work on pipes, instructs mankind that they should be of the simplest forms, so as to be easily cleaned, and that there never should be any wood, metal, caoutchouc, or horn connected with them. Kummer pipes may be discreetly cleansed by pouring streams of boiling coffee through them. It is a wise course to bake clay pipes in a hot oven—after the dinner has been taken out of it. Pipes have their names, like swords—names born of love or glory; and one is known to history as "Anastasia;" one as "Paradise." The first belonging to a poet, the other to Omar Pasha, who had a name to conjure with among the Turks. Tobacco is believed to have destroyed the art of conversation; but perhaps it has only improved it.

Smoking

does not render talk impossible, or even difficult; but it condenses it and makes it sententious. Tobacco compresses a long winded discourse into an epigram. It is at the bottom of the difference between the Welchman's prayer and that of Mawworm. "Good night, sir," he remarked to his patron saint, "few words are best," whereas Mawworm has never done with words, and would let his pipe out in more ways than one, while that of the more ancient and acute Briton would keep alight. The smoker wants no other furniture than some German tinder. If he begins to burden himself with amber mouthpieces, clips, and pincers, he ceases to be a man, and becomes a cupboard. Directly the first ashes falls off it, the flavor is impaired, and the smoke becomes hot, acrid, and unwholesome. Smoking, which has greatly increased in recent years, is, at all events, much better than

Taking Snuff,

which disgraced the very waistcoats of our forefathers. "Had our noses," mused a philosopher, "been intended for dustholes they would have been turned the other way." Possibly. And it is by no means clear to logical intellects that our mouths were intended for chimneys, or could with more fitness have been opened at the top of our heads, and every man might have served as a barometer to his neighbor, who could have forseen the state of the weather by noting whether his neighbor was blinded by his own smoke or otherwise. Youth and love depart from us. Tobacco remains, and perhaps it consoles us. It is the only form of happiness which is left to some whom the world has treated unkindly. Je te laise mo femme et ma pipe; je te recommande bien ma pipe," were the last words of Gavarni's vagabond.

LETTER FROM DANIEL WEBSTER TO THE FARMER IN CHARGE OF HIS MARSHFIELD PLANTATION.

This fine letter of Daniel Webster, written 44 years ago, and just now in season, will be welcomed as a most agreeable and instructive lesson by city as well as country readers:

WASHINGTON, March 13, 1822.

John Taylor: I am glad to hear from you again, and to learn that you are all well, and that your teams and tools are ready for spring's work, whenever the weather will allow you to begin. I sometimes read books on farming, and I remember that a sensible old author advises farmers "to plow naked and to sow naked." By this he means there is no use in beginning the spring's work till the weather is warm, that a farmer may throw aside his winter clothes and roll up his sleeves. Yet he says we ought to begin as early in the year as possible. He wrote some very pretty verses on this subject, which, as far as I remember, run thus:

"While yet the spring is young, while earth unbinds
The frozen bosom to the western winds;
While mountain snows dissolve against the sun,
And streams yet new from precipices run—
E'en in this early dawning of the year,
Produce the plow and poke the sturdy steer,
And goad him till he smokes beneath his toil,
And the bright share is buried in the soil."

John Taylor, when you read these lines, do you not see the snow melting and the little streams beginning to run down the southern slopes of your Punchbrook pasture, and the new grass starting and growing in the trickling water, all green, bright and beautiful? And do you not see your Durham oxen smoking from heat and perspiration as they draw along your great breaking-up plow, cutting and turning over the tough sward in your meadow in the great field? The name of this sensible author is Virgil, and he gives farmers much other advice, some of which you have been following all this winter without even knowing that he had given it.

"But when cold weather, heavy snows and rain
The laboring farmer in his home restrain,
Let him forecast his work with timely care,
Which else is huddled when the skies are fair;
Then let him mark the sheep, and whet the shining share,
Or hollow trees for boats, or number o'er
His sacks, or measure his increasing store;
Or sharpen stakes, and mend each rake and fork,
So to be ready in good time to work;
Visit his crowded barns at early morn;
Look to his granary, and shell his corn;
Give a good breakfast to his numerous kine,
His shivering poultry and his fat'ning swine."

And Mr. Virgil says some other things which you understand up at Franklin as well as ever he did:

"In chilling winter swains enjoy their store,
Forget their hardships, and recruit for more;
The farmer to full feasts invites his friends,
And what he got with pains, with pleasure spends,
Draws chairs around the fire, and tells once more
Stories which often have been told before;
Spreads a clean table with things good to eat,

And adds some moistening to his fruit and meat.
They praise his hospitality and feel
They shall sleep better after such a meal."

John Taylor, by the time you have got through this, you will have read enough. The sum of all is, be ready for your spring work as soon as the weather becomes warm enough, and then put your hand to the plow and look not back. DANIEL WEBSTER.

—*Philadelphia Ledger.*

THE BREEDING OF SILK WORMS.

Large Shipment of Eggs from Japan to Europe via America — The Trade Increasing Yearly—Peculiarities of the Worm, and How it is Cared For.

A large cargo of silk worms' eggs was shipped from Yokohama on the steamship City of Peking, and reached San Francisco on the 14th instant; thence they were sent by rail across the Continent, and arrived last Friday at the Union Line Dock, Jersey City. About half the cargo was shipped by the City of Berlin, via Liverpool, for Havre and Paris. The remaining portion will be forwarded next Saturday by the steamship Labrador direct to Paris and Havre, where the eggs will be distributed through different parts of France, Italy and Switzerland. The eggs, which are placed in 1,872 bales or cases, occupy seven cars and their value is estimated at $3,000,000. The agent of the Union Pacific Railroad, Mr. Nolan, says that the cargo arrived in good condition, and that the eggs are healthy, and have not been injured by their long journey to this city. A regular trade in the transportation of silk worms has been established for several years between Yokohama and Europe. The steamer Gaelic, which arrived at San Francisco from Yokohama on the 6th instant, had on board a cargo of 287 bales of the silk-worms' eggs, en route to Europe. Large as these consignments are, the trade is increasing daily, and the supply of silk-worms shipped this year exceeds that of any previous year. This is owing to the fact that there has been a great shortness of the crop in the silk-worm producing countries of Europe. The decrease in France within the present year has been at least one-half, and the supply in Italy has fallen off fully one-tenth, making a short crop of 30,000 bales of silk in Europe this year. This failure is attributable to frosts and wet weather, and has increased the value of the raw material fully one hundred per cent. What is known as "the silk worm disease" broke out in Europe with great virulence last year and destroyed a large number of the worms. The silk-worm seed shipped from Yokohama for the European market is round, slightly flattened, and as small as a turnip seed. The seeds will stick wherever they have been laid by the female moth as if glued on pasteboard, paper, cloth, or even the very cocoon. But the seed of other breeds will not adhere, such as those that come from the Caucasus, Persia, and European Turkey, among which are the white of Adrianople and the yellow of Caucasus, from Nouka. The eggs are by natural law submitted to a period of seemingly lifeless inaction, and so, during the whole summer, they will stand a degree of heat much greater than the one needeed to hatch them in the spring. But after December it becomes possible, by giving them the same amount of heat, to secure nearly perfect hatching. Therefore, if silk worms were kept in winter in a heated room, there is no doubt that they would hatch or spoil. In shipping them by railroad or steamboat, care must be taken that they are not placed in heated cars or too near the boiler. The most intense cold does not hurt them, and there would be less danger in having them buried in ice than in exposing them to a high degree of heat after the month of October.

Mr. Franklin Allen, Secretary of the Silk Association of America, related to a reporter some curious facts connected with the habits and peculiarities of the silk worm. He explained that there are five different ages in the life of the silk worm, from the hatching, according to the number of times they change their skin. These ages are also termed moulting or sleep. Nature gave the worm the faculty of spinning the solid cocoon in which it wraps itself, secure against all dangers that might hurt it as soon as it is transformed into a chrysalis—a state of insensibility which it preserves from eight to twenty days, according to breed and climate, before it emerges as a moth. The age of silk worms is counted by the number of meals they have eaten and not by the days spent from their birth. At each moulting the worm changes the whole of its outer envelope. When just hatched, it is not one-twelfth of an inch long, but from the instant of its birth, even before its first meal, it begins to spin. When the eggs are on the point of hatching, they undergo a marked change of color; they pass from dark lilac to ashy lilac, and become quite white when the worm is out. They eat more or less, in proportion to the degree of activity imparted to them by the heat. At a cold temperature they are benumbed, and eat little or nothing. Hence it is necessary in warm weather to feed them frequently.

Some leading breeders maintain that fire, air and leaf are the three essential requisites to sustain the silk worm. Great care, as well as punctuality, should be observed in feeding them. The mulberry leaves should be spread very evenly, so that one worm cannot eat more than another. After eighteen meals most of them will be buried beneath the leaves. The others, as many as can be seen, will have short, thick-set bodies and large heads. By and by the worms begin to thicken, and in eighteen hours they will all come out if the temperature be warm. At every moulting the color of the worm grows dimmer and whitens gradually. At the fourth and last age, the worm is lean and feeble. As soon as it is well out it is necessary to give them a light meal with wild leaves. Later on, plenty of leaves should be supplied them three times a day. When this is done, a noise similar to a heavy shower falling on foliage is heard, which is produced by their chewing the leaf, which they gnaw close to the wood. For eight days they require constant attention. Six days after the last silk worms have come up, the collecting of the cocoons may be commenced. The first thing is to take apart the bushy cabins where the worms first climbed up. The most important points necessary to breeding and to prevent disease, are attention to cleanliness, proper ventilation, regularity in feeding, and care against cold draughts of air or sudden changes of temperature. The mulberry silk worm being partially domestic in its habits, requires greater care than the hardy race of worms that are independent. During their torpor the worms require no food; but their appetite increases after each moulting, and in the fifth age it may be called voracious. As they approach their torpor they raise their heads with a waving motion, and their appetite ceases. The worm, arrived at maturity, diminishes in size by discharging its excrementitious matter, and becomes transparent. As soon as the worms begin to give out the silky fibre, they should be put on the bush or branches provided for them to spin their cocoons. In three days the worm completes its cocoon, which is left upon the bush about five days longer, to season it. Twelve or thirteen ounces of cocoons will produce one ounce of seed or eggs, unless the males be too many in proportion to the females, or the moths not all very robust (stout). Finally, 100 females can give 40,000 eggs, which, if they all come out well, would produce 130 pounds of silk, and more for some breeds, in which 200 cocoons make a pound; it would then be 200 pounds. It is to be understood that these figures can only be approximative, still they often prove to be correct in small breeding. The moths live for about twelve days from the breaking out of the cocoons. If the seed has not been impregnated, it remains ever yellow and after a while dries up, while that which has acquired the lilac color stays round, slightly flattened, but always full till the next spring. It is left to dry where it was laid, for some days, when it is removed to a place cool and dry.

The series of transformations or changes of skin which the silk-worm undergoes are like those of any other caterpillar; it incloses itself in the most admirable tissue, and becomes a chrysalis and then a butterfly. Examined with a magnifying glass, the insect's head, its mandibles, its thread-spinning apparatus, legs, skin, and all its organs, external and internal, are curiously and wonderfully fashioned. A marked swelling, covered with wrinkles, at the fore part of the body looks like the worm's head, but has only the appearance of it, and contains a greasy liquid. The hard part, which forms the snout, is the true head; it is composed of indented mandibles, set side by side, hard, strong, movable, very fit to take hold of the leaf every way, making the first cut on the sides as well as in the middle, from their very birth; the other part of the head is the filiere or threader, a kind of membranous apparatus, set with muscles, which presses as they pass, and strongly joins together, by means of a gummy substance, two silk threads so adherent that they can be severed only by means of powerful chemical agents. These two silk threads are slipped out of two inner reservoirs, full of a transparent liquid, which hardens in the air and becomes thread by a phase of nature, easier recorded than explained. Two black points adorn the head of the silk worm; some people think they are eyes, some say they are not. The feet are articulate, membranous and fitted with hooks, whose principal use is to fix the insect in any position. There are six of them in front, articulate, used for motion; and eight at the back, membranous, whose principal use is to fix the insect in any position; they are called false feet, and are lengthened, taken in and expanded, according to the insect's wants. Twelve rings alternately widening or nearing each other, are used for locomotion; last of it, upon the extreme back, is a protuberance, a kind of tail, the use of which is unknown. At each side of the body there are nine black points. They are apertures which supply constantly to the larvæ the large amount of air which it needs so much. Inside nearly 5,000 muscles have been counted, used for locomotion. The intestinal tube extends in straight line along the whole length of the body; it presents many inside divisions, and is externally surrounded with many small channels, used for digestion. On each side of that tube are the two long reservoirs which contain the silky liquid; they extend to the head, where they unite with the threader or filiere, thus forming two threads that join on the outlet, as we have before said. It was an error, very generally received, that the silk thread was already formed inside of the worm, but it is now proved that it is nothing but a liquid, which hardens as soon as it comes in contact with the outer air.

HOG CHOLERA.

The disease so-called is really a kind of typhoid fever, characterized by great heat of bowels and rectum—costiveness or diarrhœa, either one. The symptoms vary with the greater or less poison the animal has absorbed. This article is an abstract of all that has been learned on the subject in Europe and America by ten years of close observation by scientific and practical men. The disease is the very one now prevailing in Holt. It is caused by an intense poison evolved from the body of the hog where large numbers are confined together in filth. It is the most contagious poison known, and is carried in a thousand unsuspected ways, by chickens, birds, wind, streams, of water, feathers and straws blown, old lumber or troughs carried, hogs running at large and smelling around pens where others are confined. A bird or chicken may alight where a diseased hog has been, and carry the infection on its feet or wings great distances. Crows and blackbirds have carried it fifty miles. Occasionally some animals can remit it, just as some people can remit small-pox

and measles. The poison may remain for months, even years, in some dry dirt or filth, which, when touched by the hog, conveys the disease. So no animal can be safe except by the same means as are used to ward off diseases among human beings. Remember the symptoms vary in proportion to the amount of poison in the system, so that we may be misled if we do not consider this. The ordinary symptoms are slight dullness, wrinkling of the skin of the face, shivering chilliness, loathing of food, thirst, heat and redness of skin inside of fore and hind thighs, and along the belly. Red mottled spots, slightly raised, on breast, belly and ham, which fade on pressure of the finger. Sometimes dark or black spots. Tongue covered with a brownish fur. The animal is sore, and sensitive to the touch. It moves feebly, stiffly, unsteadily, and grunts. There is sometimes a watery mucous flow, and after a cough. Bowels confined at first, become often very loose, and discharges very offensive at the last. Post mortem examination shows various appearances, too many to mention here. A few are specified. Bluish color of skin, which grows deeper in a few hours; fat colored snout blue, with spots; tongue furred, but deep red at base; stomach pink or red; intestines congested, a deep red or black, ulcers or scales. Spots are common over the various internal organs, blood or mucus in the cavities, spleen, large and dark.

As to prevention: Knowing how contagious is the disease, such means should be taken as are used in cases where epidemics prevail among human beings. I will just say here that more wealth has been destroyed within the past ten years from letting animals run at large than it would cost to fence up in forty-acre fields the whole United States. That poor man's hog we used to hear so much about some years ago, when it was proposed to have a stock law, has come near to making poor devils of all of us. He is a poor man indeed who cannot take care of the few pigs and the cows he has got. It is about time the men who are men in energy and ambition, shall take hold of this thing in earnest, and either have a stock law adopted in Missouri, or else emigrate to Nebraska, where brains, and not whining, move the law-making power. Having done this, if you would keep this disease from being introduced, act so in regard to every movement connected with your hogs—buying, selling, breeding and feeding, as if you feared every other hog about had the disease, and as if the least filth would generate it anew. Consult the nature of the animal; give it an opportunity to rub itself by having rough parts and corners accessible. Let it have variety in its food, and access to lime ashes, coals, copperas, salt, and a little aloes occasionally. Change your pens or yards often. Pure well water, for you know not where sick hogs have been at the stream above. High ground, for you know what deadly effluvia or poison is sucked down the hollows; keep but few together, and none where that "poor man's" wandering pig may whisper death in a pig's whisper through the rails. At the first sign of sickness in a hog, away with it from possibility of contact with any others. When sick give it a tablespoonful or less twice a week of the following mixture, viz: Two-thirds nitrate potash, one-third chlorate potash, and a very slight pinch of jalap, twice a week. But if you do as told above, you will not likely ever be troubled. This is a great deal of trouble, but show me a man that ever made money without a world of trouble.

THE ARABIAN HORSE.

The first thing that strikes one in the true Arabian, setting aside what may be termed his personal beauty, is great general length. What reach, what stride these horses must have! They are born racers! were the thoughts that flashed across our mind. Next to the length, a general appearance of character and of blood, or high breeding, is conspicuous. The head is not particularly small or short in proportion to the size or height of the horse; it is not a small, neat, pretty, meaningless head. The frontal bones and the parietal bones or walls of the skull above are large, bold, often prominent, and the brain cavity is capacious and well developed, giving an appearance and power almost human. The *nasal* bones, on the other hand, are fine and subservient to the frontal, and of a delicate and graceful outline. The orbits of the eye are large and prominent. The eye is full, large and lustrous; it is very beautiful; the beauty is not so much dependent upon the size of the eye as derived from its depth and expression; and when the animal is excited it displays much fire. The lids are particularly fine, and the lashes long and silky. The face is lean and full of fine drawing. The muzzle is particularly fine, the lips long and thin, the upper lip well cut, the lower lip small, compressed and terse. The nostril in a state of repose, very long, beautifully curled, delicate and thin; when the horse is in action or excited the nostril opens very wide, and gives a bold, square appearance to that part of the face. The lower jaws are fine and clean, the upper part of the lower jaw toward the neck is very deep, and the jaws are set wide apart. The cheek bones are sharply cut. The ears are well cut, pointed, and well placed, and when pricked point inward in a peculiar manner which is considered a mark of great beauty and a great sign of high breeding. The neck is of moderate length and of a graceful curve or gentle arch from the poll to the withers; it is a muscular, light neck, and the splenius muscle is well developed. The junction of the head and neck is very graceful. The head is well set on. The withers are sufficiently high and run well back, but are not too thin. The back is short, the loins are powerful, the croup high, the haunch very fine, the tail well set on, and the dock short. The quarters are both long and deep; the gaskins are sufficiently full and muscular without being heavy, ponderous or vulgar; the thighs are well let down, the hocks are clean, well-formed, well-placed, large, and near the ground. The shoulders well-placed, long, and of a good slope, and the base of the scapulæ broad and well developed; the arms are long, *lean* and muscular; the elbow is well developed; the trapezium or bone behind the knees is prominent. The legs are short, deep, and of fair bone, tendons and ligaments large and well strung; the fetlock-joint is large and bold; the pasterns are large, long, sloping and elastic; the feet wide and open, and low rather than high at the heels; the chest is deep and capacious; the ribs are arched (and in this point the Arabian differs considerably from any other horse); he has a fine barrel; he is short above but long below; he stands over a deal of ground. The line shown from the withers to the setting of the tail is short as compared with the ground-line. The skin is fine, soft and delicate; the hair short, soft and silky; and the skin is seen through the hair to a greater degree than is seen in other horses of high blood. The mane and tail are long and fine. The whole of the hinder parts, from the haunch to the heels, taken collectively or in detail, display great length. His general appearance indicates the highest breeding and nobility. He is of high courage, easily excited, and of a nervous temperament, but his fire and courage are tempered by his sagacity. The Arabs are very particular about three points in connection with the head of their horse. The djebheh, which is a formation of the frontal and parietal bones, if not peculiar to, is most marked in, the Arabian horse; it can scarcely be too large or too bold. The shape and size of the djebheh gives a large brain cavity. It adds also to the beauty and nobility of expression; and here, as in other points of the Arabian, usefulness and beauty are combined. It is usually somewhat different in the horse and mare; in the latter it is rounder and more prominent, often strikingly so, and descends in a graceful and easy line to the nasal bones. The mitbth is the graceful curl of the windpipe (which is tolerably detached from the neck) as it runs in between the jaws, which gives a fine carriage to the head, allows it to be brought in, and will enable the horse to extend the head almost to the same line with the neck and the ears, which, to be perfect, should turn inward in the manner already described. In the mares the ears are longer and more open, in the horse smaller and more pricked. There are a few other points that struck us as worthy of observation. As a rule, the point of the hock (*os calcis*) is large, well defined and prominent, often to such an extent as to lead many at first sight, to suppose it was enlarged from accident. The tendon runs down in a well-defined way, and, as it were free from the hock and giving a particularly clean look to that joint. This formation, I venture to submit, acts in the horse with an advantage similar to that gained by a well formed heel and arched instep in the human subject.

We were struck by the general development of the fetlock joint, pasterns, and feet, all of which are pre-eminently good; it is not sufficient to say the pasterns are long and elastic; all these points appear larger and stronger and more adapted for use than those of other horses; the feet are strong and open, and placed more in advance of the leg than is usually seen in other horses, and the upper and lower pastern bones by their direction and conjunction with the foot (*os pedis*) appear to act with greater advantage; there is great depth of leg at the sessamoid bone, and the head of the shank bone is also large. There is a marked combination of strength and elasticity in all these complicated joints which is peculiar to the Arabian horse, which gives great freedom besides more easiness in his paces, which enables him to grasp the ground and to gallop down hill as easily as on the flat, and moreover, we thought, accounts for his being so sound. Again, although the hind leg of the Arabian may be deeper below the hock than the fore one is below the knee, we noticed that there was not so great a difference in size between the hind and fore legs as is often to be seen among our race horses. On reflection, this struck us as an admirable adaptation of parts to the respective and distinctive kinds of work they have to perform; for strength and depth in the fore legs are evidently required to receive the weight of the horse and the force thrown upon them by the impetus given by the hind extremities when the horse is in rapid action. And if any part of the Arabian horse could be said to be exaggerated, it would be the length of his haunch and hinder parts generally (necessary for high speed), but which we thought is amply provided for and counterbalanced by the formation of the various parts of the fore legs, as I have endeavored to describe; indeed throughout his whole form it is the natural appearance of the horse, the beautiful balance of power and symmetrical adaptation of parts that cause the Arabian to be so perfect an animal. It must not, however, be supposed that in every true Arabian all these points are to be seen to perfection, but in some they are to be found, and these must be considered perfect animals; yet in all these points they are to be recognized in a greater or less degree, and beyond those in other horses.—*Fraser's Magazine.*

BAKED CORN AND EGGS.

B. F. J., the Illinois correspondent of the *Country Gentleman*, writes to that paper as follows: The steady cold weather since the middle of November, and some tasks begun and finished, have kept me so constantly at home that I have been able to give an hour or two every day to observing the effects of some kind of food for the winter production of eggs. I had heard it repeatedly said that for producing eggs, for stimulating the appetite of horses, swine and cattle, "off their feed," and for other unmentioned purposes, there was nothing like a daily ration of parched corn. Having been so much of the time absent during October and November, my fowls had little else but corn; and the time having come for winter-laying, and they not responding, about the first of December I began giving a daily ration of baked corn, and with the happiest

results: for I call those results happy ones when hens will lay with the mercury at zero, and one can have fresh eggs to eat and to sell, when eggs are 40 cents per. doz., as they are at the present time.

But what puzzled me in the business was, why baked corn—that is, corn put in a stove oven and subjected to heat enough to brown and carbonize it, say 200 deg. to 250 deg. Cent., or 392 deg. to 482 deg. Fah. (the temperature for baking bread)—stimulates egg production, or the animal economy otherwise, more than raw corn or corn cooked in the usual manner. I remember to be sure, I wanted my mush cooked two hours certainly, and longer if possible; that the New England delicacy, for I will call it such, of baked Indian pudding owes a great deal of its merit to standing from 10 to 12 hours in the old fashioned brick oven; and that the same is true of Boston brown bread, which is never seen in perfection beyond the broad basis of the Berkshire hills. But how the improvement produced in these dishes by prolonged subjection to heat could possibly change the constituent element in corn or cornmeal, I could not see or understand. The ternary or quarternary compounds are so fixed in corn and all similar substances, that an attempt to change one into another results in the destruction of both. Gluten can never be changed into starch or sugar or oil, or the reverse; but sugar, starch, and oil are nearly identical in composition, and so are albumen, gluten, and fibrine. All this I knew, and became more and more puzzled over the problem, when I stumbled on a solution, which I ran across in the concluding paragraphs of a paper on *Le Ble, la Farine et le Pain* (wheat, flour, and bread), by J. A. Barral, the propietor and publisher of the *Journal de l'Agriculture*, of Paris, a gentleman who stands in the same relation to the farmers of France, as the late Luther Tucker did to those of North America.

Says M. Barral: "In course of ascertaining the comparative amount of nitrogen in bread crusts, and the crumb or soft part, we arrived at unexpected results; always that the crust is the richer in nitrogenous matter than the crumb of the same loaf, and that these nitrogenous matters have a much greater degree of solubility. One might say that those persons who eat hard crust in preference to the soft, take, in the same weight, food doubly nitrogenous, more easily soluble, digestible, or assimilable, and very probably twice as nourishing. This explains the preference we should give to hard-baked bread over that less thoroughly done; why physicians recommend a pap to be made of bread crusts; why toasted bread so much better satisfies the appetite, and why toast water is so grateful and nourishing to invalids and convalescents. One sees, indeed, that the loss of organic matter accomplished in cooking consist in the carbonaceous constituents of flour—starch, sugar and the like—and the result is a concentration of the nitrogenous matters in the crusts.

"It is a very important fact to be able to state that bread crusts are more soluble in water than the crumbs; and a more important one to be able to affirm that the nitrogen in the crust is much more soluble than the cooking of the crust, under the double influence of a temperature of 200 to 220 deg. C. (382 to 458 deg. Fah.), produced in the ovens and from the vapor issuing from the body of the loaf, transforms the gluten of the flour into a soluble substance."

Now, apply these singular facts to the whole grain of Indian corn, and the culinary compounds of corn meal, and we see how it is that parched or baked corn is quite a different thing from the raw article, and why the long boiling of mush and the protracted cooking of baked Indian pudding and Boston brown bread have their reason to be. In the case of egg production, it seems baked or parched corn is not only more soluble—that is, more digestible than raw corn—but it also contains a greater proportion of the egg-making substance, gluten, for the reason that the baking or roasting has carbonized and diminished the non-egg-making constituents, sugar, oil, and starch.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The regular monthly meeting of the Lancaster County Agricultural and Horticultural Society was held on Monday afternoon, February 5th, in the Athenæum room, President Cooper in the chair.

The following members were present: Messrs. Calvin Cooper, Henry M. Engle, Johnson Miller, Levi S. Reist, Wm. McComsey, Mr. Hershey, Martin D. Kendig, S. S. Rathvon, H. Benediet, Israel L. Landis, C. L. Hunsecker, Levi Pownall, John B. Erb, J. Frank Landis, Peter S. Reist, J. W. Hess, Mr. Miller, Simon P. Eby, Henry Erb, John Gingrich, Harry F. Hostetter, David G. Swartz.

Robert Crane, of Columbia, and Samuel Hess, of Ephrata, were elected members of the society.

The committee on revising the constitution and by-laws of the society were discharged.

Mr. Engle reported the amount of rain-fall for the month of January as 3 5-16 inches.

Mr. Kendig, of Manor, said the wheat looks healthy. Tobacco was very good. Some sold for 20 and 30 cents per pound.

The committee appointed at the last meeting to consult with the publisher of *The Lancaster Farmer* in regard to its continuation and to canvass for subscribers for the same, was called upon to report. Mr. Israel L. Landis said he succeeded pretty well, having received between fifty and sixty subscribers in ten days, but when he discovered that none of the rest of the committee were making any efforts, he dropped the matter, and has done nothing since. If the members would take hold of the matter, he felt sure the necessary subscribers could be secured.

Mr. Engle said at the last meeting he pledged himself to secure twenty-five subscribers. He had got twenty-eight, and would further pledge himself to raise the list to forty. He hoped the members would not let *The Farmer* die from starvation. Every member should pledge himself to raise a list of at least eight or ten subscribers.

Peter S. Reist reported twenty-five subscribers, most of which he got while attending sales. He would pledge himself to raise the list to fifty. If a *live* man would take hold of *The Farmer* and make a thorough canvass of this county, he felt sure 5,000 subscribers could be secured without much effort.

After considerable discussion in regard to the continued publication of *The Farmer*, Mr. Rathvon arose, and said, on account of the seeming embarrassment it caused, he would offer the following resolution, which, on motion of Mr. Engle, was ordered to be laid on the table:

Resolved, That the consideration of the publication of *The Lancaster Farmer* be withdrawn, and that all committees relating thereto be discharged.

Mr. McComsey thought the only way to secure the requisite number of subscribers was to employ a suitable person to canvass the county. He suggested that the society pay such canvasser one month's pay, and that he go to work at once.

The question was further discussed by several other members, when it was moved by Mr. Engle to offer a premium to those receiving subscribers, to report in eight or ten days, when, if a sufficient number could not be secured, the matter should be dropped.

H. M. Engle, Israel L. Landis and Wm. McComsey were appointed to prepare a premium list for the canvassers.

The following bills were ordered to be paid: John H. Barnes, printing constitution and rules of order of the society, together with directory of Lancaster county, $2.5; rent of room for meeting of Fruit Growers' Society and janitor's services at same, $12.95.

The list submitted by the Committee on Premiums is as follows: For the largest list of subscribers to *The Farmer*, not less than thirty copies, $5, or life membership; second largest list, $3; third largest list, $2; lists of fifteen subscribers or upwards, one copy of *Farmer* for 1877. Adopted.

Mr. Engle made the following answer to the question, "Is any certain color of a cow indicative of superior milking qualities?" The question was regarded by Mr. Engle as not being definite; the answer must necessarily be conditional. Some cows are copious milkers, but their milk is of poor quality; others, that yield half the quantity of milk, produce more butter. Again, a few produce a large quantity of both milk and butter, while far too great a number produce neither milk nor butter sufficient to pay for their keeping. Copious milkers are found among all colors of cattle, but very rich milkers are very seldom found among either white or black. The intermediate colors furnish, as a rule, the best milkers. A good judge will rely upon other marks, among which is a rich yellow skin without much regard to color of hair. The Guenon system well understood is probably the most reliable method by which to judge the milking qualities of a cow.

Mr. Engle stated that the Board of Agriculture of this State met at Harrisburg last week, to which he was delegated by this society. He said that the society will some day make its mark, as some of the best and ablest men of the State are members. There is now in the Senate a bill for the repeal of the bounty allowed local societies. He would like the opinion of the members of the society on this subject.

Israel L. Landis hoped prompt measures would be taken at once by the society to defeat the bill.

Mr. McComsey moved that our representative at Harrisburg be requested to use all fair and honorable means to prevent the repeal of the bill.

Mr. Miller moved to amend, that a copy of the resolution be sent to each Senator and Representative. Adopted.

J. W. Hess presented some York Imperial apples and three yellow apples for a name. Different other varieties of apples were also placed upon the table for inspection. H. M. Engle, Levi Pownall and J. B. Erb, were appointed as a committee to test the fruit and report to the Society.

The following questions were offered for discussion at the next meeting:

By E. K. Hershey, "How much lime ought to be applied to the acre to secure the best possible result?"

By John B. Erb, "How shall we build a good and cheap pump-house, with fruit cellar underneath."

By Peter Reist, "In selecting seed corn, is it advisable to take only the middle grains on the ear?"

By Johnson Miller, "When is the best time to sow clover seed?"

The following proposed by M. D. Kendig, was referred to S. S. Rathvon, to answer at the next meeting:

"Will the unusually large crop of tobacco worms the past year be likely to produce a comparatively abundant progeny the coming season?"

Several bags of seeds from the agricultural department at Washington were distributed among the members.

Adjourned.

The Tobacco Growers.

The Lancaster County Tobacco Growers' Society met in the rooms of the Athenæum, City Hall building, on Monday afternoon, February 12.

The following members were present: Messrs. M. D. Kendig, president; Jacob M. Frantz, I. L. Landis, A. Lane, John Brady, Washington Hershey, P. S. Reist, H. Yeager, W. L. Hershey, Colin Cameron, J. M. Stehman, Henry M. Mayer, J. M. Johnston, Harry Hostetter, A. H. Summy, A. H. Landis.

The following-named visitors were also present: Henry L. Landis, Joseph Milton, Levi Gross, Peter Esbenshade, Samuel Weidler, Adam Bear, Jacob Bear, Michael Landis, David Hess, Benjamin Ritter, Adam Shoenberger, Henry Erb, Martin Miller, M. Shiffner, John M. Snavely, F. H. Fenstermacher, John Diffenbach.

After the minutes had been read and approved, I. L. Landis, from the committee to inquire into the matter of having the society properly represented in the permanent exhibition at Philadelphia, reported that it was very desirable that the society should make a proper display of Lancaster tobacco. He urged members to make contributions of choice leaf for this purpose, and described the kind of cases that he thought best suited for displaying the tobacco. The cost of the proposed exhibit would be comparatively small, and he thought great good would result to the growers of the county if they made a creditable display.

Colin Cameron offered the following resolution, which was adopted:

Resolved, That we now go into an election of an executive committee, to consist of five members, whose duties shall be hereinafter described in the laws of this association.

Messrs. I. L. Landis, J. N. Frantz, P. S. Reist, Harry M. Mayer and Colin Cameron were nominated as members of said committee, and on motion of John M. Stehman, who was nominated but declined to serve, they were unanimously elected.

Crop reports being in order, Harry Myers, of East Hempfield, reported the crop in his section as being very satisfactory. It averaged from 1,800 to 2,000 pounds per acre; the greater part of it was sold at good prices, and a good part of it had been delivered to the buyers.

I. L. Landis, of Manheim township, reported about one-third of last year's crop sold, the lowest figure being three cents for fillers, and the highest 30 cents for wrappers. Nearly all that has been sold has been delivered. Perhaps one-fourth of the crops remain on the poles to be stripped.

P. S. Reist, of Manheim, said that five cents for fillers and 25 cents for wrappers were the outside figures in his neighborhood. He knew of one acre that had produced 2,500 pounds, and some others that did not produce more than 1,000 pounds. The average product he estimated at from 1,500 to 1,800 pounds per acre.

President Kendig, of Manors, reported the figures about the same in his neighborhood. The crop was fully 1,500 pounds to the acre, and he thought about one-half the crop was yet upon the poles.

Mr. Yeager, of East Lampeter, estimated the crop in that township at 1,600 pounds per acre. The highest price paid for wrappers was 21½ cents, the lowest 12 cents, while fillers brought five cents.

J. M. Frantz, of Lancaster township, reported

that Mr. Bausman's crop had been sold at 25 cents round. Another crop had brought 23½, 14 and 5, and others 20, 10 and 5. About one-half of the crop in his township had been sold.

Mr. HERSHEY, of East Hempfield, said that about one-fourth of the crop in his neighborhood was yet on the poles; about one-third had been sold, at good prices; some of it at 30, 10 and 5. Some farms yielded 2,000 pounds per acre: the average was perhaps 1,700 pounds.

Mr. M. SHIFFNER, a dealer from Leacock, said the average price for wrappers was from 18 to 25 cents. Much of the tobacco in that section was very poor, being of short growth and much cut up by the worms. Many of the farmers didn't understand their business and handled the tobacco very badly. They had yet a great deal to learn about tobacco growing, and the sooner they applied themselves to a regular apprenticeship the better. At least one-fourth the crop was yet on the poles.

Mr. A. H. SUMMY reported a fair crop, most of it already stripped, and some of it sold at 20, 10 and 5.

Mr. A. H. LANDIS reported the highest prices at 25, 10 and 5.

Mr. W. L. HERSHEY, of Rapho, had seen sales made in three grades; at 25, 10 and 5, and 20, 12 and 5. One-third of the crop sold in his vicinity.

Mr. JACOB M. FRANTZ next read a very interesting essay on tobacco growing and the importance of the tobacco interest. After a few prefatory remarks the essayist gave an illustration of the important part tobacco plays in maintaining our foreign exchanges. The agricultural and commercial statistics of our country show that during 1875 the crop exclusive of seed leaf aggregated 775,000 hogsheads, valued at $29,400,000. Of seed leaf the stock on hand, January, 1875, was 180,000 cases, grown chiefly in New England and Pennsylvania. After describing some of the varieties of seed leaf tobacco, he proceeded as follows:

I believe in big leaves and therefore usually get seed from the largest plant in the field. If I happen to be somewhat lengthy on this part of the treatment you must be charitable; thirty years experience has perhaps made me somewhat of an enthusiast on the subject of raising plants. But you cannot raise tobacco without having plants, and to raise them in proper time and of proper quality is not only the first, but the most difficult and uncertain feature in the business of tobacco growing. I often found parties having their ground well selected and well prepared, but, failing to raise their own plants, failed in securing a good crop. It is almost impossible to describe on paper or convey orally, how to prepare and treat a plant bed properly. You must "see it to believe," and to do it right an apprenticeship is almost indispensable. But let me try to tell you. Select a spot, and not a small one either, of the richest ground, one previously used for hoed crops preferable; ground exempt from weeds; cultivate it thoroughly late in the fall; and again as early in the spring as the ground will admit of, say from March 20 to April 1; sow the seed, a tablespoonful to 50 square yards. I usually mix seed with plaster paris or ashes, to make bulk, to enable a more even distribution; rake in light and roll or pad with back of spade, to thoroughly incorporate the seed with the soil. I find that a covering of the bed with the bristles of the hog promotes the protection and germination of seed and the young plants against frosts and drought to an extent that is marvelous. Indeed I would go so far as to say that you cannot grow plants with certainty in any other way that is at all desirable. Hot house plants seldom do well. After the plants are started the application of light manure frequently is of the highest importance; then observe a proper location. A south exposure is profitable and if skirted by a close fence will benefit the growing plants. By proceeding thus you may have your plants ready to transplant by the 20th of May, and be ready to plant at any seasonable weather that follows that period. I realize from a plant bed of the size I named, $30 for plants, from men that don't believe in going to the trouble of raising their own, or, going to a great deal of trouble, but in default of having the knowledge of the little details, fail to succeed.

Having the plants we get the tobacco ground ready. To get ready means not merely plowing, harrowing and ridging, but heavy manuring early in the season, the previous fall if possible, and not later than April 10th. Plow down the manure, cultivate the ground, and after the space of six or eight weeks plow again, harrow and pulverize the soil thoroughly; ridge rows 3½ to 4 feet apart, plant twenty-six to thirty inches apart in the row. This is done from the 25th of May to the 15th of June, depending upon the condition of the weather. I prefer planting about June 1st, if the weather is adapted. After this you have plain sailing for about six weeks; cultivating the ground and destroying the weeds are the only requisites demanding your attention. While this requires physical effort, there is no particular skill necessary. Top when the plant attains a proper size, leaving from twelve to sixteen leaves, depending upon the season as too wet or too dry. From this period suckering and worming claim attention, and just in proportion as you attend to the latter will the crop *pan out*.

The product may be increased or diminished in value from ten to fifty per cent. by inattention to this part of the business. About three weeks from the time of topping, the plant will mature. At this stage of the growth good judgment is required, to know just when to cut it. My observation and experiences would lead to the opinion that it is better to cut a little too soon than too late, for good wrappers. Curing is the next process. In removing from the field to the shed the greatest care should be exercised not to bruise the leaf; various means are employed; when convenient to shed, a sled covered with carpet to protect the leaf will answer a good purpose. A frame arranged on the running gears of a wagon, so as to receive the plants strung on laths, between frames of light timber, is a more modern plan and is popular with those using it. Any way that will deliver the plant to the shed without bruising and will do it speedily is a good way. I have not time to speak of the different or even the most approved plans of shed or curing house, but would recommend to all who intend to build to avail themselves of the opportunity of seeing some of the best arranged houses. C. B. Herr, king of Manor, and his son, Bachman Herr, have probably the most complete as well as artistic arrangements in the county. Means of ventilation and ease in regulating it are the great requisites. Properly cured, and your labors are nearly ended. The process of stripping is one that wants care and attention, but as this is the subject to be discussed by Mr. Cameron, I will not encroach upon his theme. I can hardly close after all this talk about the attention necessarily bestowed upon an article to develop its best qualities, without saying a few things about the result in store for those who work diligently all through the campaign, and the importance of the crop in a local interest point of view.

With reference to the first I would only say that the product of an acre varies from 1,000 pounds, the yield being from 1,000 all the way up to 2,400 pounds, those being perhaps the extremes, and the value in money from $_00 to $600 per acre. I have no doubt that the nominal value can be raised to $800, and perhaps $1,000. Now, as to the local influence of a crop that amounts in the aggregate in this county to from $2,000,000 to $3,000,000 a year and all labor, and labor, too, that employs everybody from 10 years upward. No raw material, imported and to be paid for in gold, enters into the business. In the tobacco areas of Lancaster county, you find no poor people; all make money and are happy.

The area of lands adapted to the growth of fine tobacco is so small that an overproduction is almost impossible, and while, perhaps, some wild adventurers attempt to get rich all of a sudden by putting out too much, the experience awaiting them in their negotiations with the keen-eyed, tender-fingered tobacco buyer will usually bring them not only within proper limits, but often drives them out of the business in disgust after a single season's practice.

Would time allow, I would for the benefit of those not so familiar with the resources involved in this subject give them an idea of the contrast between this county and others in the State and elsewhere, where they have not the advantage of soil, etc. The farmers of the tobacco areas of Lancaster county know of *panics* only by name, and are utilizing the fruits of their toil not only in supplying the demands of the physical man, but the home comfort, the improved school house, the patronage of our institutions of learning, all bear testimony that while they don't encourage the indulgence in costly luxuries, they are not unmindful of this attention to the cultivation and development of the higher faculties.

Mr. I. L. LANDIS thoroughly endorsed the views of the essayist, and moved that a vote of thanks be tendered Mr. Frantz for his valuable paper. The motion was unanimously agreed to.

Mr. J. M. STEHMAN asked Mr. Frantz to state whether his experience showed that there was any advantage in planting tobacco in ridges four feet apart rather than three and a half feet.

Mr. FRANTZ said it made very little difference. If the rows were only three and a half feet apart the plants should be set rather farther apart in the rows. He believed that twenty-two inches was the proper distance between the plants if the rows were four feet apart.

Mr. JOHN BRADY, of Millersville, said that Mr. Shuman, who farmed for Mr. Bausman the fine crop already referred to, laid out his rows four feet apart, and set the plants twenty-eight or thirty inches apart, in good strong land the plants grow vigorously and the leaves have room to expand and become very large. He named another farmer who put his rows five feet apart and raised immense tobacco.

Mr. KENDIG believed the leaf would be finer and better if not so large, if it were planted closer.

Mr. I. L. LANDIS said he would like to hear the views of some of the growers as to the variety of tobacco they preferred for planting.

Mr. KENDIG thought it difficult to determine the several varieties. They have been so much hybridized it is almost impossible to distinguish them.

Mr. LANE presented specimens of the broad-leaf Connecticut and also of Connecticut seed leaf. He preferred the latter, as the leaves obtained a greater length, and were equally fine. In planting he marked out his rows 3½ feet apart, and run them north or south, so that the sun can better get at the plants, which he has heretofore set 24 inches apart. This year he will set his plants from 18 to 20 inches apart. He believes he will thus get finer tobacco.

HARRY MAYER presented some fine specimens of broad-leaf Connecticut, which he preferred to any other variety.

Mr. P. S. REIST asked the essayist whether hay would not do as well as bristles to cover and protect the young plants in the seed beds; whether there was any difference in the quality of tobacco, cured in different states of the weather.

Mr. FRANTZ answered that neither hay nor straw were fit to use in tobacco beds. He had found nothing so good as hog bristles. They protect the young plants from both frost and snow, prevent the ground from dying out, and yet allow the plants sufficient air to encourage their growth. The bristles can be used for four or five years in succession. His plan is, after he takes them from the bed in spring, to stow them away in barrels, and before he again uses them, he loosens them up by running them through a threshing machine. In answer to Mr. Reist's second question he would say that tobacco cured much better where there were frequent changes of the weather than when there were few changes.

The manner of preparing tobacco beds was further discussed by Messrs. JOHN BRADY, M. D. KENDIG, A. H. SUMMY and I. L. LANDIS.

Messrs. LEVI GROSS, Mr. SHIFFNER and PETER S. REIST endorsed the broad-leafed Connecticut as the best variety. The last named gentleman was glad to see the interest that was beginning to be manifested in the proper modes of growing tobacco. He wished that every grower in the country would make it a point to attend these meetings, and learn *how* to grow tobacco. He would recommend new beginners to commence with a very small crop, not more than half an acre, so that if they failed their loss would not be serious. It is a dangerous undertaking to commence with a large crop, to the exclusion of other staples and then perhaps lose it all for want of knowledge, or from the ravages of worms or hail storms. Let growers first learn just how to do it, and that one good leaf is worth more than half a dozen poor ones, and then they can safely go more largely into its culture. In conclusion he thought the meeting of the society should adjourn as early as 4 o'clock so as to allow members from the country ample time to get home.

Mr. CAMERON offered the following amendment to the by-laws:

"The duties of the executive committee shall be as follows: To take charge of all the business of the association that is entrusted to their care, and report in full and in detail at the meeting following. The committee shall incur no expense without the approval of the association at its regular meetings."

The amendment was agreed to, when on motion the society adjourned.

The Linnæan Society.

On Saturday, February 24, the society met with President Rev. J. S. Stahr in the chair. Five members were present. Opened in due form.

The donations to the museum consisted of an imperfect stone axe, from William McKeown.

The additions of the historical collections were five envelopes, containing about forty clippings from sundry papers, referring to historical events. Also an impression from both sides of a coin—deemed a curiosity by the owner. This was submitted to the inspection of Prof. J. H. Dubbs, who from the date, "1560," and letter N, and its resemblance to German coin of that period, supposed it a coin of Nuremberg.

The additions to the library were volume xv and the missing portion of volume xvi of the proceedings of the American Philosophical Society of Philadelphia; the report of the Commissioner of Education for the year 1875, and a copy of the Public Libraries of the U. S. of America; Special report, 1876; a bound copy of the "Three Earls," per F. R. Diffenderffer, esq; number of pamphlets embracing "Finance of Lancaster city to June, 1876," catalogues of Books and Papers and sundry publications, both in Europe and America.

S. S. Rathvon read a lengthy and interesting paper on "Insects as Food." J. Stauffer made some verbal remarks on the Cunila and the Russian and California so-called Frost Plants—and referred to his article on the subject published in No. 8, for February 24, 1877, in the *Scientific American*.

Under the head of scientific miscellany, Mrs. Gibbons referred to the late lecture and labor saving machinery. A letter was then read from the correspondent member elected at last meeting, M. I. Hoffman, of Reading, thankfully accepting the same.

As there are about forty volumes at the binder's, the finance question loomed up—and as no act on was had by delinquent members, from the hints thrown out, it is presumed they wait for the notice—which it is always a task to give and by no means pleasant. No further business offering, adjourned to meet on Saturday, the 31st day of March, 1877, at two o'clock, p. m.

AGRICULTURE.

A Successful Farm Operation—Deerfoot Farm.

Mr. Edward Burnett is proprietor of a farm in Southboro', Mass., with the above fanciful name. It contains 300 acres, and is like the average of farms in Massachusetts. Mr. Burnett is a young man, just started in life, as one might say, and a few years ago seriously entertained the idea of emigrating to some point West, to embark in some sort of farming there. Other counsels prevailed, and instead he proceeded to occupy "Deerfoot," making its possession and working, however, second in the line of operations he adopted. Mr. Burnett had a liking for and believed in fine stock, particularly thoroughbred pigs and cows. Moreover, he had such insight into the principles of trade that he thought he saw plainly the fact that in an article so "uncertain," in a particular sense, as pork, combining under this head all the various forms which pig takes in marketing, much was to be gained by building up a trade which should have for its first element the establishment of thorough confidence, sustained by the very best article possible to produce. The idea was a definite supply for a definite want, prices to take care of themselves.

The First Essay.

So, with his farm and a stock of six pigs, Mr. Burnett commenced business five years ago. By showing the position this year the two extremes will be contrasted. Mr. Burnett has now on hand 400 pigs; will kill 800 the present year, and his commodities are already famous.

The pigs raised and killed at Deerfoot are of the Berkshire, Essex and small Yorkshire breeds. Mr. Burnett believes in thoroughbreds for pork, because such fat more quickly, have smaller stomachs, and do not eat so much as coarser varieties, have a thin, clear skin and make better looking pork, which is a recommendation if they had no other good qualities. In the Berkshire a larger streak of lean meat is found in the bacon than in other varieties; the Essex is peculiarly adapted for thick pork at seven or eight months old, cutting five or six inches on the back, and three inches on the belly, the meat being also very firm. The *small* Yorkshire has the principal characteristics of both the above breeds, besides being white and more attractive, the fresh pork being unusually fine.

About the Pens.

At Deerfoot the pig becomes a handsome creature, and there is a pleasure in looking at him which forms part of a surprise at the contrast he offers with the animal as usually seen. The largest piggery here is a succession of pens under one roof, ranged on either side of a long passageway, the building warm, neatly painted, and as clean as a corn crib. By the way, cleanliness is the great desideratum at Deerfoot. From beginning to end, in every department, absolute and immaculate freedom from nastiness is insisted upon and enforced far beyond the bounds generally thought possible. Five pigs occupy a pen, usually, though sometimes more are allowed. The whole are fed three times a day regularly, one feed being cracked corn, and the other two of warm hasty pudding, with a few oats thrown in. For the big piggery mentioned above, 300 gallons of this mush is given out every day, and about 600 gallons in all. The inevitable consequences of such feed and such feeding as this will be seen at the slaughter house. The pork is as hard and as clear and fine-grained as can be accomplished by the ingenuity of man, working with and assisting nature. The commodity thus produced is as distinct from that usually seen as is the fine-fleshed, melting, luscious pear of the grafts from the scrub swamps. Here the first requisite is compassed; the pork is made desirable, the perfection of meat.

Characteristics of the Business.

These pigs are all killed young, seven or eight months being extreme old age with them. The pork is all "pig pork," no specimens killed weighing over 250 pounds alive, put all being in thorough condition when brought to the knife. The pork house contains a slaughtering room, in which the pigs are bled and dressed, and in various rooms and apartments the work of curing and packing the pork in every part is accomplished. About 800 pounds of lard are made weekly, and packed in tins, weighing 5, 10, and 25 pounds. Like all good lard this is not perfectly white, the latter being a production often resulting from the addition of mutton tallow; but the excellent quality is incontestable. The hams and sides are cured, the latter dry-salted and packed in cloths. The jowls are smoked and are very much in demand. Four hundred pounds of sausages are made daily, the meat chopped, not ground. The feet are nicely pickled. Every part of the creature in fact, is utilized in the manner with which all are familiar. A peculiarity of the thoroughbred pigs thus raised is the almost entire absence of bristles, so that by a careful scalding, performed just right as it is, not a vestige of hair is left in the rind of the pork, which is clear as parchment. The same regard for cleanliness is observable in the pork house as elsewhere, and the most fastidious ladies may and do witness the operation of pork-packing here, in all its departments, without the slightest repugnance.

The Market Supplied.

Now for the practical result of this plan of operation. It must be fairly understood at the outset that Mr. Burnett receives for every pound of his pork thus raised, in no case less than 25 per cent in advance on market prices for the articles as usually sold. His sales are made without solicitation, and he has never been able to supply the demand. The Astor House and Fifth Avenue hotels order largely of his sausages and smoked jowls weekly, and will have no other. Parker's and Young's hotels, in Boston, use his products every day, to the extent of several tons in a year. His lard is in such demand—the prices must be borne in mind—that it is ordered from as far away as Detroit, Michigan, parties having seen his articles at the great hotels becoming customers. Numerous visitors who have heard of his establishment, call at Deerfoot to satisfy curiosity and verify reports. The whole enterprise is as successful as success can make it, and proves the position alluded to at the commencement of this writing. Pork must always be had, and such pork as this will always sell, no matter what the state of the market, whether glutted or otherwise, and retain an independent place as regards prices, at the control and option of the producer. Is there no incentive to productive industry in these facts?

Other Details.

Only about 200 of the pigs here are raised at Deerfoot. From a stock sent sometime ago into Vermont, Mr. Burnett now obtains a supply of grade breeds, having a man to watch their growth and feeding, and transfer them to Deerfoot for the finishing of their pork. Nothing but the best ever arrives here, and the pigs' last days in life are spent in reveling, according to a pig's ideas, whatever may have been his former life. No deterioration or variation from the strict rules is ever allowed. Everything is measured by the standard, and nothing found wanting is passed.

The Dairy

But thus far no mention has been made of another principal feature at Deerfoot. The dairy is as important and as characteristically managed as any of the departments shown.

At Deerfoot, a herd of 25 Jerseys are milked the year round, and from the milk from 100 to 175 pounds of butter are made weekly. These cows are well worth looking at. One of them gave 20 quarts daily during June last; and a half dozen others give from 16 to 18 quarts daily. These are valued at from $400 to $800 each. Their heifer calves bring from $100 to $ 00 each, at one year old. They are bred on the farm. The degree of excellence is inflexibly applied here as in the pork establishment, and the results are apparent in this; not a pound of butter brings less than 75 cents to the farm at any season of the year, and during the winter not less than 90 cents. Fifty pounds of butter at 90 cents for every pound, was lately ordered from Detroit by one man. In the barnyard stand a herd of grades from Vermont; which are for sale rather than home use.

So the enterprise has become established and grows stronger. It is no longer alone, finding imitators in sundry places throughout the State. Is there not a hint in it of possibilities for hundreds of young men of the present generation? It cannot be accomplished without work, nor can anything, excepting, perhaps, speculation, and the present state of things does not illustrate that as being a very satisfactory occupation. Mr. Burnett works. The farm has 75 acres under cultivation, though no fancy crops are raised. Only such things as contribute to the departments we have mentioned receive attention. Four thousand bushels of roots are harvested, and 125 tons of English hay. But the round of work is unceasing, though it brings its reward, and gives as substantial and decided a social position to its director as any man could wish, since it is both honorable and lucrative, and besides, it will stand every test of common sense, morals and economy.—*Cor. Boston Herald.*

The Fodder Value of Apples.

In his investigation of the fodder value of apples Professor Storer confirms the observation of other chemists, to the effect that apples are very poor in nitrogen. The flesh of Baldwins and Russets yielded 15.7-17.5 per cent. of dry organic matter (the rest being water and mineral matters), and only 0.21-0.27 per cent. of albuminoids; apple pomaced 22.3 per cent. of dry organic matter, 0.98 per cent. of account the dry matter of the flesh of apples, while the dry matter of potatoes has 8.54 and the pumpkin 17.32 per cent. of albuminoids. From these facts two interesting conclusions are to be drawn. First the small amount of nitrogen explains at least one reason for the low value of apples for food and for manure; and to make economical fodder from apples or pumace, food rich in nitrogen should be added. In this way not only the sugar, but also the pectoe, of which apples are largely composed, may be economically utilized as feed.

HORTICULTURE.

Cultivation of Chiccory.

During 1875 we imported $18,000,000 worth of chiccory. We have land in every State in the Union on which it may be profitably cultivated. If our farmers in Illinois and Iowa and other States would each devote annually a few acres of good, rich soil to the cultivation of chiccory, they would not only find it a profitable crop, but save the country millions that now go to Germany, France and other countries for an article of everyday use.

The Stockton, Cal., *Independent* has the following interesting observations on chiccory, its character and uses:

"The production and manufacture of chiccory for its use as an adulteration of coffee is carried on quite extensively in this country, the factory where it is ground and put into marketable shape being located on the bank side of the San Joaquin river, a few miles southeast of Stockton. A large area of land in that vicinity is yearly devoted to the growth of chiccory, and the rich alluvial soil seems to be particularly well adapted to its luxuriant growth. The chiccory grows in wild profusion along the lanes and byways in England and most parts of Europe. It is a species of dandelion, or rather it belongs to the same botanical family as the dandelion, and there is a great resemblance in the shape of the leaves of the two, although those of the chiccory are much the larger, coarser and darker color. The root of the chiccory is fleshy and milky, and grows about the size of a parsnip or carrot. They mature in October, when they are taken from the ground and spread out to dry on raised platforms. A few days' exposure to the hot sun makes them sufficiently dry for the roasting furnace, which is made in the shape of a cylinder suspended over a hot fire and kept revolving until the roots are parched to a crisp. This and the drying process reduces them about one-fourth in bulk. After roasting, the roots are put through a mill and ground like coffee, then barreled and sent to market. There seems to be a good demand for all the products of the factory of which we speak, and it is no doubt a profitable and remunerative speculation. The beverage made from pure chiccory is unpleasant to the taste a though chemical analysis proves it to possess few of the elements in common with coffee and very little of the nutritive properties commonly ascribed to it. In cases where it is used for a long time its effects are often deleterious, especially upon the nervous system. One variety of the chiccory is cultivated in England as a salad, the tops having a pleasant, pungent flavor, and even the common variety is sometimes eaten here when other salads are scarce, but is very coarse and strong, and rather too suggestive of the diet upon which Nebuchadnezzar was for a time compelled to feed."—*Chicago Journal of Commerce.*

Covering Strawberries.

It is hardly necessary to inform our readers that al strawberries, no matter how hardy they are reported to be, winter better by being covered before the severe weather of winter fairly sets in, or even afterwards, if before the first thaw. Evergreen branches have one important advantage—they may be put on before winter begins without any danger of smothering the green plants. We have found a very thin covering, if only enough to hide the ground below, of decided benefit, the plants coming out a fresh, bright green in spring, instead of the dull green or brown when exposed. The crop is earlier, the plant beginning to grow vigorously at the first warm weather. The evergreen branches may be placed in regular, even lines, lapping like shingles the branches lengthwise with the rows, giving the beds a positively ornamental appearance, instead of the rough look caused by the use of straw, litter or coarse manure. On large plantations, evergreens cannot often be used to advantage, and straw must be employed, in which case rye straw is the best, on account of its stiffness, while soft, flexible straw, as of oats, is objectionable, as it settles compactly when wet, and tends to smother the plants. Even corn stalks effect a valuable service, if spread so thinly that half the surface is sure, by shielding from sun and wind, and holding the surface snow. In providing any kind of covering, it must be borne in mind that a green growth of leaves, like those of the strawberry, are easily injured by smothering, and that whatever protection is employed, it must be pervious to air. Farmers understand this, as applied to green wheat plants, which are killed by deep drifts of snow. This precaution is not so necessary in case of shrubs which have dropped their leaves or of herbaceous perennials or bulbs, the leaves and stems of which die down before winter.

Country residents often have a number of evergreen trees planted about their dwellings that are either extending their limbs too far and interfering with other growth, or else becoming distorted as they increase in size. Cutting off portions of these limbs at a fork (so as not to leave a dead stump) will improve them, and afford a quantity of "brush" which is just the thing for the strawberry beds. Evergreen screens often receive more or less cutting back, in which case an abundant supply of protecting material may be obtained.

Fruits in Kansas.

The following varieties of fruits were recommended by the Kansas State Horticultural Society, at its recent meeting:

The committee on condensed fruit list, omitting the apple, Dr. William W. Howsley, chairman, reported the following:

Pears.—Bartlett, No. 1; White Doyenne, 1; Flemish Beauty, 1; Duchesse de Angouleme, 1; Winter Nelis, 1; Seckel, 2.

Peaches.—Hale's Early, No. 1; Crawford's Early, 1; Stump the World, 1; Heath Cling, 1; Yellow Alberge, 2; President, 2.

Plums—Hinkley or Minor, No. 2; Wild Goose, 2.

Cherries.—Early Richmond, No. 1; May Duke, 1; English Morello, No. 2.

Apricots.—Breda, No. 1.

Grapes.—Concord, 1; Dracut, 2; Clinton, 2.

Raspberries.—Miami, No. 4; Doolittle, 2; Philadelphia, 2.

Blabkberries.—Kattatinny, No. 1; Lawton, 2.

Gooseberries.—Houghton, No. 1.

Strawberries.—Wilson's Albany, No. 1; Chas. Downing, 1; Downer's, 1.

Committee for the southern fruit district, D. B. Skeels, assisted by J. S. Williams, reported the following:

Apples.—Early Harvest, Red June, Red Astrachan, Cooper's Early White, Lowell, Maiden's Blush, Chenango Strawberry, Fall Wine, Buckingham Wine (synonym Pennsylvania Red Streak), Jonathan, Winesap, Rawles' Janet, Ben Davis, Missouri Pippin, Willow Twig.

Pears.—Bartlett, Duchesse de Angouleme.

Cherries.—Early Richmond, Belle Magnifique, English Morello.

Grapes.—Concord, Delaware, Dracut, Amber.

Blackberries.—Lawton, Kittatinny.

Raspberries.—Miami Black Cap, Doolittle Black Cap.

Gooseberries.—Houghton.

Additional varieties by J. S. Williams.

Apples—Summer—Summer Rose, Early Pennock. Autumn—Fameuse. Winter—Wagoner. Yellow Bellflower, Dominie.

Crab.—Hysop and Transcendent.

Peaches.—Hale's Early, Large Early York, Stump the World, Old Mixon (free and cling), Crawford's Late, Smock, Heath Cling.

Pears.—Flemish Beauty, Belle Lucrative, Seckel.

Plums.—Hinkley or Minor, Wild Goose.

Apricot.—Breda.

Grapes—Delaware, Clinton.

Strawberries.—Chas. Downing, Wilson's Albany.

Mr. Shinn endorsed the report.

How to Make a Hot Bed.

A good hot bed may be made upon the surface of the ground, piling up the manure from two feet six inches to three feet high, and at least six inches wider all around than the frame. This extra width tends to preserve the heat within the frame; and if it be a foot wider than the frame it would be better than six inches. The situation should be where the soil is dry; and the bed should front to the south, or as nearly south as the location will permit. The sashes should either be procured before the bed is made, or their exact size should be known when the frame is made; and the frame may be made to hook closely together, so as to be removed and easily stored away when not in use. Fresh horse dung is the best manure to produce heat. It should be thrown into a heap and wet slightly about a week before it is placed on the bed and turned over once or twice before using it to increase the heat. When put on the bed, tread it down firmly, and cover it about six inches deep with light, rich soil, and ascertain the degrees of heat when you desire to sow your seeds, by plunging a thermometer into the soil; and if too warm, wait a day or two for the bed to cool. Seeds will stand a heat of 90 degrees very well. Sometimes seeds are sown in pots and pans, which are plunged into the manure without any covering of soil; but in such a case, it should be covered three or four inches deep with sand or ashes to retain the heat. Wooden boxes six inches deep, made of very thin boards, about two feet long, and one foot wide, would be better than pans and pots for some kinds of plants. The bottom might be zinc, or galvanized sheet iron, perforated with small holes to allow water to pass through them, if the watering should be too copious. Such boxes could be packed in without any waste of room; and they could be easily removed to fork up the bed anew to increase the heat, or to allow a new bed to be made, when the heat of the old one is too much exhausted.

Ink for Horticultural Labels.

There is so much inquiry lately for ink for writing on zinc labels, that a good receipt for such an article may benefit some one. It is an old one, and has probably appeared in your columns long ago, but it is worth repeating. It is as follows: Powdered verdigris, 2 parts; sal ammoniac, 2 parts; lampblack, 1 part; water, 20 parts. A quill pen will be necessary, as it will corrode a steel pen very quickly. Any druggist will put up a small quantity of this mixture for a few cents, as all the ingredients are inexpensive. Labels written with this ink, and bearing the date 1856, can be seen in the orchard of one of my neighbors, as legible as the day they were written. This is proof enough of the value of the ink. Zinc labels are now advertised for sale, but any one can make them with the aid of a pair of tinner's shears—a tool that every farmer should possess. From a strip of zinc four inches in width, cut off labels half an inch broad at one end, and tapering to a point at the other. By cutting the broad end of the label at each edge alternately of the zinc strip, nothing is wasted, and each cut gives a label. The name and date (and the latter should never be omitted) are written on the broad end of the label, and the other end twisted loosely around a twig of the tree to be marked. This is some trouble, but not too much when the work is to last a lifetime.—*A. H. Chester, in Country Gentleman.*

The English Hop Trade.

A correspondent of the Mark Lane *Express* estimates the English production as follows: Mid Kent district, 17,000 acres and 119,000 cwt.; East Kent, 12,000 acres and 78,000 cwt.; West and North Kent, 4,000 acres and 12,000 cwt.; Weald of Kent, 10,000 acres and 60,000 cwt.; Sussex 11,000 acres and 55,000 cwt.; Worcester and Hereford, 9,000 acres and 13,500 cwt.; Surrey and Hants, 5,500 acres and 33,000 cwt. The total area is given at 68,500 acres, and the aggregate product 370,500 cwt., or 5.41 cwt. per acre. The writer quotes a recent circular of a leading firm of brewers, stating that crops on the continent are everywhere short: in Bohemia, especially, there is a general failure. An average crop on the whole continent would produce from 1,000,000 to 1,200,000 cwt., whereas the actual yield is supposed not to exceed from 260,000 to 300,000 cwt., while the actual consumption is between 550,000 and 600,000 cwt., and the stocks, remaining over is supposed to be between 150,000 and 180,000 cwt. In England old stocks are remarkably low.

Grafting Currants.

The *Rural New Yorker* says: Lovers of the currant and gooseberry have reason to feel jolly over the success, which seems to attend grafting them upon the Missouri currant (*Ribes aureum*), which is not liable to the attacks of the borer. Besides, they are exempt from mildew. And thus by a single, happy hit the two great drawbacks to currant and gooseberry cultivation have been over come. The beauty of these little trees, when loaded with their pretty berries, as displayed at the Centennial, is of itself enough to insure their general cultivation. It would be well for those who intend experimenting with grafting enrrants to bear in mind that there is a great difference in the varieties of the Missouri currant, some making better stocks than others.

DOMESTIC ECONOMY.

Boiled Dinners.

The degeneracy of the modern stomach spoils the application of some of the best of our series of gastronomic essays. To write of pies, or puddings, or hot buckwheat cakes, or boiled dinners, or any other hearty and generous food, for this generation of dyspeptics and in-doors men, is like descanting upon skating and rowing in a hospital for cripples, or dilating upon music and oratory in a deaf and dumb asylum. There are so many "tea and toast" chaps, and oatmeat and bran-bread lunatics, and gastric-juiceless individuals who devote their time to finding out what "doesn't agree with them," that one cannot count upon the sympathy of his readers when reviving one recollections of good living.

Nevertheless, we deem it a duty to do our part to prevent the abolition of the old-time "substantials." Chief among these we must ever rank the boiled dinner, which, if the cooks keep on refining it, will soon be "though lost to sight, to memory dear." For a boiled dinner, like baked beans, cannot survive "style." A genteel boiled dinner is to the real article what a gas fire in a gilded cast-iron back log is to the old glowing brick fireplace. As the first innovation, the potatoes were mashed; then the beets were omitted; then sweet, juicy, home-made corned beef was supplanted by a leathery "remnant" from the butcher's; then each article was cooked separately; and finally the cabbage was banished, because it "scented up the house" in cooking—though a boiled dinner without cabbage is like a roast turkey without stuffing, or the play of ham and eggs with the ham left out. A piece of boiled salt beef, flanked with a few regulation vegetables, cooked as they are for any other meal, doesn't constitute a boiled dinner any more than a fricasseed fighting cock makes a game supper.

For the genuine boiled dinner, such as did good to the stomachs and souls of the sturdy men who "made and preserved us a nation," you want, first, a good piece of corned beef—not the lean, brown, bony slabs that are commonly set apart for that purpose, and eventually go to the hash-bowl, but a thick, tender cut, with liberal streaks of fat and lean. We confess to a preference to the home-pickled meat; but if you can't have that, select a piece fresh and have it put in your butcher's barrel with a pinch of saltpetre added to give it color. Then take Savoy cabbages—about one more than you think you will want; some white French turnips—to be boiled with the beef, cabbage and potatoes, and served hot, in slices. Select potatoes that will boil dry and tender without falling to pieces. Beets boiled separately, and served in hot vinegar and butter, complete the list. The condiments are not a slight matter—nothing is, about a good dinner. To some people any colored fluid that is a trifle sour is vinegar; but the instructed taste knows better, and craves the genuine article on its boiled dinner. The mustard should be mixed fresh, for those who like it; an ancient pot of mustard is as bad as salt that has lost its savor. There should be no dessert after a boiled dinner, unless it be fresh fruit. Nothing is more incongruous or unnecessary than a lot of pastry or sweetmeats after such a repast.

Of course, everybody can't safely eat such a meal. But let none such imagine it is the dinner, rather than their stomach, or mode of life, that is at fault. A man who huddles into a crowded street car and hurries to his business, bends over his desk, or perches on his stool, or stands at his counter, all day, with not a breath of fresh air in his lungs, or exercise enough to stir his sluggish blood—who dashes out for ten minutes to swallow a hasty lunch, and brings a fagged mind and listless body to his hearty meal late in the day—who robs himself of sleep only to continue his work, or seeks recreation in the vitiated air of a crowded theatre or hall—such a man cannot be expected to really relish any hearty food. But he should not, in justice, berate the articles that others find wholesome. "Because thou hast suddenly become virtuous, shall there be no more cakes and ale?" or, to paraphrase the quotation to meet the case, Because you have not the stomach of a man, shall there be no more boiled dinners?—*Golden Rule*

Repairing Leaky Cellar Walls.

The season now at hand is the one most important for making cellars dry and cleanly. In fact, the repairing of leaky cellar walls should never be delayed, since the crevices are continually widened by the water soaking through. Cement, tar and water-glass are the best materials for the purpose, but the last two can only be used as a time when the cellar is dry, as in winter, perhaps even in September, or after drying and airing it in winter by artificial means. When nearly dry, the leaky portions of the wall can be readily recognized, and should be marked with charcoal. Holes and cracks should first be filled with hydraulic cement. The marked places, when dry, should be coated three or four times with a solution of one volume of commercial water-glass in two of water, and finally, after becoming perfectly dry, with a solution of one volume of water-glass in one-half volume of water. Instead of the solution of water-glass, tar, kept quite liquid by heating, may be laid on a number of times. If cement is to be employed, the marked portions of the wall should be cut out wedge-shaped, and carefully filled with a cement, rather thickly made up, with one-half sand. If the cellar cannot be dried, the moist places should be cut out somewhat deeper (4 to 6 inches), and filled with cement by placing a tube of material, about as thick as a finger, in the middle, and packing the cement in tightly around it, and, if necessary, holding it in place with a board until it hardens, while the water escapes through the tube without exerting any pressure upon it. After 20 or 30 days the opening may be plugged up.

Handy Men.

Next to a good mousing cat, a faithful watch-dog, and a good family chestnut-colored horse, is a handy man. Now don't misunderstand me, and say that I compare a man with either of my favorites in the speechless world, not at all. Man is the noblest work of God, except a woman; but really a handy one I am unable to class. Conceive of anything about a home more desirable, when circumstances have compelled you to neglect home duties, or rather postpone them, than for a man to fill the surcease by being able to wash dishes, make beds, sweep, make bread, and in straightened times darn his own stockings, sew on his buttons, and preserve his habitual good humor. If so, there is no ruffle or splash in the home life in consequence of the inability to maintain the order and comfort of the household. Of course the season of the year favors the demonstrations of handy men. We should not expect him to leave his plough, harrow, or mowing machine, to help in the kitchen, but if he came to eat, and had a mind to place the chairs, fill the ice-pitcher, or pare the potatoes, it might contribute wonderfully to the comfort of the tired housewife; not only by saving steps, but the feeling of appreciation that cheers up many a tired worker, and braces them up for the numberless duties about a home. Handy men are generally fortunate in getting good wives, and any woman is fortunate who has a handy husband.—*Miss Ruby, in Maine Farmer.*

Healthful Beds.

Germany excels any country with which I am familiar in the cleanliness of its beds. It seems as much a part of yearly house-cleaning with them to have the hair removed from the mattress, to have it well beaten and sunned, and the cover washed, as it is with us to have the carpets whipped and freed from their disease-begetting dust. I grant that it would be a difficult and expensive undertaking for an American housekeeper, for skilled laborers are rare, and when found must be well paid, as they should be. Knowing the obstacle, then, in the way of thorough renovation of our beds, we should take all the more care to protect and air them. Every bed should have especially made for it, the size of a tick, a white, tacked comforter, not too thick so as to be unmanageable in washing; over this the sheet is spread. Every bed in daily use should be subjected to the purifying rays of the sun at least once a week, and should be left open for the reception of air and light some time before being made up. Beds not frequently used are often found very musty and disagreeable to guests. The parlor beds that swallow their own contents by a magic touch, are fair without, but in time, for the lack of proper airing, they become foul within.

Valuable Recipes.

CRAMP.—Take of water of ammonia or of spirits of hartshorn, one ounce; olive oil, two ounces. Shake them together till they unite, and use as a liniment to rub well on the afflicted part.

SUET PUDDING.—Three quarters of a pint of chopped suet, one pint of milk or water, one egg beaten, one-half teaspoon salt, and enough flour to make a stiff batter but thin enough to pour from a spoon. Put in a bowl, cover with a cloth and boil three hours. The same, a little thinner, with a few raisins added and baked in a well greased dish, is excellent.

SAUCE FOR STEAKS AND STEWS.—For one quart, cut into dice one carrot, two onions, one head of celery, and two turnips, fry lightly in a small quantity of butter; stir to prevent burning; add sufficient of brown sauce to make the required quantity; boil slowly until the vegetables are done; put in a pinch of sugar, a little pepper and salt, and it is fit to serve.

MINCE PIE.—Seven pounds round beef, lean, two pounds stoned raisins, two pounds currants, two pounds beef suet, one peck apples, four pounds powdered sugar, one-half pound citron, one-half ounce of powdered cloves, one-half ounce powdered mace, one-half dozen nutmegs, one ounce of cinnamon, scant, three teaspoonfuls salt, one pint brandy. Chop all fine together; when making pies mix a little cider. This will make fifteen good-sized pies.

SPICED BEEF.—Take some nice suet, or three or four slices of pork; fry in a pot until it is a light brown; then lay in a piece of raw beef; brown it on both sides; then cover it with water and let it stew over moderate fire five or six hours, according to the size of the beef; add an onion, two bay-leaves, half a teaspoonful of mace, a teaspoonful of whole cloves and allspice mixed; pepper, salt, and vinegar to taste; add water as it boils away, so that there may be enough to make gravy when the meat is done.

RUBY CAKE.—Beat to a cream one pound of sugar and one pound of butter; add eight well-beaten yolks of eggs and one grated nutmeg, and stir in the coloring matter, made as follows. Grate a beet root to fine shreds, with a very little water; let it stand one day and squeeze through a linen cloth. One wineglassful of this essence should be added to the other ingredients. Then stir in one pound of flour; lastly the whites of the eight eggs, beaten to a stiff froth.

QUEEN PUDDING.—Take one pint of fine bread crumbs, (or their equivalent in bread soaked and rubbed through a colander,) one quart of milk, one cup of sugar, the yolks of four eggs beaten, a piece of butter the size of an egg, and the grated rind of one lemon; beat the bread, milk, and eggs light, then beat in the other ingredients, and bake until done, but not watery; whip the whites of the eggs to a stiff froth with a cup of sugar and the juice of one lemon, on top of the pudding spread a layer of jelly or jam, then the whites of the eggs: brown slightly and serve hot. It may be made without jelly, and eaten with hard sauce.

MAKING CIDER VINEGAR.—A correspondent of the *Country Gentleman* gives directions as follows: "Make the cider as early in the season as possible. When the barrel is filled let it remain where the sun can shine on it part of the day. Leave the bung out and insert the neck end of a bottle. This will let the air in, while it will keep the flies out. Put into each barrel one sheet of foolscap paper, a half pint of white beans, and a half pint of good brewers' yeast, or other yeast that is as good. Also, if you choose, put in a pint of molasses. Manage in this way and you will have vinegar in six weeks. Remember that good cider will make good vinegar.

LIVE STOCK.

Experiments on the Nutrition of Domestic Animals.

In conducting the feeding trials at the German stations, where nearly all of the later experimenting in this line has been done, neat cattle, sheep, goats, horses and swine receive different foods in varying proportions and mixtures, and the effects are accurately noted. Among the questions whose solution has been sought are, the chemical composition of different food materials, and the proportions of food ingredients in each, as albuminoids, carbohydrates, and fats, which are digested by different animals; the parts they play in the animal economy, which elements are the "flesh formers" and which the "fat formers; which make the fat (butter), and which the casein (curd) of the milk; which produce heat and muscular force, &c.; in what proportions and mixtures the animal will digest most fully and use most economically the food ingredients, and, finally, what amounts of each will be needed and utilized to the best advantage by different animals and for different purposes.

The care and patience and thoroughness with which these experiments are conducted, the amount of labor and time and money they cost, and the ways that their results are applied, would be quite astonishing to most American farmers. Careful weighings and analyses are made of the food the animals consume, the milk they produce, the excrement and urine they void, and even the air they breathe. A single experiment often requires the hard and unremitting work of several chemists day and night for several weeks or months. "The accounts of the experimental investigation on the subject of animal nutrition that have been published during the last fifteen years in the German language alone would make what most people would call a good size library. The experiments thus described are numbered by hundreds and even thousands, each one of which has cost the labor of days, weeks, or months. They have called in requisition the service the ablest scientific men and the most successful farmers. They have involved an incalculable amount of thought, care, and toil in the laboratory, the stable, and the study. The labor, much of it of a mental sort, has been performed willingly, even enthusiastically, by those to whom it has brought not wealth, but only meager support. Nor has the work been in vain. These investigations have done a vast deal to settle the questions about stock-feeding, which occupy so much space in the papers, and which are as perplexing as they are important to millions of farmers on both sides of the Atlantic. Combined with the results of daily farm experience, they have shown for what purposes different kinds of fodder-materials are best fitted, and how much each is worth. They have taught the farmers how to make valuable fodder out of poor hay and straw; how to employ lucerne, seradella, clover, and other forage-crops to the best advantage; how to utilize waste products such as flaxseed and cotton-seed and the oil-cake made from them, also the refuse from the manufacture of sugar from beets, and of alcoholic spirits and starch from potatoes and grains. They have shown in what proportions these and other fodder-materials should be mixed and used, so as to get the greatest benefit at the least cost." In brief, this sort of work is supplying German farmers with just the information they need in order to keep their stock, and produce meat, dairy-products, and whatever else comes from the maintaining of domestic animals, most rationally and with the largest profit.

The Horse Growers.

Going into Orange county, New York, you find on every hundred acres, a neat and capacious white house, with well kept fence, a few rose bushes, a convenient garden, ample barns. Inside these houses you will be apt to find a wholesome, handsome woman and four good children—that is the average. If this woman does not know what good butter is, and how to make it, good bread and how to make it; if she does not know a good horse or cow when she sees it, a good farmer as soon as she puts her eye on his land, it will be surprising. If every woman in every house does not own and wear a good silk dress, if there is not in every house a newspaper or two, a magazine or two, and twenty good books, it will be more surprising still. These houses are furnished with good carpets and good beds, and in many of them stands a piano, which some daughter can use passably well. On Sundays and on fair days, these men and women and children have a good carriage and a horse or two, with which they can ride. They are as well off as mankind can be, and they ought to be content.

For myself, I should like to see introduced here the English fashion of fortnightly market days, where at the central town on a particular day, buyers and sellers should meet, the one with productions the other with money, for mutual exchange. I believe this would promote and satisfy the social feeling, which now may sometimes go hungry, and I am sure it would be pecuniarily beneficial. Five good farmers can start it in any district, and I trust they will in Orange county. The principal products of this rich county are butter, cheese, milk, cattle, hay and horses. It is with the last that we have to do. Three great stud farms are to be seen there; and, besides these, good horses, in ones and twos, are bred on nearly every farm. This, indeed, has been the usual method until within a few years, when capital, brain and experience combined, have organized great businesses, as to which I only propose to report progress.

On these great farms are to be seen, running loose on the snow-covered fields, herds of yearlings and two-year olds, rough, unlicked, long-haired. It is not easy for the unmitiated to believe that some of these unkempt creatures are worth more than a thousand dollars as they stand. But, with singular confidence, they come up to you, they put their noses into your hand, they wish to nip at your coat, they have no other idea than that you are their friend. Then you begin to see that they have broad faces, great, intelligent eyes, quick, flexible ears, and confidence. You are pointed to the depth of chest, which indicates lung-power and large hearts. You see that they are even now strongly developed behind, where the great propelling power of the trotter lies. You see, too, that the stifles are wide, and that the muscles creep well down toward the hock-joint, which is low on the leg. Very soon you begin to believe that these uncombed, wild-looking, but gentle colts are, indeed, worth money, and that they are the stock from which is to be developed the gentlemen's road horse of eastern America in the coming time. You go into the open yards and find in groups of five or six, the brood mares, as rough-looking, as unpromising as their children; but you learn that most of them have racing blood in their veins; are descendants of Mambrino or Abdallah or Clay or Star, or some other of the noted horses; and nearly all have made their mark, have done their mile in 2:50, 2:40 or 2:30, and so have won their places as mothers of noted offspring.—*Our Great Farmers, by C. W. Elliott, in Galaxy.*

Symptoms of Rabies in Dogs.

A dog previously of lively disposition, shows sullenness. His eyes change from a dull to a sharp, glaring expression. He walks most of the time with the tail hanging down. If he has the privilege of the house, he will walk around and sniff at different objects of furniture, raise his hind leg, and allow himself privileges which he never did before. If he has a rug to lie on, he will scratch it in a heap, and lie on it with his chest, and not on his side. His mouth is hot and dry, his pulse beats hard and quick; he is always thirsty, and drinks a good deal of water. He will sometimes come up to his master, look him in the face with glaring eyes, as if he wishes to tell him, "There is something the matter with me." A dog like this should be securely chained, and closely watched. Within eight days he will commence to chew with his mouth, froth will issue from it, spasms set in, during which he will lie on his side and roll around in a circle, yelping and frothing from the mouth. After the spasms subside he will stagger away, as much as possible in a straight line, till his head strikes an object, when he will bite and turn in a different direction, till he strikes again and dies.

The two senses of hearing and vision are gone, only the sense of feeling is unimpaired. He will walk into fire as well as into water till he touches it and turns. He will attempt to bite into stone or any other object, as well as into living beings. If not killed quickly, *tetanus* (lockjaw) will soon set in and end his trouble, and danger to man and beast. The bite of any dog is dangerous, as he only bites under nervous excitement, which bite may produce hydrophobia in a nervous person, but the bite of a dog as above described is always fatal sooner or later, according to the nervous condition of the person so bitten. After a person has been bitten by a dog or cat, the first thing to do is to quiet the nervous system with ether or other anæsthetics, put them to sleep and keep all excitement from them. Get the root *Tetus foetid* (skunk cabbage) if it can be had fresh, grate it or pound it to the soft consistency of a poultice, incise the punctured wound if not lacerated and put the poultice on it and renew it every three hours. If fresh roots cannot be had obtain the pulverized preparation from the druggist and moisten with water to a poultice consistency. This remedy has been employed in cases of snake bites, especially rattlesnakes and vipers, with good results, as I am creditably informed by men who had been bitten and could show the marks of the bites plainly. As the effect produced by the bites of rabid dogs and reptiles is the same, except in type and time, and the root grows in all our swamps, the remedy may easily be employed in both cases. Yours truly.—*Dr. H. A. Rosenthal, V. S., in Turf, Field and Farm.*

Lumps in Udders.

Take poke root and chop it up fine and beat it into pumice; take a teacupful and put in a quart of meal, and feed to a cow whose udder has lumps in it, and they are removed at once. The remedy is infallible.

BEE CULTURE.

Queen Bees.

We find in the London Journal of Horticulture the following entertaining speculations respecting queen bees:

The more I learn about bees the more conviction forces itself on me, that many statements recorded and repeated again and again about them are fallacious. I do not accuse observers of willfully deceiving, but some new or wonderful occurrence is seen, or believed to be seen, when it is at once recorded as a habit of the bee. Mrs. Tupper has said "bees do nothing invariably;" nothing could be more true, and sometimes they do things which at the time are to us wholly unaccountable. To exchange a queen is a common operation with me, and my experience is, that, as a rule, to release one six or seven hours after caging, would be found a dangerous proceeding. Last month, when the weather was very cold and likely to continue so, I risked the introduction of two queens without any caging, simply because I did not want the stock chilled. The first stock, which had been queenless some time, killed their own sovereign; the second, where I merely took out their own queen and dropped the other in her place, accepted her all right, and she lives still. Now, had my opinion been asked as to what would occur I should just have reversed the events.

The introduction of a strange queen into a hive where one already reigns, I do not believe troubles the latter whatever. I have put in scores and find the result as follows: The first bee which discovers the intruder seizes her by the leg or wing and holds on, and then comes another and another until she is covered; still the bees crowd on, holding to one another until a solid ball as big as a bantam's egg is formed with the queen in the midst. A vigorous hissing is kept up, and so intent are the bees on their attack that the ball of bees may be taken up into the hand without any fear of stinging. At the Alexander Palace Bee Show, I several times caused the formation of such a bee ball, which was handed among the spectators from hand to hand. I find the workers rarely sting a strange queen; they will keep her encased until she dies or their fury abates, and then release her. I have known one confined in this manner for a fortnight, when she dies; it is certain they must at least sometimes feed the prisoner, for a queen will die of starvation in twelve hours. So eager are they to encase a new queen, that if the latter be held by the wings with the thumb and finger, the bees will gather there in a ball. I have said workers rarely sting a queen, but they do sometimes. I have seen almost the first bee that perceived her, jump on her back and sting her in an instant when she would quickly die—not always however, for twice have I seen a queen stung and the sting left in her, and yet no fatal result occur.

Managing Queens.

Remembering the old tale of how the reigning queen would seek out an intruder, some two or three years ago it occurred to me what an easy way it would be to extract the old queen from a skep to substitute a new one if I first caged the latter in the hive. I tried it several times, but in no instance did I ever find the old queen come to my bate. Several times when wishing to preserve a queen for a few days I have caged her in the midst of a populous hive, where she obtained food and warmth. I never found a reigning queen trouble herself, although the cage would be sure to be thickly covered with the excited workers. I am also skeptical as to the invariableness of fighting to the death between queens which meet. If we put two queens under a wineglass, and watch the result, we see them seize each other, wrestle and fight like two gladiators, and sometimes one receives a sting and dies, but more often they separate, again come together for another battle with still a negative result. This is repeated until they get tired of fighting and let each other alone.

Twice this year I came across instances of two queens in a hive, but I do not think in either case they were both fertile. In the first instance the old queen was evidently worn out. She had bred an inordinate number of drones—no hope of a swarm; yet instinct guided the bees to raise a young queen, which soon took the place of the old one, which I found thrown out of the hive. I once divided a hive by a diaphragm of perforated zinc, filled each half with combs and a swarm, gave entrance to one colony in front, and to the other at the back of the hive. It was no use. One queen went on with her maternal duties, the other was encased by her own bees. I caged and released her several times, but in vain, the bees had evidently made up their minds it was one hive, and therefore they would not have two queens.

Golden Rules for Bee-Keeping.

Rev. J. W. Shearer furnishes the *Bee-Keeper's Magazine* with the following rules:

1st. For success. The successful bee-keeper should be firm, fearless, prompt, provident, persevering, systematic and self-reliant.

2d. For situation. The apiary should be in a sheltered position, near a small stream, and where a variety of honey plants, some of which yield *abundant* and others *constant* supplies of the nectar.

3d. For removing bees. Allow for abundant ventilation, close up firmly, invert and place in a spring wagon so that combs run with and not across the wagon. Unless removed a mile or more hives should be moved by degrees, only a foot or two at a time, or many bees will be lost.

4th. For hives. The general advantages of manufacture, simplicity, capacity, wintering and adaptation to the requirements of the particular apiarian are to be considered. It is essential that every hive, frame, box, and movable part be of the same size so that each will fit with all.

5th. For handling. Move gently and without sudden or violent motions in all work about the apiary.

6th. For subduing. "Bees filled with liquid sweets do not volunteer an attack." Hence cause them to fill themselves with honey by smoking or drumming.

7th. For smoking. Use dried buffalo chip from the cow pen. It costs nothing, is the best material and when lighted lasts a long time.

8th. For protection. Use a bobinet vail sewed up at both ends, one fastened with rubber around the hat, the other secured under the coat collar.

9th. For sweeping bees. Use a green twig or bunch of asparagus, never a feather.

10th. For stings. Do not flinch if stung. Scrape the sting out with a knife or finger nail, pinch the wound and apply soda, hartshorn, or whatever alkali is found best by the particular party.

Wholesale Death of Honey Bees.

R. F. Criley, residing at Isabella station, Wilmington and Reading railroad, was the owner of six large hives of bees that stored a great deal of honey last year, but at present he is fearful he will lose his entire bee family. Those in two hives are already dead, and all the others are in a dying condition. He says that he had not taken any honey from them since last spring, and the hives are full of honey, showing that they are not starving. He took the combs out of one hive and examined them, without finding a single worm or indications of anything else being wrong. There were 18 combs 11 inches wide, filled with honey, but all the bees were dead. The bees are in patent hives against the southern side of a board fence and protected from the northern winds, occupying the same location they did a year ago and flourished exceedingly well. The cause of the death of the bee is unknown.

LITERARY NOTICES.

THIRTY-TWO IMPERIAL quarto pages weekly, (8 of which are supplementary) constitute the superficies of the *Agricultural Gazette*, "an illustrated journal for land-owners and tenant farmers," published at No. 7 Catharine street, Covent Garden, London, England, by Alexander K. Bruce. Printed on faintly buff tinted paper of superior quality, and remarkably well finished and plainly impressed type. Its "make up" is very compact, its contents of a superior quality and of a diversified scope; in short, it is a perfect *vade mecum* to the agriculturist and rural economist. It contains valuable weekly market reports; discussions of farmers' clubs and societies; weather diagrams; tabulated statistics; synoptic parliamentary proceedings, in addition to the usual matter found in agricultural papers; and last, not least, each number contains nearly one hundred advertisements from five lines to a whole column. We are intensely American—from the heels of our boots to the crown of our hat—and we have always reposed the greatest faith in "Yankee Doodle;" but such spectacular manifestations as *The Agricultural Gazette*, *The London Times*, and especially our visits to our late Centennial and International Exposition, admonish us that our country does not occupy—either physically or intellectually—the whole of the largest circle which can be drawn within a square, and all other parts of the world only the outside corners. And in the spirit of this metaphor we are in sympathy with the editor of the *Gazette* in his strictures on the Queen's speech, which practically includes all other interests of her realm within a similar circle, and pushes the interests of agriculture out into the corners, if she recognizes them at all. We are much in the same category on this side of the water.

The following from the supplement of the *Gazette*, taken from the *Irish Farmer*, on "American Beef," will be good news to our countrymen who are interested in the exportation of that article of commerce:

"The first supply of American beef, 60 quarters, equal to 15 live beasts, direct from shippers, Messrs. Bell & Sons, Glasgow, arrived in Dublin, per Duke of Argyle, on Tuesday, at the North Wall, and was immediately conveyed to the appointed agents, Messrs. Tieman & Hogan, 41 Talbot street, Dublin, and was at once disposed of by this eminent firm by public auction to the vituaing trade. The following were the principal purchasers: Messrs. Case,' Bruton, Dunne, Byrne, Mooney, Daly, Lawler, O'Loughlin, and others. Competition was spirited—forequarters realizing from 5¾ to 6½d. per lb.; hindquarters 8 to 8¾d. per lb. The quality was rich and good, the meat in good preservation, remarkably well killed, and perfectly free from discoloration and smell."

The farming population that can sustain such a journal as the *Agricultural Gazette*, must be more than ordinarily a reading people; therefore, whatever progress we may be making on this side of the Atlantic, in the establishment of public schools, and the diffusion of knowledge, we may find that they are keeping pace with us in the old world. They probably have not as *many* readers as we have, in proportion to the population, but there may be more of that practical "John Bull" solidity about their reading than we possess. If we permitted ourselves to descend to selfishness, we might envy the *Gazette* its liberal advertising patronage. If any of our readers desire to patronize a foreign journal, in addition to their own local paper, we commend to them the *Agricultural Gazette*, as one that would be likely to realize all their expectations, and would cost them less than $3.00 per year.

ARITHMETIC MADE EASY. Ropp's Easy Calculator is a new publication that must prove of incalculable benefit to farmers, mechanics and business men. It is so *rapid and original* as to startle the most scholarly, and yet so *simple* and *practical* that the most *illiterate* in figures can *instantaneously* become his own accountant. It enables thousands to *accomplish* in a minute what they could not *learn* to calculate in many months.

The first part contains an entirely *new system* of tables which show *at a glance* the exact value of all kinds of grain, stock, hay, coal, lumber, merchandise, etc., from *one pound* to a *car load*, and for any price that the market is likely to reach; the interest on any sum for any time at 6, 7, 8 and 10 per cent.; correct measurement of all kinds of lumber, saw logs, cisterns, tanks, granaries, bins, wagon beds, corn cribs, time, wages and many other valuable tables.

The second part is a *practical* arithmetic and embodies a simple mathematical principle which enables *any one* familiar with the fundamental rules to become a *lightning calculator*; and by which over *two-thirds* of the figures and labor required by the ordinary methods, and *fractions* with their intricacies, are *entirely avoided*.

The work is nicely printed on fine tinted paper, is well and elegantly bound in pocket-book shape and is accompanied by a silicate slate, memorandum and pocket for papers. It is by far the most complete, comprehensive and convenient pocket manual ever published. Prices: bound in Russia leather, gilded, $2.00; morocco, $1.50; fine English cloth, $1.00

THE AMERICAN FARMER for February, 1877, a royal octavo of 32 pages, published by Samuel Sands & Son, No. 9 North street, Baltimore, Md., at $1.50 a year. This excellent agricultural journal was established in 1819, hence it is now in its 58th year, ripe in years, ripe in agricultural literature, and ripe in general usefulness; and from the fact that the number before us has 21 pages of advertising matter in it, we may infer that its status as a circulating medium, and a diffuser of useful knowledge is appreciated and fully recognized. We in Lancaster county shake hands with "My Maryland" across "Mason and Dixon's line," and also, because personally those dear to us by the ties of blood are domiciled within its borders, it seems nearer than other States. This journal is exceedingly well conducted, able in its composition and compact in its "make up," containing more that s really useful, and condensed n a smaller space, than is given by any of our exchanges.

OUR EXCHANGES, among which are such standard publications as the *American Agriculturist*, the *National Live Stock Journal*, the *Gardener's Monthly*, the *Canada Farmer*, the *Sanitarian*, the *Penn Monthly*, the *Laws of Life*, the *Herald of Health*, the *Kansas Farmer*, the *Semi-Tropical*, the *Bee-Keepers' Magazine*, the *Practical Farmer*, *Wallace's Monthly*, and a number of others for 1877—and all entitled to a more special notice—regularly appear on our table, and to whom we can now only extend a general greeting. Here they are all around us, and seem like old friends. They are all well known to the reading public—all worthy of support, and none of them need our commendations to entitle them to recognition. Of them in detail anon.

AN ESSAY ON NEW SOUTH WALES, the mother-colony of the Australia, by G. H. Reid, Honorary Member of the Cobden Club. A royal octavo of 171 pages, with many maps and charts. Those intending to visit New South Wales, Sidney City, or any of its settlements, would do well to consult both of these volumes, especially as recent inducements have been held out to those who desire to migrate to that country, on account of the demand for laborers.

WE CALL the attention of the readers of the "*Farmer*" to the the advertisement of "Buffalo Fertilizer Co., in another column. Their claim to make "Honest Fertilizers" is well established, and no one who deals with them or gives their article a fair trial will be disappointed or dissatisfied.

REPORT OF THE RAILWAYS OF NEW SOUTH WALES, their construction and working from 1873 to 1875; a fine volume of 128 pages, full of statisticals and maps, and 8½ by 19½ in size, by John Rea, A. M., Commissioner of Railways, presented to Parliament by command, Sidney, 1876.

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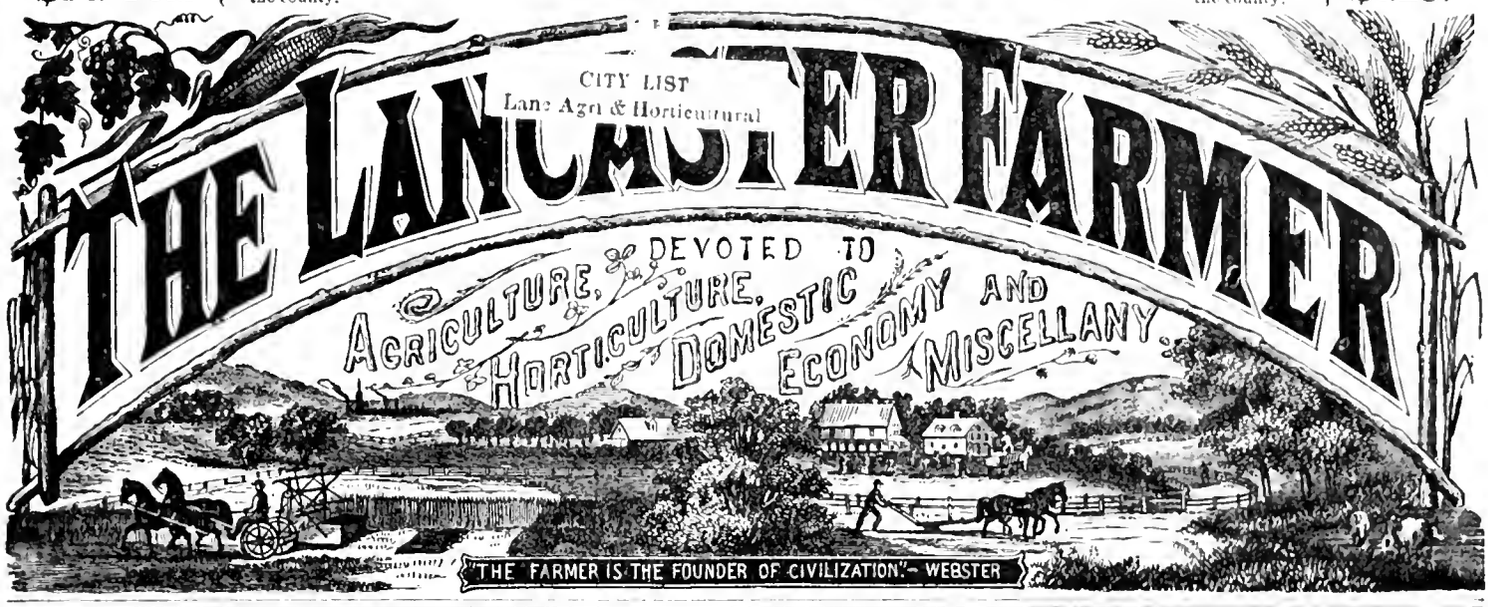

Prof. S. S. RATHVON, Editor. LANCASTER, MARCH 15, 1877. LINNÆUS RATHVON, Publisher.

THE FARMERS HOME ORGAN.

The Lancaster Farmer;

A MONTHLY NEWSPAPER,

DEVOTED TO AGRICULTURE, HORTICULTURE, DOMESTIC ECONOMY AND MISCELLANY.

PRACTICAL ENTOMOLOGY

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Founded under the auspices of the Lancaster County Agricultural and Horticultural Society.

Edited by Prof. S. S. RATHVON.

THE LANCASTER FARMER having completed its eighth year under various vicissitudes, now commences its ninth volume under, it is hoped, more favorable auspices than attended its former volumes. When the publishers of the last two volumes assumed the responsibilities of its publication, it was with a determination to make such improvements as would place the farmer's organ of this great agricultural county in the very front rank of agricultural journalism. That this has been accomplished we think our readers will bear cheerful testimony. If reasonably sustained, our aim is to make it still more interesting and instructive under its new proprietorship. In this, however, we need the co-operation of every friend of the enterprise.

The contributions of our able editor, Prof. RATHVON, on subjects connected with the science of farming, and particularly that specialty of which he is so thoroughly a master—entomological science—some knowledge of which has become a necessity to the successful farmer, are alone worth much more than the price of this publication.

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22 South Queen Street, Lancaster, Pa.

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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., MARCH, 1877. Vol. IX. No. 3.

THE COUNTRY.

The "long agony" that has agitated the political interests of this country ever since the Presidential nominations, is now over, and although the result may not be satisfactory to *all* of the people—and perhaps never will be—yet, under all the circumstances, events may have been permitted to transpire, that in the end will be overruled for good. Indeed, the seeming end that has been finally attained, attests that, aside from all bombast or national egotism, ours is an extraordinary country, and we an extraordinary people; and forcibly illustrates that "the race is not always to the swift, nor the battle to the strong." Peradventure, it is written, that "Evil shall slay the wicked;" therefore let those who have done the evil "stand from under," for surely in all that relates to the moral welfare of the human family, there is *One* whose will will ultimately "bring it to pass." The nation requires and desires tranquillity, and whether or not that is too dearly purchased, is not ours to judge, but must now be committed to the wisdom of *Him* who alone can see the end from the beginning, and under whose benign government it is almost daily demonstrated among men, that "thus far shalt thou go but no farther."

We must be an extraordinary people, for in no nation on earth, where the people are politically so nearly equally divided in numbers, in power, in wealth, and in intelligence, could such a transition have been effected as that which has recently characterized our people, without a terrible and bloody war.

Through our centennial exultation and our political fervor, we have been in some measure diverted from the suffering interests which have surrounded us for the past two years or more, and which can never prosper, save under the auspices of peace, confidence and tranquillity. Farming interests have not been affected to the same extent as mechanics, day-laborers, professionals, and those who depend upon the patronage of these classes; but still, to a greater or less extent, their prices and their profits have diminished, whilst their labors have been the same as in prosperous times. This is a further illustration of the importance of farming as a fundamental factor in the constitution of society. Men, by stringent necessity, may effect a sort of compromise with their heads, their bodies, their feet, and even with their minds, but it is impossible for them to do so, except to a very limited extent, with their stomachs, without subjecting themselves to disease, to suffering and to sorrow, if not to absolute starvation.

The farmers are the feeders of the civilized world, and in a country where "general peace, general plenty, and general satisfaction" reign, there is little danger of "war, pestilence and famine." These are all more or less within the province of the farmer's occupation, and he could entirely control them for good, if he made the same effort to enlarge his mind that many other professions do. Still, take him as he is, he is none the less "the bone and sinew of the country," as well as the great civilizer of the race, the hope of the State, and "the bulwark of the nation." In carrying out his mission on earth, all he asks is, "*Let us have peace.*"

BLUE GLASS.

We publish on page 41, a paper on the theories and experiments with "Blue Glass," which is going the "rounds" of the public press, not because we endorse it, for in good "troth" we know little or nothing about it—but because the attention of the public is more or less directed towards it, and because the author or discoverer of this phenomenon makes his statements with so much confidence, and the source of the doctrine is so intelligent and respectable, that we feel compelled to give him a hearing. Moreover, we sincerely believe that there are occasions when there is wisdom in "going behind the returns," and deciding the merits of the case upon *evidence*, whatever may be the final result. If the thing is based on *fact*, that fact will be finally ultimated; if upon *fancy*, that fancy will be eventually dissipated. Already a demand for blue glass has been excited, and the trade in it so far stimulated as to encourage the manufacture of it in this country; and our manufacturers are already able to successfully compete with those of France and England, where it had been heretofore supposed it could only be produced. But suppose it *does* finally turn out to be imaginary, the objects subjected to it as a remedy for the cure of existing evils, cannot be worse off than the horse whose owner placed green spectacles over his eyes and fed him pine shavings, which he ate and imagined to be corn-fodder, and throve upon it just the same as if it had been *real* fodder, and in which he by no means stood alone, but had his sympathizers in the human family.

HELL'S TEN ACRES.

There is a locality in Breckinridge county, near the Hardin line, containing some eight or ten acres, in which no animal can live any length of time, owing to the strong miasma. A short time since, the owner of the ground undertook to clear it, and with his son proceeded to the work. The son was overcome, and it was with difficulty that the father, affected as he was, could get himself and son out. A calf was turned into the place, and soon after he died. There is nothing in the looks of the place or the smell of the atmosphere to indicate the deadly miasma hovering over it. All the above is amply vouched for in every particular.—*Elizabethtown* (Ky.) *News.*

"Is that so?" We would like to hear somebody from "Breckinridge," or the "Hardin line," speak up on the subject. In our boyhood we had read—and for many years thereafter believed—the wonderful account of the celebrated "Bohon Upas" tree, in a certain valley in the Island of Java, which had a fatal effect upon any living thing that ventured into it; but subsequent accounts have gone very far towards exploding the theory of that story altogether. That Breckinridge tract, not only illustrates that "ten acres are enough," but that it is entirely too much, to be wholesome to calves and their owners. If ever the "Colorado Potato-beetles," and the "Rocky Mountain Locusts," get near that region, we would suggest the driving of them within the territorial limits of those ten acres, as the grandest insect trap on the continent of North America. We cannot say that we are very seriously affected with incredulity, but at the some time, before we come to fixed conclusions on the subject, we would like to examine the "vouchers." We may be just a little demoralized on this subject; but, we still could be more free in the *affirmative* of the question, if we had a more satisfactory demonstration.

SENTIMENTALISMS.

A while ago a farmer in Virginia lost his wife, and out of love for her memory called his estate "Glenmary." A neighbor having met with the same affliction, and equally desirous of keeping before him the image of his dear departed, followed his example, and his farm is known by the name of "Glenbetsy."

If such an exhibition of sentimentalism had occurred in Lancaster county, we might have attributed it to a want of poetical discrimination; but coming up from the classic ground of the "Old Dominion," we hardly know what ought to be said about it. Under any circumstances, we question whether the latter individual was a thoroughbred *farmer*—a fancy farmer, perhaps, who had no very definite conception of the fitness of things. He may possibly have been a relative of the famous Mrs. Partington, if not her hopeful son "Isaac" himself. He evidently seems to have been affected with "romance on the brain;" something like the man, not versed in Scripture, who, nevertheless, was determined his son should have a Scripture name, and therefore called him *Beelzebub*. Although our text does not say he was a farmer, yet, from the fact that he possessed a farm, we may legitimately infer he was. "Glenmary" is a very pretty name, but "Glenbetsy" is simply shocking, and does not sound half so euphonious as "Betsy Glen." After all, "what's in a name," since we know "a rose by any other name would smell as sweet," and in a trial before a coetic tribunal, with that precedent in evidence, *Glenbetsy* might take a verdict without the jury leaving the box; therefore, Hurrah for "Glenbetsy."

COLDSLAW.

Yolks of two eggs; a tablespoonful of cream; a small teaspoonful of mustard; a little salt; two tablespoonfuls of vinegar. If cream is not used, put in a small lump of butter rubbed in a little flour. Cut the cabbage very fine; beat the mixture, and pour it on hot.

No doubt the foregoing would result in a capital condiment—indeed, we *know* it would, for we have often tried it—all except the *cold*-slaw, when it is served up *hot!* Why not at once call it *hot*slaw? Let *slaw* be its generic designation, and *cold* or *hot* its specific name. If we *must* blunder on in our names of things, let our blundering be sufficiently systematic to leave, at least, the appearance that we are consistent, and have a thorough knowledge of our meaning. In fact, the term "coldslaw" is a corruption; and although we believe there are a great many people who may know from what root or roots, it has been corrupted, we also believe there are many more who have not that knowledge.

Cabbage, is said to have been first introduced into Germany and England by the Romans, under the name of *kale*, *cale* or *cole*; and known by other similar names, by different nations, as *kahl* or *cawl*, *caul*, *kohl*, etc., etc., and all the varieties of *Brassica* now cultivated are from that original stock, which did not produce the solid head that is now produced.

In short, our Saxon ancestors made a salad of it, which was called *kale-salladt*, and in time perhaps by the Anglo-Saxons *kohl-salladt* or *cole-saladt*, which was gradually contracted into *cole-sa'ad* and finally *cold-slaw*. Of course these names would have been the same, and would have had the same meaning—with their knowledge of the original composition of the dish—whether it was hot or cold.

A MOMENTOUS QUESTION,

Whether we regard the question involving the insect world in reference to the *benefits* it confers upon the human family—as in the production of silk, honey, wax, galls, lac, dye stuffs, and medicines—or in reference to the *injuries* which man directly and indirectly sustains from the presence of these pests in preponderating numbers, as in the destruction of our potato, tobacco, grain, fruit, field and garden crops, our trees and shrubberies, we find, on looking intelligently into the face of it, that it is a most momentous question, and

that no amount of apathy, indifference or ridicule can divest it of its importance in the sphere of domestic and rural economy. It is the province of many people to "pooh-pooh" the subject as one beneath their special consideration. Few people are in the habit of viewing things in their aggregates, and hence they never form an adequate conception of the gains or the losses which may accrue to society through the presence or the absence of insects. The following essay by Prof. AUGHEY, of the State University of Nebraska, first published by the *State Journal*, and afterwards in the *Nebraska Farmer* (from the latter of which we copy it), is so much to the point on this subject, and so experimentally practical in its details, that we give it entire—especially as it also involves the question of birds and bird-destroying agencies, in their remedial relations to the insect world—and we ask for it a careful perusal by our readers :

Our Danger and Our Remedy from Insects.

I wish to add some facts and suggestions to what the press has been saying on the subject of our danger from insects, and the remedy. There can be no question about the increase of our insect enemies. Even the chinch bug has been increasing on the whole during the last ten years. I saw more butterflies of the army worm during the last summer than ever before in our history. It only requires a favorable season and conditions for this insect to become a formidable foe to our agrienlture. Tree-borers are also alarmingly on the increase. I noticed them in large numbers in the groves during the last season where they were never seen before. Many more instances of the same kind could be given. The vast numbers of grasshoppers that occasionally sweep down on our plains are too familiar to need discussion. It should be recollected, also, that the amount of damages done in a year throughout the United States by insects is not less than four hundred millions of dollars. Illinois alone has suffered to the amount of seventy-three millions in a single year. The poverty and retardation of settlement in Nebraska, produced by grasshoppers, is familiar to all. In fact, these insect plagues bear heavily on every one.

We do not need to go far to ascertain the cause of this general increase of insects. The balance of nature has been interrupted in Nebraska. Insects are increasing with the decrease of our insectivorous birds. This decrease of birds is traced directly to the agency of man. As a few persons deny the agency of birds in keeping down insects, I will give a few examples from my note book. In May and June, 1875, I examined the stomachs of a great many prairie chickens, which I had shot for that purpose, to ascertain definitely the nature of their food. No. 1 had 58 grasshoppers and 13 other insects in its stomach. No. 2 had 61 grasshoppers and 16 other insects and worms. No. 3 had 75 grasshoppers and 9 other insects. Besides these insects, there was a large mass of the same kind of materials that was too much macerated to be counted. The stomachs of quails contained 40 to 50 grasshoppers and other insects, besides a large mass that could not be distinguished. In previous years, when the migrating grasshoppers were not in the State, the contents of the stomachs of these birds were still largely made up of various kinds of insects.

No families of birds are so little appreciated for their insectivorous qualities as plovers and snipe. They are represented in Nebraska by at least sixteen species. The number of insects which they destroy is enormous. I have found thirty to thirty-five insects and worms in the stomachs of one small species (*Ægialitis semipalmatus*). Many of these plovers and snipe spend the cold months in the Gulf States, and come north in the spring to hatch. Formerly they were exceedingly abundant in the State, but they are now becoming reduced very fast by murderous hunters.

Our thrushes, blue birds, wrens, swallows, etc., all feed almost entirely on insects. The blackbirds and orioles, that are charged with confiscating so many grains, will be found on examination to make insects at least nine-tenths of their food.

Now, suppose the insectivorous birds were left to increase until there were 1,000 to a square mile; each bird, at a low calculation, would require 100 insects for food each day; this would destroy 100,000 insects per day on each square mile, and in a month 3,000,000, and in five months, 15,000.000. But insectivorous birds really consume nearer 200 than 100 insects each day, and at this rate 500 such birds to a square mile would accomplish the same result. If birds are increased to the number proposed, there will be insects enough to furnish them food for many years. When once the insects are properly reduced in numbers, the birds will of their own accord, if left alone, betake themselves to other regions. If they must be killed by carnivorous man, let the point of over-supply be first reached. But let it be remembered that our forests and cultivated trees in Nebraska alone are preyed on by about 140 species of insects. Apple, pear and plum trees have about 100 species of insect enemies. Fifty species of insects interfere with grape culture. There are at least 35 insect enemies of our gardens. Most species of insects have a marvelous fecundity: one pair of grain weevils will produce 6,000 young between April and August. According to Reaumer, one aphide, or plant-louse (these aphide are found on almost all kinds of plants), may become the progenitor in a single season of six thousand millions. The female wasp produces in one season 30,000 (Packard.) The white ant deposits eggs at the average rate of sixty to a minute. Our own wild silk-worm (*Attacus cecropia*), which feeds so largely on our wild plums, produces from 600 to 1,000 eggs per season. But I need not multiply these common instances of the enormous increase of insects. The entomologist, whose eye is accustomed to look for insects, sees almost every foot of ground swarm in summer time with insect life. If the naked eye does not perceive them, the microscope brings them to view. No one need, therefore, to fear that such an increase of insectivorous birds as is proposed would produce a famine among them. The fact is, we must get them or suffer immeasurably more in the near future from insect depredations than we have ever yet done in the past. But what hinders such an increase of insectivorous birds as would save us from insect depredations? The hindering cause, as every one knows, is the barbarous custom of killing birds. No agent of destruction is so potent as bird dogs; they do immeasurably more damage than traps. When trapping was made illegal, hunting birds with dogs should also have been forbidden. The farmer is seldom able to hunt during the busy summer, and when he can go gunning on his own fields the young game has been so reduced in numbers and made so wild by men and dogs that little can be obtained. Better forbid by statute the killing of birds by any method for at least three years, and after that permit it only for a month, by shooting without the aid of dogs. The use of dogs in hunting and traps should be prohibited forever. This would make all equal before the law on this subject, and work unspeakable good to the State. Surely, sporting men will, for the sake of the public good, be willing to abandon their favorite amusement.

The objection is sometimes made that a large increase of prairie chickens and quails would endanger the crops of the farmers. I believe that this is a mistaken view. In examining the stomachs of these birds that were killed on wheat stubble after harvest, I almost invariably found more insects than grains of wheat. The only exception to this experience was the occasional finding of an almost exclusive meal made on prairie grass seeds and berries. But surely the few seeds and grains that they confiscate will not be grudged to them, in view of the many insect enemies which they destroy.

[This also bears heavily upon the "Quail question" of Ohio and Indiana, and equally upon the "Partridge question" of Pennsylvania, and their graniverous propensities. Our wheat harvests occur in July, and before the wheat is ripe, we believe no complaints against partridges as destroyers of that crop have been made. Nor yet are they seriously charged as destroyers of the corn. They are not climbing birds, and therefore whatever grain food they appropriate must be that which has been left by the gleaner, and is lying on the ground. These birds pass the whole year with us, and between one wheat or corn harvest and another, nearly a whole year elapses, and during that period the partridges *must eat something*, and until winter sets in, that something is largely composed of insects; and their habits bring them nearer to certain species of these, than climbing or perching birds.

"VARMINTS."

A rather curious "varmint" was killed on the farm of J. B. Boyce, in New Madrid county, several days ago. It is a snake, some thirty-two inches long and four inches in circumference, of a dark color and smooth skin. It has four very small feet, two in front about three inches from its nose, and two about eight inches from the tip of its tail. In its upper jaw are four rows of teeth.

Whenever an animal is found, out of the ordinary occurrence, and people in general have "never seen the like before," and therefore do not know what it is, they forthwith call it a "*varmint;*" a "thingumbob;" a "Gosh curious thing;" a "queer animal," or something of that kind, according to the peculiar phraseology of the special locality; and, without some casual remark in its description, the reader can scarcely tell what animal it was between a mouse and an elephant. But, in the above description the writer says, unqualifiedly, "It is a snake." If then his caption had been "a queer snake," or a "queer reptile," he would at once have so far classified the animal, as to have assisted in determining what it was. *Varmint*, is a "Davy Crocketism," a general term which that distinguished backwoodsman applied to a variety of animals, including bears, wolves, "coons," panthers, badgers, "catamounts," &c., whatever the last named may be. The term "varmint," is not defined in any of the dictionaries, and probably is derived from "vermin," a term which in itself is very undeterminate, and is applied to many animals that are noxious in their character, from a minute insect, up to an alligator, not excluding mammals and fishes; it is, however, generally applied as a plural (*vermine,*) and generally means character rather than kinds—numbers, rather than single individuals—as rats, mice, cockroaches, lice and maggots.

This animal seems to have been killed on the farm of a Mr. Boyce, in New Madrid county, and although the state is not mentioned, we presume it means the south-east corner of the State of Missouri, but it is not said, whether it was killed on land or in water. But no matter about that; the smooth skin removes it from the snakes, (OPHIDIANS,) and also from the lizards, (SAURIANS) and locates it among the frogs and newts, (BATRACHIANS,) in close proximity to the PROTEANS. Of course, from a brief newspaper description, it would be almost impossible to name an animal specifically, unless we had previously seen a similar animal ourselves; but, from the size, texture, and structure of this reptile, we may inferentially set it down as a specimen of *Amphiuma tridactylum*, of which there are two species known to inhabit the stagnant pools and ditches of Louisiana, Florida, Georgia and South Carolina; and that it should have been found as far north-west as New Madrid, is not more remarkable than that its congener, *Menopoma alleghaniensis*, (Hell Bender) which sixty years ago was not known to exist east of the Allegheny mountains, should have been found in the waters of Lancaster county in 1870.

It is said that the species we have mentioned sometimes attains to three feet in length,

and that great numbers of them are often found in cleaning out ponds, buried deep in the mud at the bottom, and also that they have been known to come out on marshy lands, in dark, cloudy or rainy days.

The "Proteans," to which they are allied by family, *Proteus sanguinus*, for instance, have a flattened tail, only two toes on the hinder feet, and a kind of external gills on each side of the neck; and are said to have been a delicious edible. When Cortez invaded Mexico—according to Mr. Bullock, an English author—the lakes surrounding the city of Mexico were full of an allied genus, (*Siredon piseiforme*,) and were esteemed such a great luxury, that for some time that renowned invader fed his army upon them; and that long afterwards, when the city of Mexico came under Spanish rule, thousands of them were exposed for sale in the public markets. *Menobranchus lateralis*, found in the great lakes of North America, is said to attain a length of three feet. The "Sirens," an allied family, have two feet in front and none behind.

This is saying a great deal about a "varmint" but such newspaper paragraphs, usually treat an interesting subject so flippantly, that in many instances, and to the masses of the people, they do not afford the least enlightenment, in consequence of their very indefinite nomenclature.

LETTUCE,

Lactuca Sativa.

Lettuce is a hardy annual, of which the original country seems to be unknown. It has been found wild in many different parts of the world, and was first cultivated in England about the year 1562. It is divided into two families, called the Cos and the cabbage lettuce. The first — distinguished by an upright growth—was introduced from the island of Cos; and the second,—the habits of which are somewhat indicated by its name,—from Egypt. Our climate is not altogether favorable to the Cos family; or, at least, we find the other one much more thrifty and worthy of cultivation. For the information of the curious reader; it is well to state, that the botanical term *Lactuca* is derived from *lac*, the Latin word for milk, in allusion to the milky juice which exudes from the stem when broken. This juice, when the plants are young, contains but a small quantity of the narcotic principle; but it gradually acquires a strong, bitter taste, and becomes notably sedative. This property seems to have been known at a very early period, and a lettuce supper was thought highly conducive to repose. The varieties and sub-varieties are numerous, and, as is usual in such cases, a very few include the leading merits of the whole.

The best soil for lettuce is, undoubtedly, a mellow loam, deep, rich, and founded upon a dry substratum. It should be fertile, and if not so naturally, must be supplied with a good quantity of old dung, some time previous to the sowing of the seed. This is better done in autumn, than in the spring.

Culture. By the exercise of a little forethought, the family gardener can keep his table supplied with lettuce throughout the year, at a very trifling expense. To have early plants for spring use, the first sowing must be made either in the previous autumn, or else in the latter part of winter, upon a hot-bed. The first plan we consider decidedly the best, as the plants are hardier, and better able to bear removal to the open ground, than those obtained by artificial heat.

This sowing may be between the first and the middle of September, upon a bed of light, rich soil, having the benefit of shade at midday. The best varieties are, the Large Green-head, the Brown Dutch, and the Early Cabbage, together with such others as are capable of standing severe winter weather. From nine to twelve thousand plants have been raised from a single ounce of seed. Sow rather thinly in drills eight inches apart; cover the seed lightly, and, in a dry time, press the surface of the bed, by pattiug it with the spade, or by walking upon a board. When the plants crowd one another in the drill, thin them out to distances of two or three inches, allowing them just sufficient space to secure a good stocky growth before cold weather sets in. Such as are pulled, can be set out in another place, perhaps on the spot to be enclosed by the cold frame. The soil should be kept light and clean.

In the latter part of October the plants are to be furnished with their winter protection. Some of the hardy varieties, which are intended for early crops can be set out one foot apart, upon the south side of ridges, that will be covered with straw during severe weather. The principal part, however, should be re-removed to the cold frame or box, and there dibbled as closely as they will stand without interfering with one another. The covering, be it of glass or plain boards, must be often opened in mild, pleasant days, for the admission of fresh air. Look out for the attacks of earth-worms and slugs; dusting the leaves with soot is somewhat of a preventive. Or, instead of using a cold frame, the seed bed can be covered with mats placed over bent hoops. Whatever may be the plan adopted, do not omit regular ventilation in all pleasant weather.

Where the sowing was not made in autumn, according to the above directions, and early plants are wanted, they must be obtained from a small hot bed, built in the latter part of winter. No great amount of heat is required, but care should be taken to prevent any bad consequences from the want of pure air. For general directions upon the formation and management of hot-beds, the reader must refer to an article on "Forcing Vegetation."

Taking it for granted that the gardener is supplied with plants, which have been safely kept through the inclement season, let us follow their subsequent growth. At the moment that frost leaves the ground, a small number ought to be transplanted to a very warm border, having the full benefit of the sun's rays, and protected from cold winds on the north side. They will for some length of time require the friendly shelter of hand-glasses, until they become gradually accustomed to the change of quarters, and until the progress of the season permits their exposure with impunity. A second, third, or fourth removal of these plants can be made in the same way, at intervals of seven or eight days. By such a course, a great advantage will be obtained in the regular maturity of the crop.

The first spring sowing in the open compartment, should take place as soon as the weather and ground will permit—perhaps between the middle and beginning of March. For the bed select a warm border in a sheltered situation, and mark out the drills twelve inches apart. The varieties well adapted for this sowing, are the Brown Dutch, the Early Cabbage, and the Drumhead. Sow thinly, and in dry weather, press the earth in close contact with the seed. When the plants are two inches high, they are to be thinned out to distances of four inches in the drill, and those which are pulled can be easily inserted in another bed. At this time transplanting can be practiced successfully, but when the season is further advanced, they seldom head well if removed from the seed bed. When they are four or five inches high, they should be so thinned as to stand one foot apart each way. Water ought to be given freely at every removal performed in a dry day, and regularly afterwards until the roots are established. The hoe must be used frequently between the drills, not only for the purpose of eradicating weeds, but also for the sake of keeping the surface soil light and porous.

Another sowing can be made about a month later, and a third in August for the late summer crop. The best varieties are the Indian, the Royal Cabbage, and such others as are able to withstand the intense heat of summer. Sow in drills, at the same distance apart as before, and thinly, so as to avoid transplanting. It will be recollected that lettuce seldom does well when transplanted in warm weather.

The winter crop is to be sown in the latter part of September. The Early Cabbage is an excellent kind for this purpose. In the following month, when the weather becomes cold, the plants are to be removed to a hot-bed, or the forcing-pit. The mould should be some eight or ten inches below the glass. Take the roots up very carefully by means of the trowel, and set the balls of earth in rows, nine inches apart each way. Water ought to be given in moderate quantities from time to time through the winter, and the sashes shaded at midday until the roots have taken hold. Air is to be admitted freely in all pleasant weather, while in a severe frost the protection of mats upon the glass, as well as of a bank of earth around the frame, will be necessary. Decayed leaves must be removed as soon as they are discovered. Good heads for eating may be obtained in December, and through the remainder of the winter.

In this climate, the Cos lettuces are far from being as successful as in Europe. They can be sown in autumn, and protected through the inclement season, to be transplanted into the open ground in spring. They are blanched by being tied up like the endive, a week or ten days before wanted for use.

For seed. Select some of the best plants of the autumn or spring sowings. Put them in rows, eighteen inches apart each way, and do not omit to keep the varieties separate. When two or more kinds are suffered to blossom in the vicinity of each other, a mongrel will surely be the result. Support the flower-stems by stakes, and gather the branches as the seed ripens, instead of waiting for a large portion to be wasted on the ground. That borne by stalks which have run up prematurely, cannot be depended upon. Place the branches on a cloth or a large newspaper, spread in the shade, and then let them get perfectly dry before you attempt to thresh out the seed.

Use.—Lettuce may be considered as belonging to the very best class of salads, and perhaps it is superior to all others. It possesses a mild, agreeable taste, while it is wholesome and easy of digestion. It is also sometimes used in soups. It is largely cultivated for the extraction of its narcotic properties, which are somewhat similar to those of opium, but have not the constipating effects of that drug. The stalk is cut just before the flower is ready to open, and the crust which forms upon the top is carefully gathered. The stalk is cut again and again, until the milky juice ceases to exude.

To Dress a Salad.—This seems to be a convenient place for giving directions how to dress a salad, which is a general name for certain vegetables, such as lettuce, endive and mustard, prepared so as to be eaten raw. They should be well washed and cut into small pieces. An egg is boiled hard, and, when it becomes cold, the yolk is to be taken out and broken on a plate. Then put with it a large teaspoonful of cold water and near a teaspoonful of salt. Rub all this together, by means of a spoon or fork, till the egg is a thick paste, free from lumps. Next, add and mix a tablespoonful of salad oil or cold melted butter; and after this, add at least a tablespoonful of good vinegar. When these are all well mixed, the dressing is made, and is either to be put immediately with the salad, or be sent to the table in a separate dish. The top of the salad may be ornamented with small pieces of the white of the egg and slices of pickled beet.

ANTS AND ANT-EATERS.

Having read the following account in a book about ants and ant-eaters, I thought it would interest the readers of the *Lancaster Farmer*. A traveler in South America says: "We rode over hills used as pasture-ground, which were literally dotted with the upright and fallen columns that had been erected by the *Termites* or white ants. These curious edifices, and their still more curious archi-

tects, have always had a great attraction for the naturalist. The hillocks are conical in their shape, but not with a broad base and tapering point as those built by the termites of Africa. Exposure to the sun has rendered them exceedingly hard, and doubtless many that are in the uplands of San Paulo and Minas-Geraes are more than a century old; for houses whose walls have been built from the same earth are still in existence were built by early settlers in the seventeenth century. Sometimes the termites' dwelling is overturned by the slaves, the hollow scooped out and made wider, and is then used as a bake-oven to parch Indian corn. In my ride over Soldade I saw a number of very large vultures, who during the rain had taken refuge in the houses that had been vacated by the white ant. These insects do not, however, always dwell in columnar edifices of three and six feet high. I have seen in some portions of Brazil the ground ploughed up to the extent of 100 feet in circumference by one nest of white ants. Again, they will climb trees, carrying building material with them, and erecting a small archway (resembling what carpenters call an inch bead,) over them for protection against their sworn enemy, the black and brown ant; and on the loftiest branches they will construct their nests. My introduction to the cupim, or white ant, was in the house o our former Consul, ex-Governor Kent. A box of books sent out by the American Tract Society was placed in a lower room, and the next morning it was announced to me that the cupim had entered my property. I hastened to the room, and turning over the box, beheld a little black hole at the bottom, and white, gelatinous-looking ants pouring out as though very much disturbed in their occupation. I opened the box, and found that a colony of cupim had eaten through the pine wood, and had pierced through "Baxter's Call," 'Doddridge's Rise and Progress,' until they had reaceed the place where "Bunyan's Pilgrim" lay, when they were rudely deranged in their literary pursuits. On another occasion, I saw a Brussels carpet, under which cupim had insinuated themselves, and had eaten out nearly all the canvas before the proprietor had made the sad discovery. The writer, at Campinus, witnessed the depredations of the white ants in the taipa houses. They insinuate themselves into the mud walls, and destroy the entire side of a house by perforations. Anon, they commence working in the soil and extend their operations beneath the foundations of houses, and undermine them. The people dig large pits in various places, with the intent of exterminating tribes of ants which have been discovered on their march of destruction. Mr. Southy states, on the authority of Manod Felix, that some of these insects at one time devoured the cloth on the altar in the convent of St. Antonio, at Marasham, and also brought up into the church pieces of shrouds from graves beneath the floor; whereupon the friars prosecuted them according to due form of law ecclesiastical. What the punishment or sentence was in this case, we are unable to learn.

"The white, and other ants, have, however, enemies far more tangible than bulls of excommunication in the *Mernyomecophaga*, or the great 'Ant-eater,' the *Tamandua* and the 'little Ant-eater,' of which the last two have a prehensile tail.

"The great ant-eater is a most curious animal, but well adapted to the purposes for which he was designed by the Creator. Its short legs and long claws (the latter doubled up when in motion) do not hinder it from running at a good pace; and when the Indians wish to catch it, they make a pattering noise upon the leaves as if they were falling; upon which the *Myrmecophaga* cocks his huge bushy tail over his body, and, standing perfectly still, soon falls a prey. In the northern part of Minas-Geraes, a naturalist once came suddenly upon the great ant-eater, and knowing the harmless nature of its mouth, seized it by the long snout, by which he tried to hold it, when it immediately rose upon its hind legs, and clasping him around the middle with its fore paws, it would not release its hold, till a pistol ball was lodged in its breast. When the great ant-eater sleeps, it lies on one side, rolls itself up together and covers itself with its bushy tail. In this way it may be easily taken for a heap of hay. The Indians of the upper Amazon positively assert that the great ant-eater sometimes kills the jaguar by tightly embracing the latter, and thrusting its enormous claws into the jaguar's sides. The aborigines also declare that these animals are all females, and believe that the male is the 'curupira' or the demon of the forest. The peculiar organization of this animal has probably led to this error."—*F. W. Mee.*

The foregoing interesting paper we copy from the February number of *Hardwicke's Science Gossip*, where it appears in the department of "Notes and Queries," in which is recorded the current questions and answers on scientific subjects that occur among its readers.

We have also in the United States, insects allied to the "ants" alluded to in the above paper, and also "ant-eaters"; but they very materially differ from the Brazilian animals. As these insects have been so long and so widely designated *ants*, and *white ants*, it perhaps would be folly to attempt to give them any other popular name now; but in reality they are not ants at all, and have no generic or family relation to what are generally recognized as ants in North America. The most proper name for them is TERMITES, and they are so-called by most authors of ability. The insects we popularly call ants belong to the order HYMENOPTERA (a Greek compound signifying insects furnished with four membraneous wings) and the family FORMICIDÆ, from the Latin *Formica*, which simply means an ant; and of which we have many species.

But the ants we have been writing about in our extract from "Science Gossip," belong to the order NEUROPTERA, section PSEUDO-NEUROPTERA (nerve winged insects) and the family TERMITIDÆ from the Latin *Termis*, which means a wood-borer, and of which we have at least *two* species in Pennsylvania. For fully twenty-five years we have noticed one of these species (*Termes frontalis, Hald.*) issuing from two frame (or log) houses, on the east and west sides of North Queen street, about midway between Lemon and James streets, in the city of Lancaster, about the end of May or the beginning of June. They continued to come forth from small apertures under the door and window sills, and along the overlapping of the weather boarding, for several days in succession—say from three to five days, according to the temperature of the weather, which also influenced their time of appearing.

At each succeeding return of these periods, we also notice the "ant-eater," the liveliest throng of *eaters* to be seen during the year. These, however, were not of the class MAMMALIA, no ignoble and unwieldy earth-grovelers—they belonged to the dainty "feathered tribes"—they were swallows (chimney birds)—*Chætura pelasgia, Linn*—that gathered in from their domicils in the surrounding blocks of buildings by hundreds. They were honorable sportsmen that took their quarry on the wing, one at a time,, and did not envelop them in a viscid secretion, and take them in by scores with their snaky tongues. They swooped around in a vertical circle the lower arc of which was low down where the "Termites" emerged forth, while numbers of them were gyrating through the air in pursuit of those insects that had reached a higher altitude, and had scattered. These insects have been so long located in these two old houses, that we would like to be present if they should ever be torn down, just to see what progress they had made in the work of destruction in twenty-five years.

Mr. Geo. Hensel informs us that he had a small colony of Termites a year ago, in his green house. He had inverted a plant pot on the earthen floor, and set another pot, containing a plant, upon it, so that they were bottom to bottom, the holes in the bottoms opposite each other. In one night a colony of Termites came up out of the ground under the inverted pot; built a gallery up the inner side, across the bottom to the hole and up through both holes and into the pot above; from thence across the bottom and up the inner side, and through the earth in the upper pot, and scattered over the vegetation, after the manner of the foreign species, without having done much harm otherwise, however. We were not fortunate enough to see the insect, but Mr. Stauffer says it differs from *frontalis*, and probably is *flavipes.—Ed.*

For THE LANCASTER FARMER.

CULTIVATION OF CHICCORY.

The article in the February number for 1877, on page 29, copied from the *Chicago Journal of Commerce*, stating that "during 1875 we imported $18,000,000 worth of chiccory," is certainly a startling piece of information. Then follows a statement from the Stockton, Cal., *Independent* on "the production and manufacture of chiccory for its use as an adulteration of coffee." This led me to inquire more particularly into the nature and character of the plant. The *Cichorium Intybus, L.* is the wild succory or chiccory in question; the Germans call it *Wegewart*. Being considered a coarse weed, and common in numerous localities in our county, I need not describe it here. Dr. Darlington in his agricultural botany, (published in 1847,) on page 98, observes that "This foreigner is becoming extensively naturalized. Some European agriculturists recommend it as a valuable forage plant, though they admit that it gives a bad taste to the milk of cows which feed upon it. In this country, it is generally, and I believe justly, regarded as an objectionable *weed*, which ought to be expelled from our pastures. The roasted *root* has been used on the continent of Europe, as a substitute for the *coffee-berry;* but those who delight in the aromatic beverage, are not likely to take much interest in this or any other *substitute* for the genuine article." The *cichorium endivia*, (wild) the satira, D. C. is called Endive or garden succory, *German—Die Endivie*—currupted into "*andifte*," cultivated for the young *radical leaves*, which are etiolated or blanched, like celery, by the exclusion of light, and used as a salad. Theophrastes; lib 7, chap. 7, and Pliny, have written upon it long before the time of Linnæus. In Reese's old American encyclopedia, I find it stated that the whole plant is bitter, and "when cultivated it is much more branched and rises to the height of 5 or 6 feet, with longer leaves, less deeply cut and almost smooth. "*It is then cichorium sativum*; Bauh. Pin. 125, Tourn. 479, Lob. Ic., 129.

Lewis says it is a "very useful aperient, acting mildly and without irritation, tending rather to abate than increase heat, and which may therefore be given with safety in hectic and inflammatory cases. Taken freely, they keep the body open or produce a gentle diarrhœa, and when thus continued for some time, have often proved salutary in beginning obstructions of the viscera, in jaundices, *cachexies* (this latter term simply means a bad state or habit of the body), and other chronical diseases." "The expressed juice taken in large quantities," Dr. Woodward says, "his experience warrants him in recommending as an efficacious remedy in phthisis and pulmonalis." "The juice mixed with rhubarb," according to Du Tour (Nouveau Dictionaire), "is an excellent vermifuge syrup for children." This much is, and much more might be, quoted from medical authorities.

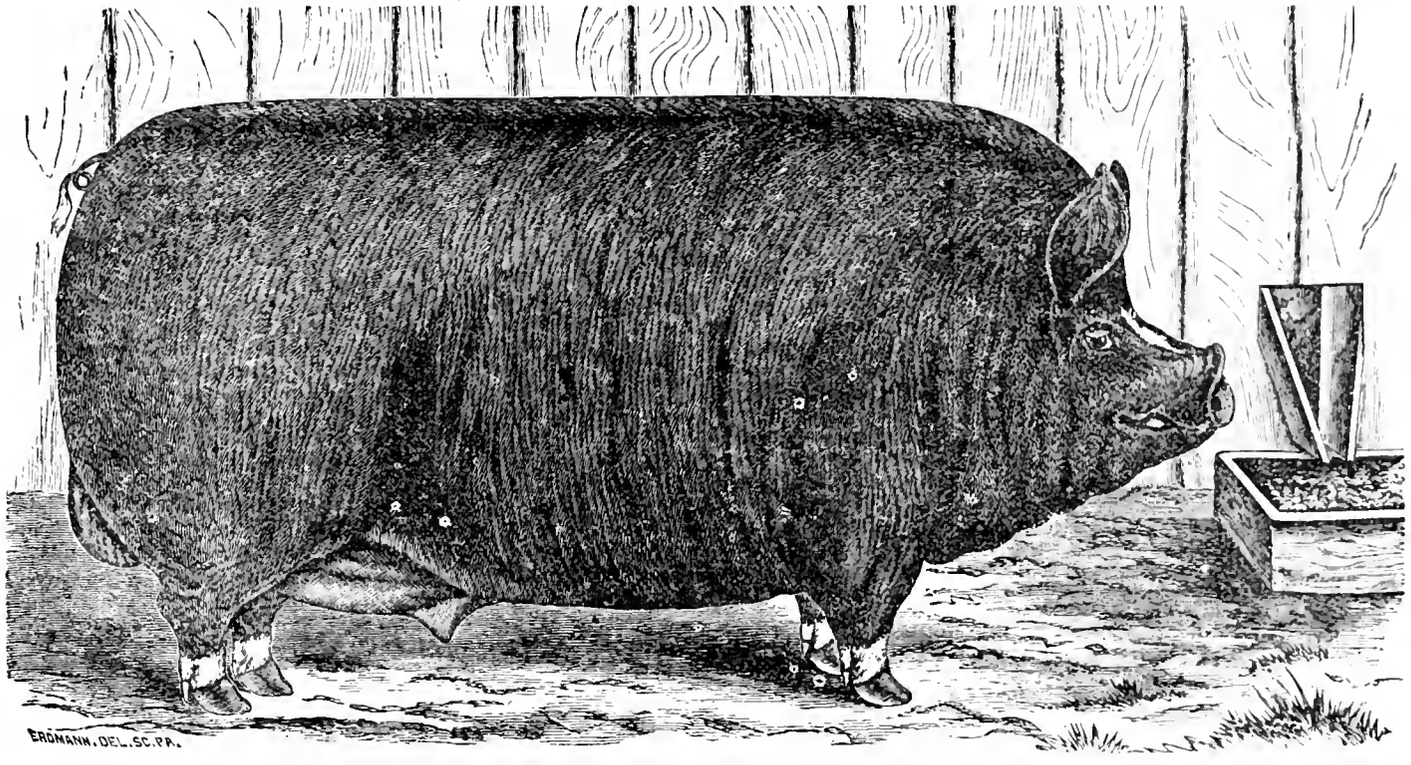
It was commonly eaten by the Romans, and when blanched is still used in France in soups or as a salad. We learn that "in Italy it has long been cultivated on a large scale, and esteemed, either green or dry, as an excellent fodder for horses, kine and sheep." It was first introduced into France by Crette de Tallael, and into England by the well-known Arthur Young, but the moist atmosphere of England is less favorable to its being made into hay. "The wild succory," says Du Tour,

"will grow in any kind of soil, but thrives best in a good one well manured, and is cultivated at a small expense." It sustains drought, excessive rains and severe cold, and as it rises early in the year, affords an excellent spring supply. Its growth is so rapid that it may be cut three or four times every year, or more frequently. Its produce in bulk and in weight is superior to that of trefoil and even of lucerne. There is no need of preparing cattle to use it as food. It is as wholesome as it is abundant, sweetens their blood, and preserves them from disease. In particular, it causes cows to give more milk without communicating any of its bitterness, and furnishes, eight months in the year, an excellent resource for the farmer, affording the first herbage for cutting in the spring and the last in autumn." This is copied verbatim from Du Tour, who was deemed good authority. I give it because it conflicts with Dr. Darlington's opinion. Hence, if a *weed*, its growing qualities make it the more objectionable; but if Du Tour is correct, it may deserve some attention from our farmers, who will make an experiment and test the matter, apart from its adulteration in coffee. Very respectfully submitted for further examination, by J. STAUFFER.

other part of the body does not argue impurity of blood, yet, it is to be discouraged, in order that a uniformity of color may be attained by the breeders. White upon one ear, or a bronze or copper spot on some other part of the body, indicates no impurity, but rather a reappearing of original colors, but white markings other than those aforenamed are suspicious, and a pig so marked should be rejected.

Face—short, fine and well dished, broad between the eyes. *Ears*—generally almost erect, but sometimes inclining forward with advancing age; small, thin, soft and showing veins. *Jowl*—full. *Neck*—short and thick. *Shoulder*—short from neck to middling, deep from back down. *Back*—broad and straight, or very little arched. *Ribs*—long and well sprung, giving rotundity of body, short-ribs of good length, giving breadth and levelness of loin. *Hips*—of good length from point of hips to rump *Hams*—thick, round and deep, holding their thickness well back and down to the hocks. *Tail*—fine and small, set on high up. *Legs*—short and fine, but straight and very strong, with hoofs erect, legs set wide apart, size medium, length medium; extremes are to be avoided. *Bone*—fine and compact. *Offal*—very light. *Hair*—fine and soft, no bristles. *Skin*—pliable.

which can be marketed in from 6 to 18 months. They are very hardy, with high vital powers, but guard against those with *long snouts*.



IMPORTED BERKSHIRE, THE COLLIER. Owned by BENSON & BURPEE, Philadelphia.

"COLLIER."

This fine BERKSHIRE is two years old, and was the winner of six honors and first prizes in England last year, previous to his importation in August, 1876.

Bred by B. ST. JOHN ACKERS, Esq. Pinkmarsh Park, Gloucester, England, and is now owned by BENSON L. BURPEE, Philadelphia, Pa., (see our advertising columns). According to a report of a committee of the "National Swine Breeder's Convention," the first importation of Berkshire pigs, of which they could find any record, was made in the year 1823, by Mr. Frentnall, an English farmer, who settled in New Jersey. The second importation was made in 1832, by Mr. Hawes, another English farmer who lived in Albany, N Y. and others in the United States and Canada soon followed with larger importations. All those early imported Berkshires were substantially the same in size, quality, style and marking, as the best of the present day.

According to the same report the following standard characteristics and marks were recognized as belonging to the pure Berkshires. *Color*—black, with white feet, face, and tip of tail, and an occasional splash of white on the arm. While a small spot of white on some

The committee further says, that in one respect, the Berkshires may be said to excel all other breeds with which they are acquainted, and that is in the superior weight and quality of hams and shoulders, these yielding a much greater proportion of tender, lean, juicy, well marbled meat, in comparison to the fat, than can be found elsewhere. The sides all partake of the same admirable qualities and are therefore of superior excellence for bacon. Considering these, it is to be hoped that we Americans, at least, will never attempt to alter the breed by crossing other swine upon it, for the only result will be deterioration. The Berkshires can improve most other breeds, but none can improve them.

The experience and observation of Messrs. Benson and Bupee, corroborate the views of the committee alluded to, and they also say that as the Berkshires are exceedingly active, and will readily shift for themselves, yet when it is desired to fatten them they will necessarily consume, proportionally, more food than a quiet, lazy hog-enthusiastic, but prejudiced fanciers, to the contrary notwithstanding, who claims more flesh for the same amount of feed, than any other hogs. The sows are good sucklers and bring forth large litters,

For THE LANCASTER FARMER.

THE TOBACCO WORM.

"Will the unusually large crop of 'Tobacco-worms' the past year, be likely to produce a correspondingly abundant progeny the coming season?"

This question was referred to me for answer, at the February meeting of this society; and, as tobacco growing is becoming one of the leading agricultural interests of Lancaster county, it is very natural that those engaged in it should manifest a reasonable solicitude in all that relates to its success or failure.

In reply, permit me to say that a redundancy of noxious insects in one season, may *possibly* be the progenitors of the same or an increased number the season next following; yet, it is not always *probable*, nor is it by any means a matter *of course*.

There are prior conditions; intermediate casualties; and subsequent contingencies, which are more or less related to the case, and which exercise a modifying influence over it. If there had been ten thousand tobacco-worms in an enclosure last year, and every one of them had been destroyed, and had not been permitted to burrow into the ground, you would have much less reason to apprehend an increased, or even the same number this year, than you would have, had you only had ten worms, all of which you had permitted to go into the ground and pupate there; for, it is in this manner that the broods are carried over from one season to another. There are perhaps few insects that fall an easier prey to careful, vigilant, and persevering "hand-picking," than the tobacco-worm; and this, under any circumstances, is perhaps, the best remedy that can be adopted for their extinction; but, this course should be pursued by *all* growers, for one indolent or indifferent cultivator may permit a sufficient number to perpetuate themselves, to stock a whole neighborhood, no matter how industriously his co-cultivators may be employed in destroying them. While this insect is in the *larva* or caterpillar state, it is a slow and sluggish traveler, and makes no effort whatever to effect its escape; moreover, when it is a little advanced in its growth, it is sufficiently conspicious to attract

*Read before the Agricultural and Horticultural Society of Lancaster county, March 5, 1877, by S. S. Rathvon.

the attention of any ordinary observer. To many people they are more or less repugnant, but this repugnance is soon overcome by those accustomed to them; especially when they have a direct interest in their destruction. No fears need be entertained as to their stinging or biting, for this they never make any attempt to do, notwithstanding their formidable aspect; and here, allow me to mention one or two examples of carelessness in tobacco culture, which are important factors relating to the increase or decrease of the tobacco-worm, and are more or less related to the injury which is the subject of this paper. Some tobacco-growers, when the time comes to cut off the crop, merely shake off what worms may be on the plants, and pay no other attention to them. They may perhaps have had a surfeit of worms, and now rejoice that they are to have a surcease of that disagreeable labor, and therefore their whole energies are devoted to harvesting and curing. Now, such a course may be absolutely suicidal; because, the *mature* worms, thus shaken off will burrow into the ground, and change to *pupæ*; and the *immature* ones, will finish their larval career on the young "suckers;" and finally will also disappear under ground. Another careless habit is, to let the stump stand in the field, which sometimes realizes what is termed a "second crop." If this crop is left growing without paying the same care to it that was paid to the first crop, it may be the prolific source of an increased "crop of worms" the following year. Of course, you all must know better than I do, how far you may have permitted this state of things to exist, and this may afford some light upon the possibility or probability, of an increased or diminished number of worms the coming season. Their general immolation, and hence the prevention of their pupal transformations, are mainly the *prior conditions* to which I have alluded. But they are also subject to parasitic infestations to a limited extent, and the more effectively these conditions are brought to bear upon them in any season, the less number will be transmitted to the following season.

These parasitic infestations are caused as far as known at present, by two little "clear-winged flies," and one or two species of "two-winged flies," not much unlike some of our common "horse-flies." The little clear wings, so far as they go, I consider the best friends of the tobacco and grape growers. They are very bright and active little insects, not more than a tenth of an inch in length, and one female will deposit from fifty to one hundred eggs on the body of a single tobacco-worm. As soon as the eggs are hatched the tiny little larva bury themselves in the fleshy parts of their host, and these feed on its substance, until their larva period is completed. They then work their way out to the surface of the tobacco-worm, and there spin each a little white or yellowish cocoon, one end of which is attached to the skin of the worm, and crowded together, like so many grains of rice standing on end. In two or three days, some times a longer period, these little grubs will have passed through their pupal period, when they will cut off a little lid from the upper end of the cocoon, and emerge forth a fly, like the one that laid the eggs.

Doubtless some of you may have noticed tobacco-worms, tomato-worms and grape-worms, covered with the cocoons of these little parasites, and when you *do* see them, don't disturb that worm, lest you also destroy your little friends. You need entertain no fears about a worm so infested, for he will never eat any more tobacco after he is so *microgasterized*. A few days thereafter you may find him adhering with a death-grasp to the old spot, and his body hanging flabbily down, either dead or dying. The maggots, however, of the *Tachinized* worms, or two-winged flies, remain in their bodies, and are carried with them under ground and destroy them in their pupal form, so that the *imago* or moth of such a worm never is developed nor sees the light of day. These are some of those "intermediate casualties" to which I have alluded.

But, should the worm, through neglect, inadvertence, or ignorance, be allowed to perfect its larval development and go into the ground to pupate, it will come forth the following season about the time the "Jimson-weed" is in bloom, in the form of a large grey moth, and these moths may be noticed in the evening hovering around these plants, drawing the nectar out of their trumpet shaped flowers; and when they are so engaged, they may be struck down with a wooden bat or paddle, or be caught in a bag-net with a handle attached to it, and thus be prevented from depositing their eggs on the plants.

Another mode of destroying these moths, is by poisoning them. It is well known that the tobacco moths are partial to the *nectar* in the flowers of the *jimson-weed*, and visit these plants in the evening twilight, for the purpose of drawing it out of their flowers with their long tongues, which are coiled up like the mainspring of a watch, below the forpeart of the head, between their *maxillæ*. Now, if a strong solution of arsenic, or corosive sublimate, which are almost tasteless, is mixed with honey and a drop or two is introduced into each flower of this plant during the afternoon, when the moths suck it out in the evening, they cannot survive it long, but will die sometime during the night, or wherever they may secrete themselves, after they leave the tobacco field. If I have been correctly informed, this plan has been successfully tried by several tobacco growers in the state of New York and also in Virginia and the Carolinas. Indeed I am informed from an intelligent and practical source, that this remedy has been tested, to a limited extent, in this county with entire success.

Although this poison remedy could have no possible effect upon the eggs that had been deposited by the moth *before* it had partaken of the poison, yet *after* that event, it would deposit its eggs "never more," unless there had been some radical defect in the administration of the remedy.

These *pupæ* are greedily devoured by pigs, skunks, chickens, crows, and birds in general—when they can get at them. Plowing the ground late in the fall or early in the spring, will bring them to the surface and expose them, not only to the animals which feed upon them, but also to the vicissitudes of the weather; for although insects generally can withstand almost any degree of continuous cold—under conditions of their own instinctive selection—yet, alternations of heat and cold, wet and dry, freeze and thaw, is very generally destructive to them. I have often dug them up in the spring of the year within the depth of a common garden spade, but it is probable that they bury themselves deeper than that when they first pupate. They have the power to wriggle themselves upward toward the surface of the ground, by the flexible hind ends of the body, but I do not think they could work themselves downward again, and as the moth appears late in the season, it might be advisable to plow the tobacco ground late in the season at about a spade's depth, which would give crows, blackbirds, chickens and other animals an opportunity to feed upon them. It might also furnish an opportunity to pick them by hand. Insects naturally increase in proportion to the increase of their natural food-plant, although they sometimes decrease, from contingencies of which we have not a clear knowledge.

The "Tobacco worm" belongs to the SPHINX family. It was so named by Linnæus, because of a remote, or perhaps fancied resemblance to the *Egyptian Sphinx*, when the worm is in a state of repose. All the *larvæ*, or worms of this family, when they are not feeding, support themselves by the feet on the hinder part of the body, and raise up the front part, and thus remain for hours perfectly motionless; unless they are annoyed by their pigmy persecutors—the little parasites that approach them to deposit upon their bodies their tiny little eggs, and the presence of which they instinctively acknowledge by the rapid turning of the front part of their bodies from side to side with a sudden jerk. But it is all in vain, for the little persevering creatures never relinquish their task until it is accomplished.

There are two prominent species of *Sphinxes* that attack the tobacco crop, named *Sphinx carolina* and *Sphinx quinque-maculata*, respectively. In the *imago*, or moth state, to which I have already alluded, they are called "Hawk moths," and, somewhat indiscriminately also "Humming-bird moths," from their habit of poising themselves on the wing, like a humming-bird, while they are in the act of sucking the nectar out of the flowers. These two species of *Sphinx* may properly be called the "Southern Sphinx," and the "Northeastern "phinx." In the southern States the *Sphinx carolina* or "Carolina Sphinx" prevails, and the northern species is almost unknown; whilst in the northeastern States the *S.* 5 *maculata*, or "five-spotted Sphinx" prevails, and the southern species is almost unknown. But here in the intermediate region, or Middle States, we have both species. Although the distribution of insects is more or less local, yet their limitations are not distinguished by a fixed, or abrupt line; but on the contrary there is an overlapping of one district upon another, and hence such an overlapping belt will produce species that respectively belong to either, or both. In districts where no tobacco is cultivated, and often, even where it *is* cultivated, the "Five-spotted Sphinx" attacks the potato vines, and the "Carolina Sphinx," the tomatoes. I have a knowledge of these insects existing in the county of Lancaster long before the tobacco plant became an object of cultivation in it. I had dug the *chrysalids* out of the ground, even in my boyhood, more than fifty years ago; and, as neither tobacco nor tomatoes were cultivated then, they must have fed upon the potato vines. There is something about the form of these *chrysalids* that is very peculiar, and is calculated to make an impression upon the minds of those who are given to habits of observation, that is not easily erased. They are large, smooth, spindle-shaped objects, that have an appendage at the anterior end, which is turned around, like the handle of a jug, and hence we boys locally called them "brown pitchers," or "brown jugs." This handle is merely a tube in which the long spiral sucking tongue lies concealed in the *pupa* state.

The moths of the tobacco worms are *crepuscularious* in their habits; that is, they fly forth, feed, and deposit their eggs during the evening twilight, and on moonlight evenings perhaps later into the night. During the day they are perfectly quiet and lie concealed, and from their plain and inconspicious coloration, they are often passed over without being perceived. Although there appears to be several broods of them during the season, yet, in reality, there is only *one* in this latitude. This appearance arises from the *fact*, that like the "Colorado Potato beetles"—the females do not deposit all their eggs at one time, or in one day, nor yet in one week; but very probably occupy several weeks, depositing them "here and there," in small patches upon the plants. These eggs being deposited at different times, are hatched out at different times, and hence there appears to be different broods, but they are all of the same. Each female moth will deposit from three to five hundred eggs during her life, and may exceed that number. On one occasion I took out of a female over three hundred; but she may have already deposited some, as she flew into a window and was struck down and captured in the evening, when she was perhaps on the way *to*, or was returning *from*, a tobacco field. Thanking you for your attention, I with these remarks close this *essay*.

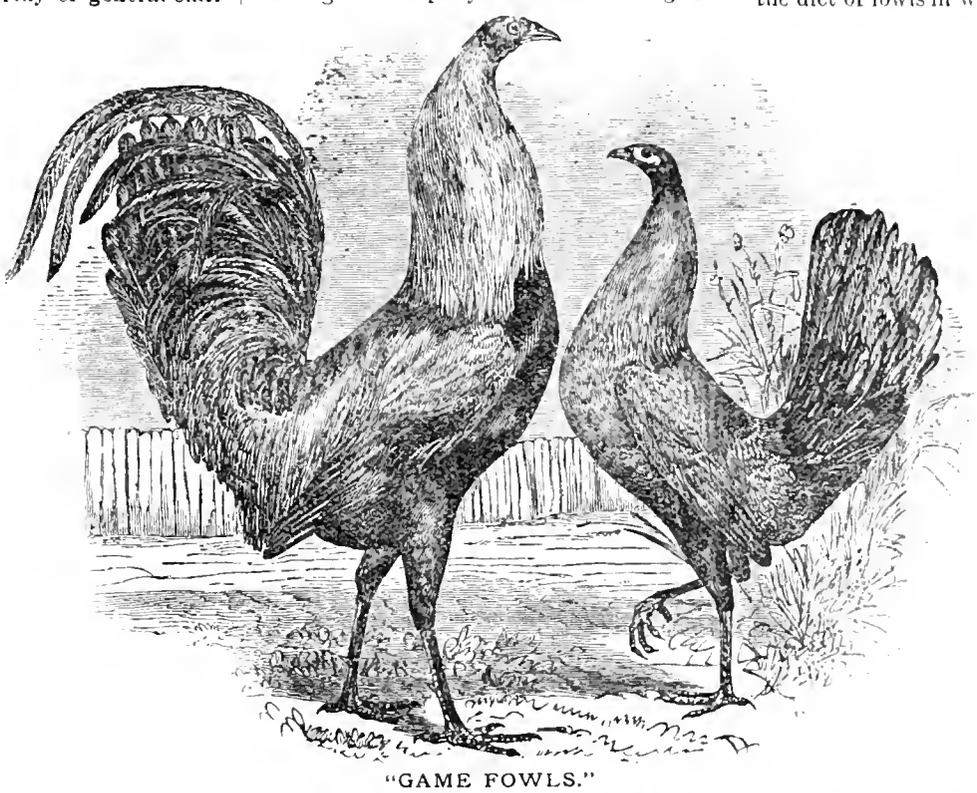
THOSE of our subscribers who do not reside in Lancaster city, but who have given that as their address, will please designate some place at which to send their papers, as we have to pay postage at transient rates on those sent to the post-office, which we can ill afford.

"GAME FOWLS."

In the general demand for novelties in the "poultry line," the newer and more fashionable varieties had for a time occupied the foreground, and had pushed the GAMES of our boyhood, to a great extent, in the background. These birds, however, the noble pluck of which had been the admiration of our youth, as contradistinguished from the pusillanimity of the "dunghills," have always had their admirers aside from those who bred and reared them solely to gratify their love for the cruel sport of the "pit;" and now, again, the game fowls are looming up and receiving a new appreciation of those excellencies of character which had been nearly eclipsed by their newer rivals. Of these excellent birds Messrs. Benson & Burpee thus discourse in their catalogue for 1877: "The thoroughbred game hen is an excellent layer of the very richest and most delicately flavored eggs. As a mother none can equal her. The game cock is vigorous, watchful, and a sure getter of stock. They are comparatively small eaters, and if allowed their liberty, are excellent foragers. As a table fowl they are *ne plus ultra*, being unequaled in the rich, game flavor of their flesh. All in all, they are worthy of general cultivation as a fowl for beauty, utility and profit, even by those who would, and rightly, most strongly condemn the pit and its uses. We are breeding DEAD GAME, that for courage, brave and noble carriage, beauty and compactness of plumage and general good qualities, cannot be excelled."

Among the varieties imported and bred by this enterprising firm are "Brown Red Games," "Black Red Games," "Sumatra Games," "Duckwing Games" and "Game Bantams."

It is not distinctly clear when or whence the game fowls originated. Some writers allege that they are deseendants from Sonnerat's common jungle fowl (*Gallus Sonneratti*) of continental India, where it inhabits the woods; it exeeeds in size the "Bankiva" (*Gallus Bankiva*), from which our "Bantam" is supposed to have sprung, and is very beautiful, both in symmetry and plumage. The Mussulman natives of India, who eagerly engage in the barbarous sport of cock-fighting, highly prize this bird for its great courage and determination. It is, however, easily domesticated. Two strongly marked varieties are found. In the valleys, about 2,000 feet above the sea, Sonnerat's species is found, "standing high on its legs;" and in belts of woods on the sides of mountains, at an elevation of 4,000 feet above the sea, a short-legged variety is found, and who knows but our "Creepies" have come from this stock. Captain Skinner records the curious fact that, in their native wilds, these birds have the same habits as our domestic poultry, in their sexual relations. "A cock struts at the head of a bevy of hens and keeps a strict watch over their safety," so that this polygamous habit, after all, does not seem to be the result of domestication.



"GAME FOWLS."

THE WILD TURKEY.

This noble bird may be considered as both migratory and gregarious, migrations arising mainly from scarcity of food or of greater abundance elsewhere, to which they are gradually led by finding the supply increase as they advance, rather than from any particular instinct of their own. In the fall they direct their course in great numbers to the rich bottom lands of the Ohio and Mississippi. Their food consists of grains, grasses, acorns, berries, fruit and insects; neither are tadpoles, young frogs and lizards despised. When there is an abundant crop of acorns, flocks of turkeys may be expected. It often occurs that rivers are to be crossed during these migrations. When arrived at the banks they assemble on the highest eminences and there remain for hours, and even days, as if in consultation, or perhaps to recruit their strength for the undertaking.

While thus waiting, the males employ their time in gobbling and strutting about with expanded tails and lowered wings, making with the latter a drumming or booming sound. Even the females often imitate these movements. At last, mounting the trees and highest eminences, at a given signal from the chosen leader they wing their way to the opposite shore. The old birds easily cross, but, should the stream be wide, the young and feeble frequently miss the goal desired and fall into the stream when they swim ashore. They swim with no little dexterity by closing their wings and expanding their tails for support, striking out rapidly with their long and powerful legs. When the banks are steep, as is frequently the case, many are unable to ascend, and falling back from their repeated and unsuccessful attempts, are overpowered by fatigue and perish in the water.

The nest is a very rude structure, being a straight hollow scraped in the ground in some dry and sheltered place, and filled with withered leaves or dry grass. These are usually found in rising ground at the edge of marshes, slushes or thickets, evidently for the security the latter give the young. In one case I knew of a wild turkey building her nest in the top of a stub some eight feet from the ground, the stub being protected by a thick top of a fallen tree. The nest contained only six eggs. These were carefully removed and placed under a sitting hen, which hatched them all seven days later. As the nest of a wild turkey usually contains from ten to eighteen eggs, I am led to believe that this unusual selection of a site for a nest was due to former ones having been destroyed. The females alone incubate, carefully concealing the nest, approaching it always with great caution and from a different point, and covering the eggs with dry leaves when leaving in search of food, and bravely defending them against all depredators.

It is said that three or four females will lay in one nest, one always remaining as a guard while the others seek food. This I am inclined to doubt; and unless the turkey is far more astute than supposed, there would be some difficulty in dividing the progeny, particularly if one or two eggs failed to hatch, and would cause no small amount of turkey talk, to be settled by some grave old gobbler capable of acting the Solomon. Possibly they may pool progeny as well as eggs. The eggs are of a dull cream color, splotched with red. The young run as soon as hatched, and are covered with a delicate hairy down. They are very tender and easily killed by cold or wet. To guard against the latter catastrophe, the first night of the brood is usually passed in the nest, after which the hen leads them to dry, elevated places, carefully shielding them at night beneath her outspread wings until they are two weeks old, when they roost upon the broad branches of trees, still protected by the wings of the parent. The female calls her young by the well-known cluck. They run very fast, and when pursued trust more to their legs than their wings for escape.

HAY FOR HENS.

The Poultry World advises the use of hay in the diet of fowls in winter, as they eat grass to advantage in summer. "Bulk in food is required for health as well for poultry as man or animals. Rich and concentrated food is not readily digested and invites disease. Some think a craving for bulky food is one chief cause of feather eating in winter, or among fowls confined. Now, just try and secure a good supply of second crop hay, short and, if possible, containing clover. Cure only enough to preserve, and your fowls will eat a portion of it all winter when they would turn away from stale cabbage. What is not eaten will furnish untold amusement in scratching over. Remember in winter, if poultry stand on one leg, unemployed all day, they are disposed to have the blues. Idle meditations lead always to bad habits; while a healthy mind, in a vigorous body, suggests business, which, with fowls, means winter eggs and early chickens. Secure your rowen in September, or early in October of each year, or before frost, if possible, for it is injured in quality by being frost bitten."

The above advice is good, although few suppose hens would eat hay if given them, but this is because they have not watched the habits of their poultry. We have noticed them often picking short bits of cut hay of almost any variety, and hay cooked for cattle is eaten greedily by them. We advise short clover well boiled for them. Clover is better than any other hay, because it possesses egg-making nutriment, besides fibre to separate the particles of grain. It is not bulk, as mere quantity, that is needed, but coarse fibre to separate the concentrated food in the stomach, so that the gastric juice can circulate through the mass. The stomach cannot well manage solid food. Only a few minutes will be required to prepare this hay for a large number of poultry.—*National Live Stock Journal.*

For The Lancaster Farmer.

INSECTS AS FOOD.*

Perhaps it might be shocking to your gastronomic sensibilities if I were to assert that by the time we celebrate the second centennial of anniversary of American independence, the bills of fare at the most frequented restaurants may contain such edibles as *insects*, dressed in various forms—including the soup, the stew, the roast, the fry, the fricassee, and the pie—and why not? Especially such as feed on fresh, sweet and healthy vegetation. If, then, it should ever become necessary to compromise the question between vegetarians and "carnivarians," it seems to me that insect diet would be the only platform they could possibly meet upon. Again, I ask, why not? Insects, spiders, centipedes, crabs, lobsters, shrimps, prawns, and hundreds of other similar animals, all belong to the great class *Articulata*, and, as a *class*, are infinitely more clean in their feeding habits than the great class *Vertebrata*, at the head of which stands man, the crown of the animal creation—taken as a whole. Take, for instance, pigs, chickens, ducks, and many of the fishes caught at the outlets of the sewers, along the wharves of all large cities. So, also, we might mention the frog, the snapping-turtle (*Chelydra serpentina*), which derives its specific name from its resemblance to a serpent, the *Iguanas* of South America—a large species of lizard—all of which are vertebrates, and the latter belong to the sub-class Reptilia.† Now, although these animals are all more or less preferred to other animals that *seem* more clean, I do not mean to say that they are positively *unclean*; for, fundamentally considered, the maxim may be true that "there is no such thing as dirt"—that all such substances are merely chemical combinations of material elements having affinities for each other; and we may also infer that neither plants nor animals will normally absorb or appropriate any other substance than that which is clean and is necessary in the formation and development of its physical tissues. It is true that many of the substances which animals feed on impart a peculiar flavor to their secretions or their flesh, yet if they *are* ill-favored, or even poisons, they are, notwithstanding, *clean*.

When naturalists first began to classify animals, they included crustaceans, insectans, arachnidans and myriapodans all in the one great class called Articulata, from the insected or articulated structure of their bodies; but the simplest and most marked distinction between vertebrates and articulates is, that the former have their skeletons *inside* and their muscular, adipose and cutaneous tissues *outside;* whilst the latter have their skeletons *outside* and their muscular and adipose tissues *inside*. We may, therefore, rationally infer that there is no great difference in the elementary substances which compose the different tribes of articulates. There may be a difference in flavor, in texture and nutrition, owing to locality, habit and food; but in their elementary substances they may be all the same. A dish of boiled *shrimps* and a dish of boiled grasshoppers, divested of their external members, will present nearly the same appearance, and, if seasoned alike, will have nearly the same flavor; and if people could so far overcome their prejudices as to make a trial, they would nearly taste alike, perhaps.

In the month of July, 1875, I made a small collection of crustaceans along the shores of Delaware Bay, consisting of crabs, shrimps, prawns, sand-fleas and others, which I immersed in alcohol. I also made a collection of grasshoppers (locusts) on the sand flats some distance in from the beach, which I also immersed in alcohol. About twenty-four hours after their immersion, all these animals turned red, just as crabs and lobsters do when they are boiled, and on looking at them I could not but reflect that these animals were all very similar in substance, and that the chemical affinities which produced this uniform discoloration must have been substantially the same. Indeed, I have it directly from the mouth of an intimate friend, who on several occasions visited the "Digger Indians" during his residence in California, and who ate of grasshoppers as they were prepared by these Indians, that they were pleasantly flavored and palatable, even in the simple manner in which these children of nature prepared them—not much unlike shrimps, and quite as agreeable to the sight, and, if properly prepared by civilized hands, might have been as good as *shrimps*.

Many long years ago I had a youthful friend who went as cabin boy in a trading-vessel to the West India Islands, and when he returned, boy-like, he had many things to say, especially about the fruits and other edibles he found in the markets; and amongst them was a certain delicacy called *grugrus*, which, compared with other articles, was expensive, and highly esteemed, but he did not seem to know exactly whether they were animal or vegetable. Long years afterward, when I began to read works on entomology, I learned that *grugru* was the name applied to the *larva* of the "palm-weevil"—*Calandra palmarum*—which was eaten by those who could afford to buy them, and that some of the English officers became exceedingly fond of them and esteemed them great luxuries; and also, that the early expanding buds of the "cabbage-palm"—*Areca oleracea*—or rather within the leaves which constitute the summit of the trunk, a solid head lies concealed, which is white, soft and about two feet in length, and this is eaten either raw or cooked. The trunk of this palm is infested by the palm-weevil, as thick as a man's thumb, and three inches long, so that it affords a dish, perhaps more savory than our "beef and cabbage." Now, the practical lesson I desire to suggest by this paper is to this effect. We are often injured in our crops of different kinds by the infestation of hordes of destructive insects, in some instances so numerous and so gormandizing in their appetites as to destroy all vegetation, and leave nothing but barrenness and squalid want in their train, and, but for legislative provision and the general dictates of charity, would often result in famine. With the return of almost every summer season our vastly expanded territory suffers from the infestations of some one or more kinds of destructive insects; and these are frequently so sudden in their advent, and so voracious in their demands, that a whole crop may be destroyed before a remedy can be applied, even if a certain remedy were known; and this is especially the case with the incursions of the "Rocky Mountain locust," or "rascal grasshopper" (*Caloptinus spretus*), to say nothing about those so destructive to special crops—such, for instance, as the "chinch bugs," the "Colorado potato beetles," the "white earth-grubs," the "curculios," and others, that infest wheat, corn, potatoes, grasses, fruits and other species of vegetation.

Waiving all speculation as to the *origin* of insects, I think we may safely concede that their existence has been permitted in the universal economy of the Creator, for some *use*, for the punishment of some *abuse*, or for the prevention of a greater *evil*. We probably would have a dull, monotonous and pestilential world, if there were no insects, and it is very certain that the presence of certain species have always been regarded as a special blessing to mankind; and even those noxious species, in some countries, have been utilized or converted into blessings, which in other countries, have been only esteemed as a curse. Can any one doubt that the versatile and gastronomically fertile French would have esteemed a daily shower of locusts during the late "siege of Paris" as less a blessing than did the children of Israel the manna in the wilderness; or that they would not have preferred them to cat-stews, dog-pies, and monkey-hash. Nor would they have been at all singular in this, for these and other insects have been used as food from very ancient times, and are still so used in many parts of the world, and this, too, not from necessity, but from choice. And wherever they have been tested by intelligent and unprejudiced moderns, the almost universal verdict has been that their taste and flavor have been far preferable to many of the culinary preparations brought to the tables of modern civilization—Limberger cheese, for instance. Many of you, no doubt, have read the recent accounts going the rounds of the newspapers, of the banquet of Rocky Mountain locusts, served up under the auspices of Prof. Riley and a cordon of scientific gentlemen in the west, the details of which were very interesting and to the point. I am not suggesting a resort to insect food in a time and in a land of plenty, and yet a period in our domestic history may come, when we will make use of them as a matter of choice. But, when they make their advent in vast clouds, and destroy every green thing upon the face of the earth, I think we should so far overcome our prejudices, and compensate ourselves by feeding upon *them*, rather than suffer from starvation and pinching want; and herein may also be found a practical *remedy*. It is wonderful how the price advances and how scant the supply, when the taste becomes cultivated to the appropriation of certain articles as human food. Less than fifty years ago tomatoes were regarded with disgust or repugnance, if not as poisonous; but how does the matter stand in regard to this popular edible to-day? Tomatoes instead of remaining a mere ornament, became a subject of use, and hence the supply was provided through careful cultivation. Not so, however, with some other things. When I was a mere lad, some five and fifty years ago, the ponds, the creeks, the dams, and even the rivers, were all pretty well stocked with frogs, and they often made night hideous with their cries of "More rum" and "Blood and nouns," to the great terror of juvenile night walkers. Nobody then dreamed of using them as food. At length an instructed epicure located in the town, who soon commenced a war upon the frogs, and offered to purchase all that were brought to him at a penny a piece—sometimes as low as eight and ten cents per dozen. For awhile his table was well supplied and he and his guests fairly rioted in the luxury. Finally other citizens began to relish frogs, and before many years the race became almost extinct. Frogs have very little brain, but what little they have, we boys soon discovered, they so far cultivated as to serve the purpose of self-preservation. To capture them, we used a fishing rod with a short piece of line at the end, to which was attached a hook baited with a "bit" of red flannel, and at first they were just stupid enough to greedily snap at the flannel, and allow themselves to be hooked; but they soon found out the nature of the decoy, and refused to bite at it. They would sit and look at us, and allow us to dangle the decoy about their heads, or across their mouths, but they would bite no more. Then we tied two or three hooks together—back to back—like a miniature anchor, and hooked them with a quick upward jerk, whether they bit or not; but they soon learned to evade this dodge by increasing the distance between us and them. Their advance in scholarship was remarkable. If they were just an inch or two beyond the length of our rods, and we tied a foot or two to the lower end, by the time we were ready to use it, the frogs were just that much farther out in the stream. Then we were compelled to resort to powder and shot, and then too the frogs began to dive under the water at our approach. Claiming your indulgence for this digression, allow me to say, that it was the fashion of eating frogs that occasioned their depletion and almost extinction. A similar use of insects would go very far toward diminishing their numbers, and who knows how soon the time may come when such a use will be made of them, both as a remedy against their incursions, and as an article of commerce. Even if it should be made manifest that insects are a nutritious, healthful and pleasant food, there would necessarily be exceptions, just as there are exceptions among vertebrated animals; for, not many people hanker much after owls, crows

*Read before the Linnæan Society, February 24, 1877, by S. S. Rathvon.

†To which also belong the snakes and toads.

and buzzards, any more than they do after wild cats, wolverines and skunks, but there might be those who would prefer them to more delicately constituted animals. Nor could the use of insects as food be claimed as a modern discovery, for, without going back to the prehistoric ages of the human family, and speculating upon their gastronomic habits, we have numberless instances recorded upon the pages of ancient, mediæval and modern history that they were used as human food. The Greek and Roman epicures of the 2d century.—and both earlier and later than that period—were in the habit of eating the *larvæ* of several coleopterous insects, and highly relished them, according to Ælian, Pliny and others; which were probably those of palm-weevils, and certain large species of *Longi-cornians*. Pliny's *cossus* probably was a *Prionus*. What we know of *cossus* now, is, that it is very offensive, and would hardly be used as food; but the two edible species named, as well as the white grubs of certain Lamellicornian insects, were eaten, and regarded as great luxuries by the people of Surinam, South America, and the West Indies, and are very probably eaten by those people today. The larvæ of a large species of CERAMBICIDÆ (*Prionus damicornis*) was in great request at the principal tables in Jamaica, and a similar one in Mauritius, and also allied species in various parts of Africa. The whites as well as the negroes, in the latter country, are said to be greedily fond of the *larvæ* of Cock-chafers and Rhinoceros Beetles (*Oryctes nasicomis*). Among the ORTHOPTERA, locusts have been considered almost a staple food among various nations. St. John the Baptist made a repast of "locusts and wild honey" in the wilderness, and among the Ethiopian tribes, and the Parthians, as well as the Arabians, locusts were a common article of food, and from this circumstance some of these tribes were called *Acri lophagi* (locust eaters) from *Acridium*, a genus to which some of the largest species belong. The largest species of locust in our latitude is the *Acridium Americanum*, and is common in Lancaster county.

I might fill many pages in quoting the instances throughout the world where insects have been resorted to as an article of human food, and this not from necessity alone, but from choice. Not only the orders *Coleoptera* and *Orthoptera*, but also the *Lipidoptera*, the *Homoptera*, the *Hymenoptera*, the *Diptera* and the *Apt era*, have furnished subjects for the sustenance of the human family. The Greeks, the Romans, the Parthians, the American Indians, the East Indians, the Hindoos, the Egyptians, the Mahrattans, the Brazilians, the Swedes, the Hottentots, the New Caledonians, the French, the Ceylonese, the Margueritans, and even others of the most polished among the European nations, have at various times been more or less given to the use of insect food, and these instances have been copiously set forth by such authorities as Aristotle, Pliny, Piso, Homer, Aristophanes, Ælian, Raumer, Scopoli, Lattreille, Humboldt, Rosel, and many others, and to read the descriptions of the relish with which many individuals, both male and female, refined as well as vulgar, partook of them, is almost sufficient to excite an appetite in those who have "never been there."

For THE LANCASTER FARMER.

JOTTINGS SUGGESTED BY A CIRCULAR

One of the prominent dealers in fertilizers has put out a circular which it might be well to study. As he is generally recognized as a fair dealer, and the figures that are given of the composition of crops and fertilizers are taken in nearly all cases from standard works on chemistry, the calculations that may be reduced will be in the main reliable.

In making the prices of chemical manures, he gives the following rates for the fertilizing materials contained in the same:

Ammonia, 17½c. per lb.; (nitrogen, 21¼;) phosphoric acid, 9c. per lb; potash, 7½c. per lb.

If we now take these figures and apply them to the amounts of such fertilizing materials removed from the soil (as per table by Prof. Atwater in *American Agriculturist*) it costs in these materials to produce one bushel of wheat, 33⅓c.; one bushel rye, 27½c.; one bushel oats, 16c.; one bushel corn, 23⅓c.; one bushel buckwheat, 18c.; one bushel potatoes, 7½c.; one ton meadow hay, $8.75; one ton timothy hay, $12.13; red clover hay would seem to remove $12.81, but as the clover appropriates the greater part of the nitrogen from the air, the materials removed are probably not worth over $6.50 per ton of hay; wheat straw per ton, $2.70; rye straw per ton, $2.57; oats straw per ton, $3.37; corn fodder per ton, $1.43; tobacco per 100 lbs., $1.25.

Now if by applying a certain amount of fertilizers, a certain increase is the result, and that increase costs less for fertilizers and extra labor involved than the market value of the increase, it is surely to the interest of the farmer to use them. The preparation of the land is the same, the tillage hardly ever more, sometimes less, on account of the luxuriant growth of crop that smothers any late weeds that may start, and the only increase in expense may be that the harvesting will cost more, on account of the larger crop; but harvesting usually is but a small part of the expense.

Unfortunately, the result from the application of fertilizers (stable manure being no exception) will not always be satisfactory, for if the season is very dry there will be little apparent benefit, and even in some cases, where they were not applied in a proper manner, may be a positive injury. But as in most cases the cost of the increase is only from one-half to one-sixth of the market value of such crops, we believe it would pay to use the fertilizers more, providing it was made a regular practice; for if used only semi-occasionally, the result would probably be about as satisfactory as if stable manure was applied in the same manner.

The crops which would seem to pay best by an application of fertilizers in the order from the best paying to those that pay less for the expense involved are tobacco, potatoes, wheat, rye, oats and corn. In these the ratio between the value of the materials removed and the market value of the crop is the greatest.

Timothy is probably the crop that is least able to stand an application, for one ton of hay removes 44½ lbs. ammonia (36.6 lbs. nitrogen), 14½ lbs. phosphoric acid and 41 lbs. potash, costing over $12 at the warehouse, to which, if freight, expense of applying, interest and taxes on land, and labor of making hay be added, it would run up the cost of the hay to about $21 per ton.

From the circular mentioned we glean that in beets, carrots, tobacco, timothy, and all the grains except buckwheat, ammonia is most required, phosphoric acid next, and potash last.

In turnips, ruta bagas, sorghum, sugar cane, cotton and buckwheat, phosphoric acid is most required, potash next, ammonia last.

In Irish potatoes, clover, peas, beans and lucern, potash and phosphoric acid are most required, ammonia last.—*A. B. K.*

VERY CURIOUS EXPERIMENTS.

The Sick and the Afflicted Cured—A Great Blessing Conferred upon the Human Family without Cost.

Some months ago, a number of the papers in the country criticised, generally with some degree of facetiousness, a book written by Gen. A. J. Pleasonton of Philadelphia, entitled "Blue and Sun Light; their influence upon Life, Disease, etc." Some of the ideas set forth by Gen. Pleasonton are calculated to startle reading and thoughtful persons, and failing to comprehend his theories, it is no wonder that the critics poked considerable fun at them. My attention was recently directed to the "blue glass" treatment by an old friend who recommended its use in case of sickness in my family. Having confidence in my friend I wrote to Gen. Pleasonton regarding it, and in reply received a copy of his book, and instructions regarding the application of the blue light in the case I recited to him. Having practical evidence before me of the benefits to be derived from the application of the "blue light," I propose in this letter to give some general idea of Gen. Pleasonton's theory regarding the

Blue and Sun Lights.

To premise, then, Gen. Pleasonton, the author of the book in question, was not the famous cavalry leader during the war, as has been quite generally supposed, but his elder brother. The cavalry leader is Gen. Alfred Pleasonton, while the discoverer of the blue light theory is Gen. Augustus J. Pleasonton. He is a graduate of West Point, was in the regular army for some time, from which he resigned; during the war he was a Brigadier General of Pennsylvania militia, and was selected to organize a body of 10,000 men within the State for use in emergencies. He is a lawyer of prominence in Philadelphia, a gentleman of culture, wealth and refinement. Owning a farm outside of the city, he in 1860 commenced to experiment upon his theory regarding the different colors in the sun's rays, and their effects upon vegetable and animal life. Experiments made in Europe had already demonstrated that the blue rays of the sun's light had greater chemical powers than any of the others, developed a greater amount of heat, and were especially stimulating to vegetation. But these experiments had been barren of practical results, and Gen. Pleasonton was left to his own resources to carry out his own ideas. He built a large grapery, covered with glass, every eighth row of which was blue. By this arrangement, the sun in making its rounds,

Cast a Blue Ray of Light

upon every plant and leaf within the grapery. In April, 1861, he set out twenty varieties of grape-vines in his grapery, all of the cuttings being one year old, the size of a pipe-stem, and cut close to the ground. The vines soon began to show a most vigorous growth, and in a few weeks the grapery was filled with vines and foliage. By September or five months after setting the seedman who had furnished the cuttings made measurements, and found that the vines had grown forty-five feet in length, and were an inch in diameter a foot above the ground. These vines attracted great attention in the neighborhood, but it was predicted that, owing to this unusual growth, they would not bear fruit. Next year, however, the vines displayed the same vigorous growth, and in addition bore over 1,200 pounds of luscious grapes of unusual size. This was more astonishing to horticulturists than the growth of the vines, but from that day to this, the vines have kept up the same vigorous growth, being entirely free from disease and destructive insects, and bearing with proportionate prolificness. How remarkable this result is will be appreciated when it is known that in grape-growing countries the vines do not bear fruit until the fifth or sixth year. Having been so successful in his first experiment with vegetable life, Gen. Pleasonton next tried the effect of

Blue Light upon Animals.

His first experiment was with a litter of pigs, which he placed in a pen which was placed in a pen which was lighted by blue and plain glass inserted in the roof in equal proportions. This litter gained wonderfully in weight, size and strength, and, at the end of a few months, were found to weigh very much more than a similar litter raised in the usual way. He next experimented with an Alderney bull-calf, which was so puny and weak at its birth that the manager of the farm said it could not live. It was put under blue glass, and in twenty-four hours it was able to stand up, and was taught to drink milk; in four months it was a perfectly-developed bull, strong and vigorous, and was turned in with the herd of cows, and has since fulfilled every expectation regarding him. Subsequently other experiments gave him confidence, and

now all his cattle are raised under blue glass, showing great vigor and the most surprising precocity. A heifer becomes a mother when 14 months old, and the cows and their progeny are healthy and strong, and the former are great milkers. It is generally held that heifers should not bear young before they are four years old, but under the influence of blue glass, they do so without injury when 18 months old, thus saving the expense of keeping them through two and a half years. The beneficial effect of the associated plain and blue rays of the sun's light upon vegetable and animal life having been demonstrated, to the wonder and amazement of all who had observed the experiments, their effect was tried upon

Various Sick Persons.

The most astonishing results have been obtained, which are certified to in such a manner as to leave no doubt regarding them. Commodore Goldsborough, who had read something regarding Gen. Pleasonton's discovery, relates the case of a lady who prematurely gave birth to a child, which was weak and puny, weighing but three and a half pounds at birth. There were blue curtains to the windows of the room in which the child was reared, and those were arranged so that the light entering the room came about equally through the blue curtains and the glass of the windows. The child began to thrive, developed a tremendous appetite, while the lacteal system of the mother was greatly excited, and her supply of milk greatly increased. The child grew rapidly in health, strength and size, and at the end of four months weighed twenty-two pounds. Commodore Goldsborough experimented with two broods of chickens, placing one under blue glass and the other in an ordinary coop. The former soon showed the stimulating effects of the blue glass, their growth being almost visible from day to day, and their strength, size and vigor far exceeden that of the chickens in the ordinary coop. This is testimony from a gentleman of high standing who is in the habit of carefully weighing his words. The

Wife of a Philadelphia Physician

was suffering from a complication of disorders, and the medical fraternity of New York and Philadelphia could do nothing for her. Her husband, Dr. Beckwith, writes that she was suffering from nervous irritation and exhaustion, which resulted in severe neuralgic, and rheumatic pains, depriving her of sleep and appetite for food, producing great debility and a wasting away of the body. The lady and her husband had abandoned hope of her recovery. Gen. Pleasonton recommended the trial of the blue glass, and accordingly Dr. Beckwith arranged one sash of a window with alternate panes of blue and common glass. His wife then exposed to the effect of the associated rays of blue and plain light those portions of her body which were affected by neuralgia. In three minutes she experienced relief, and in ten minutes the pains disappeared. With each application of the associated lights, her pains became less, her appetite and strength returned and in three weeks she was restored to her normal, healthful condition. This lady had been losing her hair in consequence of her sickness, there being several bald places on her head. Under the stimulating effects of the blue glass, the hair began to grow vigorously, and the bald places were soon covered with a luxuriant growth of hair. Dr. Beckwith, in relating this case, says: "From my observations, of the blue and sunlight upon my wife, I regard it as the greatest stimulant and most powerful tonic that I know of in medicine. It will be invaluable in typhoid cases, cases of debility, nervous depression, and the like."

Two Major Generals,

old friends of Gen. Pleasonton, were afflicted with rheumatism in their forearms, from their elbow-joints to their finger-ends, so severe at times that they were unable to hold pens. They determined to try "Pleasonton's blue glass," and accordingly obtained a piece of blue glass and set it up loosely in one of their windows. For three days they bared their arms and held them in the associated blue and sun light for thirty minutes. Each day brought them relief, and at the end of three days the rheumatism had disappeared. Two years later they both informed Gen. Pleasonton that they had not had a return of rheumatism in any form. A little child that had, from its birth, scarcely any use of its legs was taken to play daily in a room where blue glass formed a portion of one of the windows. In a very short time it obtained the use of its legs and learned to walk and run without difficulty. Numerous other cases are mentioned in Gen. Pleasonton's book showing that there can be no question of the stimulating and curative effects of the associated blue and sunlight. But I prefer to give my own experience, and then follow with Gen. Pleasonton's explanation. A lady of my family, about six weeks ago, had a

Violent Hemorrhage of the Lungs,

and for ten days raised more or less blood daily. She was very much weakened by the loss of blood, and considerably frightened withal. I obtained some blue glass and placed it in the window where she was in the habit of sitting, the blue glass constituting one-half the lower sash of the window. The lady sat daily in the associated lights, allowing the blue rays especially to fall upon the nerves of the back of the neck for about an hour a day. The second day, the sun's rays being unusually strong, she got "too much blue glass," and at night felt peculiar sensations in the back of the neck, among the nerves, and an unpleasant fullness in the head. These sensations wore off next day, and since then she has not remained so long at a time under the blue glass. But from the first she began to grow stronger, her face soon gained its natural fullness, and in a week she was, to all appearance, as well as ever. Of course she was not cured of the trouble in her lungs in so short a time, but the soreness in her chest has passed away, and she begins to feel well again. After sitting in the associated light a week, a large number of red pimples came out on her neck and shoulders, an indication that the treatment was bringing to the surface the humors of the blood. In a letter to me Gen. Pleasonton says: "I am satisfied that if this treatment shall be continued through the winter and spring, any tuberculous development that may exist in the lungs will be arrested, its pus absorbed into the circulation, and then thrown off from the blood in the excretion (as has occurred already in the spots on the body), the wounds of the tubercles will be cicatrized and the lady restored to a condition of good health." In the same letter Gen. Pleasonton relates an agreeable incident which occurred to him but a few weeks since. A lady and her daughter called to see him, and announced that they had come from Corning, N. Y., to Philadelphia, for the express purpose of thanking him for

Saving the Daughter's Life.

Four years ago she was afflicted with a violent attack of spinal meningitis. Her sufferings were indescribable, but continuous. Every conceivable remedy had been resorted to during these four years, but the patient received no benefit. Her nervous system at last became so disordered that the slightest sound or the most gentle agitation of the air threw her into the most agonizing suffering. She was wasted away in flesh, could not sleep at night, had no appetite, and her life was despaired of. Hearing of Gen. Pleasonton's discovery in associated lights, her parents determined to try it. A bay window was fitted with alternate panes of blue and plain glass, and the young lady sat daily in the light which streamed through them. Her physicians, of course, laughed at the idea, pronounced the whole thing a humbug, etc., as is the habit of professional gentlemen whenever any new idea is broached. The physician was dismissed, and the young lady relied wholly upon the blueglass treatment for her restoration to health. The lady says that on entering the room thus lighted, the pains from which she was suffering almost immediately ceased. They would return in a modified form on leaving the room, but grew less from day to day. Very soon her condition began to improve, her appetite returned, and with it her strength; she began to gain flesh, her sleeplessness disappeared, and in short, she was speedily restored to health.

Hope for the Bald-Headed.

A singular feature of this young lady's case was that her hair all came out and she became as bald-headed as an egg. Her physician examined the scalp with a microscope, and declared that there were no roots of hair remaining, and that, consequently, she would never again have a natural head of hair. This announcement to a young lady was worse than would have been the reading of her death warrant. Better the cold grave and its attendant worm than to go through life with a wig. Under the blue glass treatment, the hair did begin to grow, the young lady discarded her wig, and when she called upon Gen. Pleasonton she showed him a luxuriant growth of hair which any young lady might envy. She was profusely grateful to the General for having restored her hair, and incidentally saved her life. So much for examples and illustrations. These and numerous others which I might cite if you had space to print them, show that the blue associated with the sunlight have a wonderfully stimulating effect upon both vegetable and animal life, and have cured some diseases with which the human family is afflicted. If they will do this, everybody ought to know it, for the treatment costs nothing, and is a great saving of doctors' bills. Now for

Gen. Pleasonton's Explanation

of the curative effects of the associated lights. In his letter to me he puts it thus tersely: "Sunlight passes through plain, transparent glass with very slight obstruction, as it does through the atmosphere and ether of space; it produces no heat, for the glass remains as cold as the outside atmosphere while the sunlight passes through it. When, however, the adjoining sunlight, moving with the same velocity as the first mentioned, viz.: 186,000 miles per second, falls upon the blue panes of glass, six of the seven primary rays of sunlight are suddenly arrested by it, only the blue rays being permitted to pass through it into the apartment. The sudden stoppage of these six rays of light, with its enormous velocity, produces friction; this friction evolves negative electricity, which is the electricity of sunlight passing through the ether of space and our cold atmosphere, both of which being negatively electrified impart their electricity by induction to the rays of sunlight as they pass. The blue glass is oppositely electrified. When the opposite electricities, thus brought together, meet at the surface of the glass, their conjunction evolves heat and magnetism; the heat expands the molecules of the glass, and a current of electro-magnetism passes into the room, imparting vitality and strength to any animal or vegetable life within it. When the atmosphere of the room becomes thus electro-magnetized, its inhabitants cannot fail to derive the greatest benefit from being in it." Gen. Pleasonton's book is devoted to the scientific discussion of his theory, and to the recital of proof to sustain him. He boldly combats many theories which have been accepted as established principles, and ably puts forward his own as a substitute. For instances he denies the

Newtonian Theory of Gravitation,

affirming that there is no such thing. He holds that electricity is the all-controlling force of nature, and by and through it we live and have our being, the earth revolves, the planets are sustained in their several places, and all that. He further denies the accepted theory that the sun is an incandescent body, throwing off heated rays, and that there is any heat in the sunlight. He argues that the earth is surrounded by an envelope of atmosphere

and ether which has been proved to be of a temperature minus one hundred and forty-two degrees centigrade, and that it would be absolutely impossible for the sun's rays to penetrate this cold envelope for a distance of 92,000,000 of miles and preserve any portion of heat whatever. According to Pleasonton, all our heat is evolved from the earth, and the heat and cold of our atmosphere are regulated by the distance of this cold envelope from the earth. Not being a scientist, and not having much time or space at my disposal I shall not pretend to explain Gen. Pleasonton's ideas. Let those who wish to read his book send to Scribner for it, inclosing $2, and they will get it. But "the proof of the pudding is in the eating." While I cannot explain scientifically the operation, I know that the blue light, in conjunction with the plain light, has produced wonderful effects, both in curing disease and otherwise. It costs nothing to try it, for, although a patent has been issued to Gen. Pleasonton for his discovery, he has not sought to profit by it. Let

Whoever Desires to Experiment

with it, whether upon vegetable or animal life, go ahead. If upon vegetable life, the proportion of blue glass to transparent should be about one-eighth; if upon animal life, let it be about equal—one-half blue and one-half transparent. The glass used is a dark purplish blue, and can be obtained almost anywhere. Get a few panes cut to the size of your window panes, and insert them alternately in the sash, and then let the lame, the halt, and the blind sit within its influence. It is soon tested, and at a trifling cost. The results already obtained and certified to by men of known character and standing are sufficient to make ridiculous the one who would cry "humbug." Facts are facts, and cannot be wiped out. Whatever one may think of Gen. Pleasonton's theories, or his explanations of the results obtained by his experiments, no one who reads his book can doubt but these results have been obtained. In France, his book attracted the attention of the best scientists, who are now experimenting with the blue glass. What results have been obtained is not known. All scientists admit that electricity is a force regarding which very little is known. They are all striving to learn more regarding it, and to make it more subservient to the will of man. Perhaps Gen. Pleasonton has got

A Step in Advance

of all of them, and holds the key of the puzzle in his grasp. I should add, however, that he is exceedingly modest regarding his discovery, and says: "I do not profess to teach any one; but, as a human atom among the masses of mankind, for whom all knowledge should be disseminated, I venture to impart to the public the conclusions to which I have arrived on these subjects, and that the public may attach to them whatever value they please." When I see a near and dear relative daily advancing from sickness to health, gaining strength and vigor from the application of his theory, I for one attach very considerable weight to it. In the hope that others may be induced to experiment in this direction, where no possible harm can follow and much good may result, I have written this letter.—*Chicago Tribune.*

GOLDEN RULES FOR BEE-KEEPING.

1. For success. The successful bee-keeper should be firm, fearless, prompt, provident, persevering, systematic and self-reliant.

2. For situation. The apiary should be in a sheltered position, near a small stream, and where a variety of honey-plants, some of which yield *abundant*, and others *constant* supplies of the nectar.

3. For removing bees. Allow for abundant ventilation, close up firmly, invert and place in a spring wagon, so that combs run with, and not across the wagon. Unless removed a mile or more, hives should be moved by degrees, only a foot or two at a time, or many bees will be lost.

4. For hives. The general advantages of manufacture, simplicity, capacity, wintering and adaptation to the requirements of the particular apiarian are to be considered. It is essential that every hive, frame, box, and movable part be of the same size so that each will fit with all.

5. For handling. Move gently and without sudden or violent motions in all work about the apiary.

6. For subduing. "Bees filled with liquid sweets do not volunteer an attack." Hence, cause them to fill themselves with honey by smoking or fighting.

7. For smoking. Use dried buffalo chip from the cow pen. It costs nothing, is the best material, and when lighted lasts a long time.

8. For protection. Use a bobinet vail sewed up and open at the both ends, one fastened with rubber around the hat, the other secured under the coat collar.

9. For sweeping bees. Use a green twig or a bunch of asparagus, never a feather.

10. For stings. Do dot flinch if stung. Scrape the sting out with a knife or fingernail, pinch the wound and apply soda, hartshorn, or whatever alkali is found best by the particular party.

11. For increase. Rear queens, or have queen cells ready from nuclei before the swarms are made. Make but few swarms if honey is desired.

12. For nuclei. Use the regular frames and hive with division boards to diminish or increase at pleasure. No extra, useless comb is then needed, and they are easily increased to stands.

13. For inserting queens. She should be fertile, the bees aware of their loss, no queen cells started, the same scent given, and the bees quiet, when she is released.

14. For strength. Keep only prolific queens, feed in times of honey drought, check undue swarming by destroying queen cells, and if necessary, by inserting combs of capped brood or uniting stocks.

15. For honey. Keep the hives very strong if much is desired. The neater the box, or jar, the better the price.

16. For a queenless colony. Give it a queen, queen cell or eggs at once, or unite it with another colony.

17. For queens. Raise queens from select stocks. Keep only prolific ones, and supersede the third year after the close of the spring honey harvest.

18. For record. Keep a record of the age of each queen, all examinations and conditions of the hive, on a card or tablet fastened conveniently in the top of each hive.

19. For using extractors. Use sparingly except in the midst of a honey harvest, or directly thereafter, to give the queen room for laying.

20. For comb guides. Use sharp angles, or strips of comb in the centre of the frames, and tip the hive forward at an angle of 25 deg.

21. For worker comb. Have combs built in colonies which have young queens, and always near the centre of the hive, or use artificial foundations.

22. For raising drones. A square inch or two of drone comb is sufficient in a hive to prevent the rearing of useless drones.

23. For cleansing comb. If dry, first soak and then direct a stream of water from a syringe upon the comb so inclined that the water carries away the filth.

24. For feeding. Time—after sunset, with tepid syrup if cool. Season—liquid food in summer and fall, and solid candy in winter. The syrup should vary from equal parts, by measure, of sugar and water, for summer, to two of sugar to one of water, for fall feeding. A little vinegar may be added in summer to prevent storage, and a little cream of tartar in autumn to prevent crystallization. Freshly ground oats and rye for pollen, fed in a dry, sunny place in spring.

25. For removing propolis. Alcohol cleanses it from glass, benzine dissolves it, but the best way to remove it from quilts is by rubbing in cold weather.

For wintering. Stocks should be strong in bees, heavy with stores, protected from sudden changes and depredators, with ventilation according to temperature.

27. Against moths. Strong colonies with fertile queens.

28. Against robbers. Contract the entrances—entirely if necessary. Leave no sweets exposed.

29. Against ants. Pour coal oil, or carbolic acid into their haunts. Seal honey in jars or place it on a bench or swinging shelf, with a good wide chalk mark around the supports. Ants cannot cross a fresh chalk mark if wide and continuous.

30. For general success in all points. Keep your stocks *strong!* STRONG!!

Four things to be learned:

1. How to succeed in artificial fertilization.

2. How to coax bees to use old comb in constructing new.

3. How to prepare pollen for use in the cells.

4. How to make comb foundations that will not stretch.

Yea and

5. How to winter successfully without comb.—*Bee-Keeper's Magazine.*

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

A stated meeting of the Lancaster County Agricultural and Horticultural Society, was held in the rooms of the Linnean Society, on Monday afternoon, March 5, the following named gentlemen being present:

Calvin Cooper, president; Johnson Miller, secretary; D. W. Ranck, Henry M. Engle, Reuben Weaver, Martin D. Kendig, John C. Linville, Levi W. Groff, Mr. Hiller, Levi Pownall, E. K. Hershey, John B. Erb, Jacob B. Garber, Simon P. Eby, C. L. Hunsecker, Prof. S. S. Rathvon, Peter S. Reist, John Bushong, Christian Coble, George W. Schroyer, John Miller, Adam Shreiner, Levi S. Reist, Jacob R. Witmer, Elias Hershey.

Crop reports being called for, Mr. ENGLE stated that there was very little to report; frequent freezing and thawing had browned the winter wheat somewhat, but had not hurt it. Some of the peach buds had been killed by the severity of the winter, but there were enough unhurt to insure a good yield. The lowest temperature during the season, at his place, was 6 degrees below zero. The lowest during the past month was 18 above zero, and the highest 65. The rain fall during the past month was 2½ inches.

Mr. HILLER, of Conestoga, said the fruit in his neighborhood was unhurt. The thermometer at no time marked a lower temperature than 2 degrees above zero.

Mr. J. B. ERB had noticed that the winter wheat was in some places injured by repeated freezing and thawing.

President COOPER had examined a great many peach buds and found them all killed. The lowest temperature was 6 degrees below zero.

Mr. E. K. HERSHEY read an interesting paper on the question referred to him at last meeting: "How much lime should be used to an acre of land?" He said agricultural chemists greatly differed as to the utility of lime on land. Some say that the constituents of lime, if they are not already in the soil, must be put there by the farmer. Others regard lime as of very little account under the best circumstances, while sometimes it did absolute harm. Mr. Hershey thought that its chief utility is its quality as an alkaline re-agent. He thought many farmers used entirely too much of it. He recommended from 15 to 70 bushels per acre, according to the nature of the soil, and to be employed annually as a top dressing, in as fine particles as possible, after being staked. As the application of lime as a fertilizer was a question on which farmers greatly differed, he urged members of the society to make experiments and lay their results before the society.

Mr. H. M. ENGLE thought too much lime was generally used; smaller quantities more frequently applied will do more good than the large quantities sometimes used; some farmers use from 100 to 150 bushels per acre; this is too much.

Mr J. C. LINVILLE said some soils would bear from 100 to 200 bushels per acre, while others would not bear 50 bushels. Where the soil is not more than six inches deep and one-half gravel, it will not take up much lime; it should therefore be put on sparingly. In clay soil it may be put on more heavily. Where there is not much vegetable matter in

the soil, lime will do more harm than good. As a manure it is of very little value.

Mr. HILLER said the tobacco growers in his neighborhood limed very heavily—from 100 to 200 bushels per acre—and in addition added large quantities of barnyard manure, and plowed both in together. In this way they raised immense crops of tobacco.

Mr. LEVI W. GROFF did not have much faith in lime. Some years ago he bought a quantity, and spread it on a strip of ground through the centre of a field, at the rate of 200 bushels per acre. He sowed his seed, and when the crop ripened it was impossible to see any difference in the yield. It was neither better nor worse than in the parts of the field that were not limed. The whole field was manured heavily with barnyard manure. Mr. Groff said he would like to know whether a useful kind of phosphate might not be made by adding lime to green sawdust. Would not the lime deprive the sawdust of its acid and assist in rotting it?

Mr S. P. EBY thought not. The lime would have a tendency to preserve rather than destroy the sawdust. We whitewash fences and buildings to preserve them. Mr. Eby gave an illustration of the value of lime on gravel soil—instancing a farm that was comparatively valueless until lime was liberally applied.

Mr. H. M. ENGLE thought the action of lime when mixed with the soil might be very different from its action when applied to wood.

Mr. E. K. HERSHEY suggested that gypsum would be better than lime to mix with the sawdust spoken of by Mr. Groff.

Mr. J. C. LINVILLE had not much faith in either plan, but would use lime in preference to gypsum to compost the sawdust, and would then use the sawdust very sparingly. It is well known that lime will preserve wood when it is kept dry, but will not preserve it when it is in a moist soil, as may be seen by the rotting of whitewashed posts and fences at or under the surface of the ground.

Mr. HILLER said if he had a pile of sawdust such as Mr. Groff's, he would rot it with liquid manure—with the drainage from the manure pile in the barnyard.

President COOPER said he had successfully used gypsum by spreading it over the manure pile, especially when there were a great many cornstalks in it.

Mr. MARTIN D. KENDIG, referring to Mr. Groff's statement, that he could see no difference in a limed strip of land from the land that was not limed, said he knew of a strip of land that was limed ten years ago, at the rate of 100 or 150 bushels to the acre, and that the good results of liming can yet be seen by the increased crops grown on that strip.

Mr. E. K. HERSHEY, in answer to a question, said that air-slaked lime is not as good as water-slaked lime, because the former contains more carbonic acid than the latter.

Mr. J. C. LINVILLE thought the best time to apply lime was after the wheat has been harvested, and the best mode was to distribute it in as small particles as possible. Phosphates he thought were of little or no value. He had covered strips of land with them and failed to see any advantage resulting therefrom.

In applying lime, Mr. ENGLE favored putting it in small heaps covered with earth before spreading it. The various properties of the lime are thus preserved and absorbed by the soil.

Mr. LEVI POWNALL believed that crops might be doubled by the judicious use of lime. He believes that it loses none of its virtues by lying unused; indeed the lime in old mortar seems to be better than fresh slaked lime. As an illustration of the value of lime he spoke of what used to be known as the "barrens," in the southeastern part of the county, which have been made fruitful farms by the liberal use of lime. These barrens were partly slate, partly gravel, and partly limestone land, and all these soils had been equally benefited by lime. He had used phosphates and thought he had in some cases received benefit from them, but as a general rule he had been cheated in them.

Mr. CHRISTIAN COBLE said before he commeneed liming his land he could raise only 12 or 15 bushels of corn to the acre; now he raises from 75 to 100 bushels. He uses on clay sod from 100 to 150 bushels per acre, every four years, and is certain he derives great benefit from this method.

Mr. PETER S. REIST said that 25 or 30 years ago his father applied from 100 to 200 bushels of lime per acre to part of his land. Scarcely any difference could be seen at the time in the crops on the limed and unlimed parts of the farm. But a great difference can be seen now; where all was sterility then, all is fertility now. Those who use lime have good crops and those who don't have not. All good farmers now use lime and their farms have advanced in value from 100 to 300 per cent.

The question, "When is the best time to plant cloverseed" gave rise to a long discussion and almost every month in the year was recommended, and half-a-dozen different modes of putting in the seed were advocated.

PRESIDENT COOPER would sow the seed on top of the snow.

CHRISTIAN COBLE would sow it on the ground when it was hard and dry and cracked open by baking.

LEVI W. GROFF would sow on wheat stubble and trust to wet weather for crop.

LEVI S. REIST sowed in April and failed; some of his neighbors sowed in the spring with no better result and some did well by sowing on wheat stubble.

JOHN B. ERB sowed during harvest and failed.

M. D. KENDIG sowed after harvest with good result.

Mr. H. M. Engle thought spring was the best time to sow, but the weather had much to do with the result. He believed the ground should be as well prepared for cloverseed as for any other crop. The best clover he had was when he sowed the seed with his oats.

Mr. LEVI POWNALL had sown seed in well cultivated ground and also in wheat stubble, and the one turned out just as well as the other. Spring sowing might be done from the middle of March to the last of April.

Mr. LEVI S. REIST in sowing seed used about four quarts to the acre.

Mr. E. K. HERSHEY suggested as an experiment, first, that the seed should be sown and harrowed in; and second, on another plot, the ground should be harrowed the seed sown afterwards. The harrow should be made of a piece of plank with 20-penny spikes driven through it.

Mr. LEVI W. GROFF said he intended to experiment by sowing cloverseed on young wheat, and follow the seeding with a drag, a kind of sled without teeth. He feared that teeth would injure the roots of the wheat.

"How shall we build a good and cheap pump house with a fruit cellar under it?" was a question proposed by Mr. JOHN B. ERB.

A debate followed in which several gentlemen agreed that a pump house would not be a fit place for a fruit cellar, as the dampness from the well would injuriously affect the fruit. Mr. Erb was of a different opinion. The cellar under his house was too dry for fruit, and as a consequence the fruit shrank. He thought the dampness of a properly constructed pump house would not injure the fruit. He had frequently buried apples in the ground covered with straw, and they kept very well.

Mr. HERSHEY had done the same last fall, and had examined his buried apples a few days ago and found them in good condition, while those in his cellar were rotten.

Mr. ENGLE would not build such a fruit cellar as that proposed by Mr. Erb, nor bury his apples as proposed by Mr. Hershey, as buried apples are apt to have an earthy flavor. The common plan of packing winter apples in barrels, and keeping them as near the freezing point as possible, is a good plan. Barreled apples will stand several degrees below the freezing point without material injury.

PROF. S. S. RATHTON read a very interesting paper in answer to the question: "Will the unusually large crop of tobacco worms of the last season be likely to produce a correspondingly large crop of worms next season?" See page 37 in this number of the FARMER.

Mr. P. S. REIST read a paper in answer to the question as to whether it was an advantage to select seed corn from the middle of large and well developed ears. He said it had been his custom to select the largest and best grains for seed, but some of his neighbors, who were not so particular in this respect raised just as good corn as he did, and as much of it.

Mr. H. M. ENGLE made a strong argument in favor of selecting the best seed for corn, as well as all other crops. He exhibited several very fine ears of corn, and advised that in selecting seed the largest and most fully-developed grains should be chosen, and the grains near both ends of the cob rejected. He also exhibited some fine specimens of peerless, snowflake, and Brownell's beauty potatoes, and recommended that the largest and best potatoes should be selected for seed, on the same principle that the largest and best cattle and horses are selected for the propagation of fine stock.

Mr. P. S. REIST reported that he had obtained 75 subscribers to the Lancaster FARMER and hoped to increase his list to 100. He spoke a good word for all our local newspapers and hoped his fellow members would subscribe for as many as they could read and pay for, without regard to sect or politics.

Mr. Geo. H. BECHTEL, by permission called the attention of the society to the merits of a patent seed cleaner and separator.

The following questions were proposed for discussion at next meeting:

What is the best method of exterminating the peach tree borer? Referred to H. M. Engle.

Is there any advantage in selecting the larger grains of wheat for seed? Referred to P. S. Reist.

Is it not dangerous and criminal to use Paris green on cabbages and vegetables or fruits for market? Referred to Johnson Miller.

"Corn culture and its best varieties" was selected for discussion at the next meeting.

Levi POWNALL was selected for essayist at the next meeting,

Mr. Levi W. GROFF presented samples of "mammoth rye," the grains of which are unusually large and of a fine amber color.

The librarian was, on motion, directed to have the library brought from the court house to the rooms of the Linnæan society.

On motion the society adjourned to meet on the last Wednesday in March.

AGRICULTURAL.

Minnesota Wheat and Flour.

The American Miller, an able periodical of Chicago, devoted to the milling interest, contains an article on the great staple of Minnesota, which is of considerable interest. The superiority of the flour manufactured in this State is acknowledged, as is also the fact that the time is not remote when all the exports of breadstuffs from Minnesota will be in the shape of flour, instead of in the raw material as heretofore. The American Miller then continues its comments, which are particularly commended to the attention of the agriculturists of Minnesota, as follows:

The rapid growth of Minnesota as a wheat producing State, and the building up within her boundaries of a milling interest scarcely less than that of Hungary, has naturally given rise to much gratuitous prophecy and criticism on the part of competing sections of the country. In their zeal to disprove that Minnesota can ever become the milling center of the country, many have even asserted that the flour made in her mills is of a really inferior quality, and only needs time to demonstrate its unfitness for general use in the culinary department of home. A statement so erroneous hardly needs to be disproved, for it is well known that that Minnesota flour is unusually strong and possesses all the elements of nutrition to a superior degree. But there is one declaration which has been uttered which really seems to have a foundation in fact. It has frequently been asserted that the soil of Minnesota is too light to stand the continuous production of wheat as a remunerative crop, and that she would soon go the way of her older sister States, and adopt some other grain as her staple. This statement and prophesy have in a measure been verified, if it is fair to take a single year as a criterion. We find it stated on standard agricultural authorities that the soil of Minnesota already shows signs of exhaustion, and that the average crop in most sections of the State last year was only a little over eight bushels to the acre. Much of this decline in her crop is directly attributable to other causes, but there can hardly be a doubt that the best days of wheat raising have passed away in many sections of the State. If it is true, as asserted, that the soil of Minnesota is already becoming weak, a steady decline in the average production of wheat per acre may be expected, though the supply may be quite as large as heretofore owing to the increased number of acres which may be put into wheat.

In view of the fact that scientific farming would hardly pay in a State so young as Minnesota, the inquiry naturally suggests itself, "What will become of her splendid milling industry if her supply of wheat fails?" We do not anticipate that any disastrous results would accrue to the millers of Minnesota, even if the supply should become inadequate. It must be remembered that a good share of Minnesota's annual wheat crop is shipped out of the State to be manufactured at other mills. This margin clearly would be available to the millers nearest the wheat field, and all the more so since these fields are at a distance from our exporting centres, and only sent there because its superior excellence commands a superior price. Moreover it must be remembered that wheat was first planted in Minnesota as an experiment, and it has not yet been satisfactorily determined how far north the limit of the spring wheat section may extend. The millers of Minnesota may yet render the future wheat fields of Dakota and Manitoba tributary to their mills. One point, however, has more force than all others looking to the perpetuity of the milling industry of Minnesota, and that is the superior enterprise and skill of her millers. Raw material always seeks those places of manufacture where these two qualities are displayed. Great Britain and New England do not raise a pound of cotton, and yet they manufacture cotton goods for half of the world. The superior skill manifested in these two localities has naturally made them the factories of the two continents, and Minnesota millers would supply themselves with wheat from Texas or Oregon if necessary to the existence of their mills. Manufacturing centres do not change so easily as those of agriculture, which change their location naturally as the soil becomes poorer. Costly apparatus are not abandoned in the first struggle; and having already made a world-wide reputation, the millers of Minnesota will stand for years to come in the vanguard of the milling industry of our country. It is not likely, however, that any perceptible diminution of the wheat supply will occur for some time to come from the exhaustion of the soil. Minnesota is yet a young and undeveloped State, and we see no cause for dark prophecies respecting the future of her grain supply until the unwelcome fact is demonstrated by the failure of more than one crop.

Harrowing Wheat in Spring.

The advantage of harrowing wheat lands thoroughly in the spring, as the ground becomes dry enough to prevent the horses from sinking into it, is known to many farmers who have practiced it, but is unknown to the majority. Wheat is usually sown in September, upon well prepared land. This land is left there subject to all the storms of rain and snow, and the weather in succeeding spring, until after the wheat is harvested. In consequence, the land becomes in May and June nearly as hard as a meadow. At a season of the year, when the plants are in the greatest vigor of growth, the land is so hard as not to give one half the nourishment it would if kept mellow by any process. Suppose for instance, corn should be planted in the fall, under similar conditions with wheat, and that the winter did not injure it; and that it were left without cultivation of any sort until harvesting; it is evident that the yield would be diminished over one-half; in fact the yield would probably be so light and poor as to be almost worthless.

Now, wheat, from many experiments in its cultivation by hand in England, shows as great sensitiveness as corn; the yield, by careful hand cultivation, being increased to 60, and in some instances, 80 bushels per acre. Now, a thorough harrowing of wheat in the spring, in a very inexpensive manner, performs the cultivation nearly as well as when done by hand. If the crust formed by the winter snows and spring rains is thoroughly broken, and ground to the depth of two or more inches well pulverized, the effect upon the wheat is almost like magic. It starts into the most vigorous growth, and in a few weeks has nearly or quite doubled in size the wheat not harrowed. In pieces of wheat which have come under the writer's observation, which was harrowed in strips, that is, one strip not harrowed at all, and the other strips on each side thoroughly harrowed, in the early part of June, the harrowed wheat stood fully one foot higher than the unharrowed at each side, and in every way was strikingly ranker and more vigorous.

Mr. Robert J. Swan, of Rose Hill Farm, Geneva, N. Y., who has heavy clod land, says he has harrowed his wheat for four years with the Thomas harrow and finds the yield to be increased fully ten bushels per acre. Byram Moulton, of Alexander, Genesee county, N. Y., harvested from fifty acres 1,600 bushels of wheat. His neighbors only obtained about ten bushels per acre. The only difference in land or treatment was that Moulton's wheat was thoroughly harrowed with the same implement in the spring, and his neighbor's was not.

The effect produced by harrowing barley and oats, after they have obtained a growth of four or five inches is equally as marked. I have observed many instances where fully twenty bushels per acre increase in consequence of thorough harrowing was obtained.

These facts and many others of similar character show clearly the great profit which farmers may derive from a thorough cultivation by harrowing of wheat, oats, barley and other sown crops.

Corn Fodder.

A correspondent of the *Chicago Tribune*, in a letter on steam-feeding, gives the following directions in regard to raising:—

Last winter, owing to the failure of the hay-crop, I kept over my entire stock, consisting of twenty horses, about twenty head of cattle, and between 1,600 and 1,700 sheep, without a pound of hay, and they came into spring in better condition than they have ever done on dry feed.

The sheet anchor of steam-feeding is the fodder of sowed corn or, in short, fodder-corn. Perhaps your readers will be interested in the plans followed here in sowing, harvesting, and curing this crop, as they differ in some respects from those pursued and recommended by other practical farmers.

The ground is prepared the last week in May by ploughing, and a sufficient number of harrowings and rollings to bring it into good tilth. The corn is sowed the first week in June with a Buckeye wheat drill all the hoes down and working—at the rate of two bushels per acre. Nothing more can be done to the crop till the latter part of August or first of September, when it is ready for harvesting.

This is done with a Champion table-rake reaper, rigged as for cutting wheat. The reaper is driven around the field as in cutting wheat, and delivers the fodder in gavels at the side. Eight men follow the machine, arranged in four pairs, each pair having, of course, one-fourth of the circuit of the field for a "station," and a light two-legged corn "horse," like those in common use for shocking corn. Each pair after taking its station, carries its "horse" past two gavels, sets down the "horse," stands four gavels into the four angles formed by the "horse" and its cross-pin, brings the tops of the shock neatly together, and ties them with wool twine, draws out the cross-pin, and is ready for another shock. For the eight followers, the team, driver, and machine, eight acres is a fair day's work. The stalks themselves may be used for tying the tops, but twine is found to be sufficiently more expeditious to compensate for the cost. After standing ten to fifteen days, till the fodder is nearly cured, and is in a tough state, the shocks are taken down, and each tied into four or five sheaves or bundles, the stalks themselves, in this condition, making excellent bands, and twelve or more bundles made into a large shock, the tops being secured either with fodder bands, or with the twine used in the first instance. The shocks stand in the field till they are wanted for use.

Just here comes the most serious objection to the feeding of fodder corn. There are times in the winter when both weather and roads are bad; when a deeply-ploughed corn-field is anything but an agreeable road bed for the hauling of heavy loads; when the fodder itself is wet, or covered with sleet, ice, or snow, or its lower end perhaps tightly glued to the ground by frost. But the fodder is so charged with rich saccharine matter that however dry it may seem, and however cold the weather may be, there is danger that if stored in bulk in a mow, or even in stacks, it will ferment, heat and spoil. At such times it is well to have other feed under cover to depend upon.

An experience covering three years, and the growth of over 700 tons of fodder, seems to warrant the following conclusions:

1. The fodder grows from five to twelve feet in height, and averages from seven to nine feet, depending on soils and seasons.

2. Fodder grown on land of good average fertility stands better feed than on soil too rich, where the growth is too tall, rank and coarse.

3. The proper time for cutting is before frost, of course, and when the lower six or eight inches of the stalk assumes a yellow tinge. It is then ripe. If cut sooner, there is danger of its moulding in the shock; if later, the fibre is more woody, and there is risk of frost.

4. It is vastly less dependent upon the weather for its curing than hay. The idea that fine weather is absolutely necessary for its curing, and the fear that a little rain would spoil all, was expressed by others, and felt by myself at first, but turned out to be a "bugaboo." During the cutting and curing of the two largest crops, very rainy weather was encountered; yet not one-fifth of 1 per cent. of the fodder that stood in the shock, and was kept from lying on the ground, moulded. After it is well secured in the small shocks, neither rain nor frost seems to damage it; as indeed they do not usually do the large fodder that has matured corn.

5. A ton of bright fodder-corn is worth more than three tons of *corn fodder* that has matured grain, and as much as an equal weight of good hay

6. An average crop of fodder-corn on good land is *six tons per acre*.

7. It may be grown at a cost—not including interest on price of land, nor expense of carrying from the field to the barn—including expense of preparing the ground, seed, sowing, cutting, binding and shocking, of about $1.30 *per ton*.

Saving Manure.

In speaking of the above subject, an exchange says:

Probably but few farmers exist who have not read articles in the papers advising them to keep their stable manure under cover in a cellar under the stalls, or under a shed; but in both places dung is liable to become too dry, and the straw among it will not decompose as rapidly as it will when it is exposed to rains; or if it be all horse dung, it will "fire fang," and will be greatly injured. A cellar under the stable stalls, into which all the manure and urine of the stock is received, is a good thing, but it would be a good deal better if the manure could be thoroughly wet once a month from a pump adjoining or near the cellar. The same can be said of manure under a shed when piled in deep, it must be kept moist or it had better be kept in the open barnyard. Indeed, we are of the opinion that when a barnyard is made concave, with no drain to it, manure can be kept in it from fall to spring without any loss. Some farmers think that much of the virtue of manure in open yards pass down into the soil and are lost; but such is not the case, and it will be found on removing it in the spring that the soil under it has become colored but two or three inches deep. Now we claim that if an abundance of litter be used upon the surface of the manure to retain moisture and to prevent evaporation, all that a farmer makes can be as well preserved in his open barnyard as under cover; and we would prefer to have our manure spread over the yard occasionally, and covered with straw, than to have it thrown into heaps by the stable door and through windows back of the stalls, and to remain all winter, with much of its virtue washed away and lost.

Valuable Cows.

The history of the Shorthorn cow, Duchess 66th, which sold in 1858, at Earl Ducie's sale, in England, to Col. Morris, of Fordham, for 700 guineas, or $3,675, is remarkable as showing the actual value of a good breeding animal. From this cow, which was calved in November, 1850, there may be traced, in direct descent, a number of animals which have sold for about $500,000.

HORTICULTURAL

Early Spring Salads.

As a nation we do not utilize the great resources or the small blessings that are spread so lavishly around us. And while spring is some months away, and we feel no need of appetizers in the luxury of fruits and vegetables around us, still providence would suggest that we prepare for the days when we shall wish for something fresh and green. The autumn days are the ones in which to prepare some fine and choice salads, such as our neighbors over the water never fail to have. When dandelions appear in the spring, and before they are a half finger long, these tiny leaves—carefully picked or the crown cut just below the surface of the ground—washed and cut up slightly, and dressed with a dressing of vinegar, half a cup; butter, tablespoonful; cream, tablespoonful, or more if wished; salt, pepper, and a bit of mustard, heated and poured over the salad as it is sent to the table. This will be found a splendid and healthy appetizer. To do this you must go to the pastures in the fall, before frost, and take up the roots and make a bed of good rich loam and leaf mould. Your dandelions will be finer and earlier than in the pastures, and you can gather them without wandering a mile or two in the early spring mud. The only caution is, do not let the bed be neglected and go to seed; this is easily attended to, when the blossoms only come in the time when you will be often in your garden, and the bright yellow blossom can be easily picked off. And there are the old cabbage stumps usually throw to the pigs. Ah! how many a garnish for a dinner of early spring rests in their undeveloped eyes. In the fall put a barrel of good garden earth in the corner of the vegetable cellar, and in March spread it against the cellar wall, set the cabbage stumps in this, cover the roots only, and, no matter about the light, in a few days the pale yellow or white shoots will come out, and are as tender and as crisp as any celery or salad you ever saw. And to those fond of "greens" a little care in the autumn will insure that very healthful potage, while yet the snow lingers by the fences, and the gardens are yet brown and icy. Take a box two feet deep and cover eight or ten inches with horse manure, over this put six or eight inches of good earth, and plant the box full of beets, place it where some light comes in at the cellar window, and you can have beet greens while your neighbors look in vain for the first "cowslips as large as a half dollar." There are many other cheap and easy ways of having spring salads which ingenuity may suggest, but perhaps here are enough to try experiments on, and success will come without severe labor, in either of these suggestions.—*Western Stock Journal.*

Bottle Grafting.

This modification of inarching or grafting by approach may often be successfully employed when other methods fail. In inarching, properly so called, two branches or stems on their own roots are spliced together and kept in contact until a union is effected, and if the plants be in pots, or otherwise portable, this method is practicable enough. It often happens, however, that subjects to be grafted are planted out, and that the scion must be severed from the parent plant. It is in cases like this that bottle grafting becomes useful. The scion with two shoots is cut from the plant and splice-grafted on to the stock, where it is bound firmly in the usual manner. The base of the scion is then inserted in a bottle of rain water, which is kept at the required height by a forked support, but sometimes, when the stock is stout enough, the bottle is supported by it. The stock headed back to a shoot, which is left to draw the sap up past the point of union between stock and scion.

Oleanders, camellias, myrtles, and many other plants may be grafted successfully in this way, and in some cases the scion not only unites with the stock, but also pushes out roots into the water; in that case the part below the union may be removed and planted as a cutting.

There are one or two modifications of this method grafting: the Japanese, for instance, who employ it of largely, use a bag of wet earth or earth and moss, instead of the water bottle, and propagators often obtain the same results by pushing the base of the scion into a potato or turnip.

The Thurber Peach.

This is a new variety, to which the attention of cultivators is directed by F. J. Berckmans, of Augusta, Ga., by an article to the *November Agriculturist*. The Thurber peach is the result of an attempt to improve the Chinese cling, and is a seedling of that variety, the result of a series of experiments by Dr. L. E. Berckmans. It is described as follows:

Fruit large to very large, often measuring ten inches in circumference; round or slightly oblong. Skin creamy white, beautifully mottled or marked with carmine on a faint cheek. Flesh white, extremely juicy, dissolving, sweet and highly perfumed; quality exquisite. Unlike the Persian strain of cling-stone peaches, the flesh of the Chinese type is of a peculiar fine-grained texture, which dissolves without leaving any sediment, and the Thurber peach possesses

this quality in a high degree. Maturity from July 15th to August 1st, in Georgia. Although this variety matures at a season when peaches are in great abundance, its transcendent quality and appearance will always give it the front rank among the best varieties of its freestone period of maturity, and it will at no distant day become one of our best known sorts, whether for market or amateur culture.

Nearly four hundred seedling peaches have been submitted to the writer of this notice during the past three years. Many of these were of excellent quality, but either reproductions of our well-known varieties, or lacking some slight requisite to compete with those already known. Out of this large number of selected seedlings three only have been retained. Foremost among these we rank the Thurber. In bringing this new peach before the public, we have no hesitation as regards its ultimate popularity. We have fully tested its merits, as we did those of the Piquet, now recognized as the best yellow freestone peach of its season, and which has superseded all the older varieties of its class when grown together with them.

Celery.

Success in growing celery depends much upon what variety is grown and when it is wanted for use. Any good loamy or rich sandy soil will grow good celery. It should be plowed very deep at first, then the rows furrowed out deeply and two inches of well rotted manure mingled with the bottom soil. Cover with soil two or three inches deep, and set the plants about eight inches apart in the row, and rows two or three feet apart. If the dwarf varieties are grown, two feet is enough, but if the giant white is grown, three feet. The Boston market and Henderson's dwarf white are, perhaps, the best early dwarf varieties, and these will need no earthing up until nearly full grown. When the earthing up is done for the purpose of bleaching, care should be taken that it be perfectly dry, and let the heads be so carefully held together that no dirt can get between the stalks. The giant white is most generally used for winter, but the dwarf is equally good, though not of as long growth. For early crop the plants should be set early in May, but the winter beds need not be planted till July. Plants can be bought cheap, or they are easily grown in a gently heated frame. They should be once transplanted in the frame before going to the field or garden.—*Practical Farmer.*

Tobacco.

Of the new crop of 1876, Messrs. Gans & Co., say:

The new crop which we had estimated in our issue of the 1st of November last at 160,000 cases, may, according to the latest information, fall short of that. The following are the corrected estimates:

New England	30,000 cases,	below av. quality.
Pennsylvania	40,000 "	*An excellent crop.*
New York	15,000 "	Fully up to av.
Ohio	35,000 "	
Wisconsin, etc.	20,000 "	
	140,000 "	
To which add old stock	50,000 "	
Total	190,000 "	

The above figures show that Lancaster county furnished more seed leaf tobacco than any State in the Union, and more than one-fourth of all that is grown in all the States. Quotations of prices show that our tobacco brings as high prices if not higher on an average than New England tobacco, the figures for Pennsylvania selections being 35@45 and for assorted lots 14@25.

Planting and Care of Trees.

The following condensed rules are given by F. K. Phœnix, of Bloomington, Ill.:

Most planters are *so* careless! Friends, if you want trees to thrive, plant early, in dry, deeply plowed ground. Keep roots from the sun, air and frost, burying in the ground again as soon as possible. If shriveled, bury tops and all in moist ground for ten days. Thin out and shorten in tops before planting, to balance the loss of roots in digging. Dig large holes, three feet across and two deep, or better still, plow out a very deep furrow, filling up with the best soil, so that trees shall stand only as deep as in the nursery. Straighten out all roots in natural order, fill in with best, fine, moist earth, and then tread down thoroughly, watering well if dry, before filling up. Then *mulch*—that is, cover with earth two feet each way from stems with coarse manure or straw six inches deep.

Tree Planting in Minnesota.

There is one State in the Union, at least, which has taken to tree planting with a vigor that promises the best results. The farmers of Minnesota set out during the past year over ten millions of cuttings, most of which, it is reported, are doing well. The young trees consist largely of cottonwoods and white willows, but there is also a liberal sprinkling of maple, larch and white oak. Minnesota does not need planting nearly so much as California. It is not subject to drouths. But planting for all that is a wise policy. It beautifies the waste places. The main effect to be expected from the movement in the State in question is a reduction of the temperature in summer and an elevation in winter—changes generally conceded to be very necessary. If our farmers could be induced to begin tree planting on a large scale there is not much doubt but that we should hereafter have fewer drouths.—*Bulletin.*

The cultivation of peanuts appears to be on the increase in those States where this plant succeeded best. The crop in North Carolina, Virginia and Tennessee for 1875-76 is reported to have reached nerrly 800,000 bushels, and it promises to be still larger for 1877.

The Massachusetts Agricultural Society has offered several prizes, the highest of which is $1,000, for the best five acres of trees, to be planted in the spring of 1877 and awarded in 1887.

DOMESTIC ECONOMY.

Farm Sacks over Sixty Years Old and in Constant Use Still Doing Good Service.

Mr. E. L. Resh, of East Lampeter, one of our most intelligent farmers, has a number of grain bags in use, which aptly illustrate the kind of material and workmanship our fathers and mothers put into goods of home manufacture, as well as their careful and economical habits in the use of perishable articles. Among the earliest recollections of the writer are the "flaxbreak," the "scutching machine," and the "heckle" on which the flax, grown on the farm, was prepared for spinning and weaving, and the spinning wheel, and the loom itself in the old kitchen on which the elder sister wove the stuff for our summer trousers, which even the wayward "Boy," so graphically described by Col. Arms, might outgrow but could not wear out. Then everything the "Boys" wore was made at home except, perhaps, his headgear. The shoemaker went round in the fall making the shoes for each family out of leather manufactured from the hides of beeves killed on the place. Many a "Boy" had to suffer with cold feet on the frosty ground because the shoemaker was late in journeying his way. In going to bring in the cows in the morning, it was not unusual for him to chase up a cow and stand on the place where she had lain until he got his feet warm; and if he was a pious boy of the goodey-goodey kind, he would improve the occasion by invoking a "blessing" upon the tardy shoemaker.

But we are digressing. Old-time memories are running away with the diamonds on the point of our gold pen, and we must beg our friend, Mrs. Gibbons' pardon for not sooner introducing herself and neighbor, with his old-time farm sacks, to our readers.

Well Preserved Farm Sacks.

To the Editor of the Examiner and Express:

Having heard mention of some well preserved farm sacks at the place of a worthy neighbor, I requested information upon this and kindred subjects, from a younger branch of the family, and received the following excellent letter, which you may publish if you wish.

I can scarcely agree with my young friend, that the most remarkable occurrence is the adaptation of means to ends in the first manufacture; for it is wonderful that anything so perishable should have been preserved through so many hands; that they were not allowed to lie in the stable entries to be nibbled by rats and mice; hung over the doors and chewed by cows; left lying on the ground and partly devoured by hogs; or half buried and rotted in the manure of a farm yard.

In the elements of worldly success, enumerated by Franklin, (is it not?) as industry, economy and integrity, our "Pennsylvania Dutch" farmers may be considered to excel.

We know that they are not Dutch, but so long as they continue to use the language of their ancestors, we cannot consider them entirely Americanized.

Yours truly, P. E. G.

Bird-in-Hand, Jan. 12 1877.

Mrs. P. E. Gibbons *Dear Madam:* We have in use some six or eight grain bags marked with the name of the owner in 1826, also about the same number marked in 1815, and a few evidently older than these but without date. These last bear a close likeness in quality of material and other respects to some we had until a short time ago—now worn out—which were marked in 1807, and without doubt, made about that time. They have all been in constant use since they were manufactured, which was about the dates they respectively bear. By constant I do not mean daily use, but such use as bags are put to on a farm in carrying the yearly product of grain, potatoes and apples to market, making the journey to and from the mill, and such other uses as those familiar with the life of a farmer's grain bag can readily imagine.

Those of 1815, though bearing the marks of an occasional mishap, from protecting splinter or obtrusive nail, and worn thin in places by the pressure of overgrown tubers or refractory ears of corn, can with ordinary care last twenty-five years longer. I need hardly say they were literally *manu*-factured; that is hand made, at home, from flax and hemp grown on the farm where they have always been in use. The fact that they were home-made, accounts for their existence at the present time. Though they are but grain-bags, their preservation through so many years of use affords not only, as you remarked, a good illustration of the economical habits of farmers in some of the older settled sections of our country, but it impresses me more with the proofs it furnishes of the good judgment shown by those who made them sixty years ago, in the selection of material for their purpose and the thorough manner in which they did their work.

All these characteristics were, I think, possessed, in full measure, by the people. Somehow and somewhere misnamed Dutch, in whose hands the largest part of Lancaster county has become what it is.

I am quite sure that plenty of instances could be found, did we make a point of looking for them, tending to show this yet more fully than these grain-bags of ours—about which I have, I believe, given all the facts you desired.

Very Respectfully, E. L. R.

Facts Worth Remembering.

Gout.—An English medical writer states that rheumatism and gout can be cured by the free use of asparagus.

To Bend Glass.—Fill glass tubes with fine dry sand, close at both ends, and they will bend easily after heating.

Warm Feet.—The New York *Sun* says that a handful of sawdust worn in each stocking will keep the feet as warm as toast.

Warts.—Apply creosote freely, and cover over with a piece of sticking plaster. Follow this treatment every two or three days until the wart disappears.

Frosted Feet.—They may be cured as follows: White oak bark, taken fresh and boiled in water for a strong liquor. Bathe the feet in the liquor. It is pronounced the best of all remedies.

To Polish Tins.—First rub your tins with a damp cloth; then take dry flour and rub it on with your hands; afterward take an old newspaper and rub the flour off, and the tins will shine as well as if half an hour had been spent rubbing them with brick dust or powder, which spoils the hands.

Windows.—Ventilation would be more easily accomplished and more certainly performed, and rooms kept with purer and healthier air, if windows were made to slide easily. If not hung by pulleys and weights, let a carpenter add good freely-working catches. Never permit a broken pane in the house.

Cellars.—Cellars should be kept constantly clean, as much so as your parlor. It is the easiest thing in the world, if you attend to it daily, and only becomes a heavy task when you allow a month's accumulations to remain undisturbed. It is hardly necessary to add that fevers have been contracted by breathing the miasma created in an ill kept cellar.

Colds.—Hot lemonade is one of the best remedies in the world for a cold. It acts promptly and effectively, and has no unpleasant after effects. One lemon properly squeezed, cut in slices, put with sugar, and covered with half a pint of boiling water. Drink just before going to bed, and do not expose yourself on the following day. This remedy will ward off an attack of the chills and fever, if used promptly.

Doors.—Never allow a door to creak for want of oil, or to shut so hard as to require slamming to make it latch. For this purpose pass round once a week at some regular time, say Saturday evening or Monday morning, with a drop of oil on a feather, or on the tip of the finger, and give every rubbing part, latch, hinge, etc., a touch. Scissors, which are inclined to work hard, can also be greatly improved in this way.

Exercise.—Friction of the body is one of the gentlest and most useful kind of exercise, either by the hand, a piece of flannel, a tolerably coarse towel, or a flesh-brush. Friction cleans the skin, promotes perspiration, and increases the warmth and energy of the body. In rubbing the stomach, perform the operation in a circular direction, as that is the most favorable to the course of the intestines and their natural actions.

Chilblains.—Bathe the feet for half an hour in water hot as can be borne; add hot water after the feet have been in a few moments, as they will bear more than the first. Let the water be as hot when the feet are removed as when put in. This draws the inflammation out and allays the itching which is so very painful. Dry with a cloth; then bathe well with hemlock oil, (which can be got at any druggist's at a trifling cost); dry it by the fire. Repeat the application three or four nights if needed. Care should be taken not to chill the feet immediately.

Perfected Butter Color.

Occasionally, during the past two years, we have received for trial, samples of butter coloring preparations from Messrs. Wells, Richardson & Co., of Burlington, Vt., with the request that they should

be thoroughly tested and criticised as to the merits and demerits. Knowing the firm were striving to make the best preparation possible, and that they intended to stop at nothing short of perfection, we have been free to find all the fault that could possibly be detected.

The first sample received, however, was quite superior to any other preparation of annatto that we had ever used. It was perfectly clear of sediment, free from odor, and gave a bright, clean color to the butter, while it was sold cheaper according to its strength, than anything we had previously bought. But it was not warranted to keep through the whole year, without being injured by freezing in winter, or moulding in summer. A later sample proved equal to these tests, and showed greatly increased strength of the coloring principle. Having tested it for several weeks, we informed the proprietors that we could find no fault with it whatever. As now made, it is the strongest, cleanest, purest and cheapest butter and cheeese coloring substance we have ever found, and for all we can see, is is absolutely perfect. It will bear heat or cold, and does not fade when exposed to the light. It should entirely supersede carrots for coloring butter, and also all the crude preparations of annatto, as formerly put up by druggists.

Since Wells, Richardson & Co., commenced the manufacture of their "Perfected Butter Color," the prejudice against the use of artificial coloring in butter has been swept away at a rapid rate, not only among butter makers, but also, among the dealers and their consumers. Being perfectly harmless, simple, cheap, and easily used, it has become one of the staple articles of the dairy room, as much as salt or rennet. For ten cents the proprietors will send any one a sample. Let all the butter makers try it.

Vienna Bread and Coffee.

These were general favorites during our Centennial Exhibition, and the bread is now supplied to all who desire it in our cities by bakers who do an extensive business. Louis Fleischman, of New York, describes his preparations and process thus:

On the basement floor are six large Dutch ovens, twelve feet each in diameter, with a baking capacity of ten barrels of flour each day. These ovens, when once thoroughly heated, retain sufficient warmth for baking purposes for eighteen hours. On the same floor are immense troughs for kneading dough, and wonderful little machines for cutting it to the proper size. "I use nothing in making my bread," he said, "but the purest and whitest flour, milk, mixed with water and salt. In baking, the oval shape of the top of the oven brings an equal heat to bear on all parts of the bread, so that a crisp crust is alike on top, bottom, and sides."

"Now, let me show you how I prepare my coffee," he said. "We toast it according to the general practice, but in grinding we use stones instead of iron. The stones are arranged in the same way as millstones. Where iron is used in grinding the coffee it becomes heated, and in this state robs the coffee of its aroma while imparting a smack of its own flavor. The ground coffee is placed on top of a tight fitting, finely perforated piston head at the bottom of a large cylinder. Boiling water is then poured upon it, and by means of a screw the piston is slowly drawn to the top of the cylinder. This action creates a vacuum at the bottom of the cylinder, which the clear coffee rushes in to fill through the infinitesimal holes in the piston head. In this way we get pure, unadulterated coffee. The cream we use is all whipped into a light, frothy state. There is no reason for having anything adulterated when it is so easy to have it pure."

Fruit as a Medicine.

The irregular eating of unripe fruit is well known to be unwholesome. The regular and moderate use of well-ripened fruit is not so widely appreciated as contributing to health. Residents in regions where more or less malaria prevails, have discovered that nothing is a more sure preventive of its deleterious effects than a regular supply of fruit.

But fruit will not only prevent disease, but in some instances it has proved one of the best medicines to cure it. Many years ago a chronic cough, which had excited a good deal of uneasiness, was cured by daily eating ripe raspberries, recommended by a medical writer of high authority as an excellent expectorant. Severe colds are more apt to occur on the first cool and damp days of autumn than at other seasons. We have often cured these diseases on their first attack, by eating copiously of ripe watermelons. The beneficial effects of drinking freely of cold water on such occasions, are well known. Watermelons supply a larger quantity than one could easily swallow in any other way.—*Country Gentleman.*

Bitter Cream.

Cream becomes bitter by keeping it too long before it is churned. A butter maker says: "In summer there is little bitter milk or cream, because the cream is churned sooner than in winter, seldom reaching the third day. Sometimes, where there is a single cow kept, I have known the bitter to show on account of the small quantity of cream accumulating. The summer practice is reversed in the winter. There being too little milk to require frequent churning then—say one, and sometimes two churnings a week—we account readily for the evils complained of. The fore part of the season when milk is in greater quantity, necessitating more frequent churning, I hear of but little complaint. It matters not how good the feed is—if the tenderest hay and roots are added, making an approach to summer feed; nor how clean the milk is kept, the most perfect milk if set beyond three days will be hurt. The writer of this has filled the vessel, leaving barely space enough for a cloth to be stretched over without touching the milk, and a snug lid put on, keeping the air out, but all to no purpose. So, in the purest air, in all the temperatures, it is the same."

THE POULTRY YARD.

Food for Fowls.

As to food, and several queries for the "best," we repeat once more, there is no best. The great exhibitors do not owe success to any particular food. All good meal and all good grain is good in its place. The only general rules we would lay down are, that on the whole it is better to mix with raw meal some portion of one or other of the excellent cooked meals now so largely advertised, which is both liked and prevents the food becoming clogged; and secondly, that much grain should not be used for the young ones, but pretty much reserved for the last feed at night, when it will tempt a hearty meal which will remain in the crop and give support through the night. Especially should care be taken not to give wheat or other tempting grain just after soft food, which often causes a gorging that is most injurious, and will even kill delicate breeds without any apparent cause.

For the staple we would take half of any good cooked meal, and mix in turn with barley-meal, oatmeal, ground oats, or even now and then maize-meal, though this is too fattening to be freely used. The meal can be mixed with minced grass with advantage, as this enables a quantity to be kept fresh and cool longer through the day. Barley-meal mixed with sharps makes a good food also, and so does porridge; and a variety of plain, wholesome food like this pushes the birds on faster and better than all the nostrums in the world. Bone-dust, which is very valuable for large breeds that have not excellent range, should be added to the soft food in the proportion of, say about one-tenth to one-twentieth of the dry meal, or it may be first boiled and the meal mixed with the soup. A little meat or greaves minced and soaked may be added with advantage, and the great breeders, many of them, use meat largely to get the immense size of their largest birds. But this both coarsens the comb and head, and—well, these immense birds are very seldom chosen to breed from.

In grain we have barley, wheat, buckwheat, dari, and 40-pound white oats. A little hemp seed and canary seed help the very young ones; but hemp is too heating and canary too dear to keep on with. Grits are grand food, but expensive, and we use little since we tried dari. We repeat that this is, as we find it, one of the most useful articles one can have, both for fowls and pigeons. Barley is good, but the chicks will not eat it, at least not enough to do them good; but we find them eat up dari and buckwheat as eagerly and very nearly as early as they will grits, while it is about the cheapest grain there is. As a rule, we generally feed for about a week with bread-crumbs, oatmeal, a hard-boiled chopped egg and some cut grass, mixed together and moistened with milk; add with grits for a change—after that they come down to plain mixed meal, as above, and dari or buckwheat. We use cut grass—cut in small chaff with large scissors—even when there is a grass run; the chicks eat more and rarely get diarrhoea. But we repeat again, it really matters much less what they eat, than that they get some change to tempt the r appetites, and are fed regularly and with judgment.

This last is perhaps the great point. It is too common to feed all alike, and this is wrong. As they get older the times of feeding should be carefully graduated, coming down from six or seven times a day to four, and by-and-by to three. This is very important, for without it the chickens gradually lose appetite, and are very apt to get liver complaint, which annually carries off many. Another cause of this is giving too much. All ought to be cleared clean away in ten minutes; and till experience is gained to guess the quantity, it is best to go round at that time, after feeding, and clear all remains of the feed away. Then by the next visit they will be ready; whereas, if it be left to them to "mess with," they never get any real appetite at all. Cool, clean water is the only thing that should be left by them. This is very simple, but this is the only "secret" in rearing; it is the one particular patent process which, joined with wholesome food and reasonable change of diet now and then, makes fine birds.—*London Live Stock Journal.*

Feeding Fowls.

A correspondent of the *Poultry Nation*, says on this point: "My experience in feeding fowls, is that medium sized hens will consume about one and three-fifth gills of grain and vegetable matter each, daily, in winter, when in active laying condition; and also that it makes no difference as to the amount consumed, whether food is kept constantly before them, or whether they are fed twice or thrice daily provided they are allowed all they will eat up clean. For the past two years circumstances have compelled me to feed but twice a day—morning and afternoon—but I find that the fowls get very hungry before the afternoon meal, and will bolt their food like hogs, and, if allowed all they will eat up clean, are liable to overeat, and become diseased in consequence. Then it sometimes happens that hens are on the nests to lay at the time of feeding, and cannot be coaxed off to eat, and they must either be fed on the nest or go hungry until the next meal, which in cold weather seems a little unmerciful. Heretofore I have believed in and advocated regular feeding—twice or three times a day—for all breeds, but my experience during the past two years inclines me to the opinion that unless the smaller varieties can be fed three times a day, it is better to keep food constantly by them.

The Pekin Ducks as Layers.

The sensation made last fall among the fanciers at the poultry exhibitions, by the extraordinary size of these new ducks, is likely to be equaled this season by their remarkable record as layers. Two of the imported birds last year laid respectively 145 and 151 eggs. They have done much better the present season. One of the old birds commenced laying on the 27th of February and laid 178 eggs in 182 days, missing but four days. The other did nearly as well. This is three or four times as many eggs as we ordinarily get from Rouens or Aylesburys. What is more remarkable, one of the young ducks, hatched in April, began to lay in August, and laid seven eggs by the first of September. Such early laying is all that we expect of the best varieties of gallinaceous fowls. The Pekins as much excel in fecundity all other varieties of ducks with which we are acquainted, as they do in size. They have had the advantage of thorough breeding for centuries for their flesh and eggs, and we predict for them in this country the front rank among our useful aquatic fowls.—*Agriculturist.*

FARMERS frequently have occasion to sell turkeys by live weight, and wish to know what is the fair relative price between live and dead weight. In turkeys dressed for the New York market, where the blood and feathers only are removed, the loss a very small. For the eastern markets the heads are taken off and the entrails are taken out. This makes a loss of nearly one-tenth in the weight. A large gobbler was recently killed weighing 31½ pounds. After bleeding and picking he weighed 29½ pounds, a loss of two pounds, or about one-fifteenth. When ready for the spit he weighed 28¼ pounds, a loss of 3¼ pounds which is nearly one-tenth of the weight. When the market requires the New York style of dressing, and the price is fifteen cents a pound, live weight, or less, if he counted the labor of dressing anything. In the other style of dressing, if the price were 20 cents, he could sell for 18 cents, or less, live weight, without loss. Farmers who never tested the loss of weight in dressing sometimes submit to deduction of three or four cents a pound for the middlemen, who are interested in making this large difference.

Fattening Poultry.

The London *Field* says poultry properly fed will acquire all the fatness needed for marketing purposes in a fortnight or three weeks at most. Their diet should be Indian, oat, or barley meal, scalded in milk or water; the former is the best, as it will expedite the fattening process. They should be fed early in the morning, at noon, and also in the evening, just before going to roost, and given a plentiful supply of pure, fresh water, and plenty of gravel, sliced cabbage or turnip tops. If the fowls are required to be very fat, some trimmings of fresh mutton suet may be chopped up and scalded with their other feed, or they may be boiled in milk alone and poured to the meal. This renders the flesh firmer than it otherwise would be. When fit to kill, feeding must be stopped for twelve hours or more, so that the intestines may become comparatively empty.

THE *Poultry World* says the influence of the food of poultry upon the quality and flavor of their flesh and eggs has not been taken into consideration; but it is now well ascertained that great care should be exercised in regard to this matter. In some instances it has been attempted to feed poultry on a large scale in France on horse-flesh, and although they devour this substance very greedily, it has been found to give them a very unpleasant flavor. The best fattening for chickens is said to be Indian cornmeal and milk; and certain large poultry establishments in France use this entirely, to the advantage both of the flesh and the eggs.

LIVE STOCK.

Care of Dairy Cows.

John B. Tomlinson, of Fountain farm, near Newtown, writes as follows: "I have seen in your paper a good deal about gilt-edged butter and cleanliness and other things connected with the dairying, but nothing about keeping the cows clean. My method is to grade the stable floor a little back from the manger; put one plank lengthwise under the hind feet of the cows, one foot wide, and fill with clay up to the manger, having a drop of five inches at the plank. Then plank the remainder to the back wall, having the rear a little the highest so as to throw all the wet toward the drop plank. Then you have a dry walk behind the cows, and the stables are easily cleaned. My cattle in the yard do not look as if they had been stabled at all. In very cold weather I do not let them out at all, but water them in the stable. In the morning as soon as we can see we give all, milkers and dry cows, a little meal; a little hay and a sheaf of corn-fodder after breakfast; toward noon, two bushels of chaff and more corn-fodder, and at night hay and meal again. The milkers have four quarts of meal twice a day. When the weather is mild they pick the chaff, straw and fodder in the barn yard, and go into the stable as full as ticks. I stable all my stock and think it pays."

Leading a Colt.

Put on the war-bridle, and place yourself at the point against his hips, but six or eight feet out, and say, "Come here!" so as to be distinctly understood. Give a sharp pull on the ox war-bridle which will cause him to step towards you. Then say, "Whoa!" and caress him, which is the same as saying to him that he did all you desired of him. Change from side to side, repeating the movements until he answers the word of command without the pull on the cord; he will soon learn your desire and act accordingly, and you must be satisfied with even a step towards you, and be sure to pet him evey time he answers your call. Repeat this from side to side until he will follow anywhere you desire, punishing his mouth at any time with a light yank of the war-bridle, if he stops or refuses to follow you when you start off and say, "Come on, sir!"

In this way, if patience, carefulness and perseverance are practiced a colt may be taught to follow anywhere the same as a dog and to mind your word of command the same as an ox or a yoke of oxen.—*John M. Tuttle.*

Value of Roots for Stalks.

The following views of Mr. Willard, of the *Rural New Yorker*, on this subject, are sound ones. He says:

"In comparing roots with other kinds of cattle food, like corn, bran, etc., we get better results, practically, from the roots than analysis would seem to show. That is to say, a bushel of roots—though containing a lower percentage of nutritive elements than a bushel of corn—may be so fed in connection with the corn as to give as good results as when the same quantity of corn is fed in place of the roots; but from numerous experiments at the manger, the roots always show a better result than their analysis would indicate. Roots assist digestion and promote a more thorough assimilation of other food. They improve the health of stock in winter when dry food is the chief dependence; and as the improved health of stock is an important element in dairy management, the dairyman will find it of advantage to grow roots for his stock."

A Queer Calf.

Mr. James McManus, a resident of Fool's Hill, Nevada, who is engaged in mining, owns a cow, which eight months ago gave birth to a calf. The calf was kept up so as to induce the mother to return home in the evening to be milked and suckle it. About six months after she gave birth to the calf, failing to come home as usual, Mr. McManus instituted search and found her, she having just given birth to another calf of a queer species, not being larger than a young fawn. With the exception of its ears being small, its head, legs, and tail are those of a deer, the body and hair covering it like that of a calf. It was quite spry, and the mother seemed to be very fond of it. There has been no trouble so far in raising it, and it is now two months old and thriving splendidly. It is beginning to show signs of horns, which are covered with velvet, like a deer's. A good many persons have been to see this really remarkable curiosity, and it presents a problem for the scientists to solve.

A CORRESPONDENT of the *Live Stock and Farm Journal*, mentioning that a Jersey heifer fifteen months and eighteen days old, had just dropped a handsome calf—the editor remarks that this early maturity is not unusual with the Jerseys, and says: "In this community, the Jersey heifer, Nellie Curtis (3,371) has been in the dairy since she was 14 months of age, although she calved a little prematurely. If properly cared for, early maternity appears favorable to the development of the lacteal organs." The following is a statement made by Mr. J. Milton Mackie, president of the American Jersey Cattle Club, in 1870: "My yearling, Hebe 4th, out of Hebe 1st, dropped a calf last month, when she was only 14 months and 2 days old. She calved without trouble, behaved well in every respect; has given six quarts of milk per day. She is thrifty, and I don't think the labors and duties of maternity, so early imposed upon her, will injure her growth in the least. The calf is of fair size, thrifty and handsome."

Domesticating the Buffalo.

A correspondent of the *Turf, Field and Farm* sends some interesting facts regarding the domesticating of the buffalo in Nebraska. He began with two cows and a bull, which he kept with his tame stock. In the spring the cows calved, and in three years the calves became mothers, yielding an average of 14 quarts of the richest milk daily, for an average of five months. The buffalo strain now extends through a large part of Howard county, in the above State, and of the half and quarter beef animals are found to be very hardy.

Our contemporary adds, that sufficient experiments have been made in crossing the buffalo with native and grade short horned cattle, and have been attended with such successful results that the most skeptical people cannot fail to be satisfied as to the advantages and value of the intermingling of breeds.

Rearing Lambs by Hand.

S. M. T. writes to the *Practical Farmer:* As I have raised numbers and had good success, I give my plan of feeding them. If old cow's milk, I dilute one pint of milk with half a pint of water and 1 teaspoonful of West India molasses; but if new cow's milk I give it just as it comes from the cow, and feed two tablespoonfuls once an hour through a patent nursing bottle, or a common bottle with rubber nipple. As the lamb increases in strength, I give a larger quantity and not so often. I have in this way raised lambs that at three months weighed fifty pounds. At two or three weeks old I have taught them to drink.

Keep Good Cows.

There is no use in trying to disguise the fact that there is no profit in the dairy without good cows. Look at the difference. One cow will make 150 pounds of butter during the year, worth 25 cts., $36.50. Another will make 300 pounds, worth $75. The first yields no profit whatever, and all that you make comes from the good cow. It would be much better to keep one cow, and keep her well. It is the same loose method which makes all our farming operations so fruitless. As a general rule, two acres are tilled to get a crop that ought to grow on one.—*Practical Farmer.*

LITERARY AND PERSONAL.

AT the last meeting of the Academy of Natural Sciences, a resolution was adopted authorizing the officers of the Academy to sign a memorial to his Excellency the President of the United States, recommending Dr. John L. Le Conte as Commissioner of Agriculture, on account of his eminent scientific attainments and executive ability.

We clip the above from the *Public Ledger* of the 8th inst. *This is as it ought to be.* We feel that this appointment would reflect credit upon any admistration that made it, and any country that sustained it; and, would also be a practical recognition of those claims of natural science which are so often ignored in public appointments. Dr. Le Conte's executive abilities would bring to the support of the department, as aids, the elaborations of the best minds of the country, and secure it from imposition. We *know* whereof we speak.

BENSON & BURPEE'S illustrated manual and descriptive catalogue of imported and thoroughbred live stock; also, Benson & Burpee's priced catalogue of reliable seeds—including field, garden and flower seeds, trees, plants, implements and fertilizers, for 1877, are on our table. This enterprising firm of importers and dealers, are the successors to W. Atlee Burpee, and their agricultural warehouse and live stock office, is located at 223 Church street, Philadelphia. We call the attention of our readers to their advertisement in the columns of this journal; and for full particulars in relation to the details of the articles they deal in, we would recommend them to send at once for their catalogues, and consult them thoroughly before they look elsewhere. Illustrations and specific descriptions of the finest of this stock will appear in the columns of the *Lancaster Farmer.*

OUR FOLIOS.—Among the folio exchanges which have regularly reached our table are many that are a credit to the country, the age, and to agricultural journalism, many of them being of such a high order and such essential institutions, that no progressive farmer will consent to be without one or more of them, and therefore they may be considered as established in their affections, and their continuance and and prosperity assured. What farmer having fairly tried them, can dispense with the *Germantown Telegraph;* the *Prairie Farmer;* the *Farmers' Union;* the *New York Rural;* the *Country Gentleman;* the *Massachusetts Ploughman;* and a number of others which will receive attention as the months move onward. Besides the claims of agriculture are recognized more or less by all the folios in our own county: the *Examiner and Express;* the *Inquirer;* the *Manheim Sentinel;* the *New Holland Clarion;* the *Columbia Herald;* the *Marietta Register;* the *Lancaster Intelligencer*, and others, of which more anon.

CATALOGUE of one hundred and seventy *pure Jersey cattle*, imported and bred by WILLIAM B. DINSMORE, of Staatsburg, Duchess county, N. Y. numbered to correspond with those in the *American Jersey-Cattle Club Herd Register;* issued Jan. 1, 1877. All communications in reference to the herd should be addressed to Timothy Herrick, at the above named place. This is a 12 mo. pamphlet of 38 pages, but between its covers is a record of stock as valuable as a gold mine. Some of these cattle are not now for sale, but one hundred and fourteen are marked for sale, of which a few are already sold or were sold a few weeks ago; and the prices range from $75 00 up to $500.00, but fully two-thirds are from $200. to $400; short descriptions, as well as pedigrees and names, are given of each animal. Therefore if any of our patrons desire good Jersey stock, they should avail themselves of the opportunity immediately.

SWINE.—Notwithstanding the adverse views of the physiologists, hygeists, and sanitarians, in regard to the use of swine as human food, perhaps there has not been a period in the domestic history of our country, in which more money has been invested in swine breeding and swine slaughtering and packing, than at the present time; and never before has it produced finer stock of that animal. The Berkshires, the Yorkshires,, the Chester Whites, the Poland Chinas, and the Essex, are prominently brought before the public through the various agricultural journals of the country. The first prizes at the Centennial Exhibition of Swine, were awarded to T. S. Cooper, "Linden Grove," Coopersberg, Lehigh county, Pa., for a Berkshire sow and boar. Between the 20th of November 1875 and the 20th of November 1876, that distinguished breeder sold two hundred and three Berkshire pigs, which netted, in the aggregate, $40,702, averaging $ 00.50 per head. In several instances he realized $1,000, for a single pig. The lowest price was $25.00—the largest number from $100 to $500.

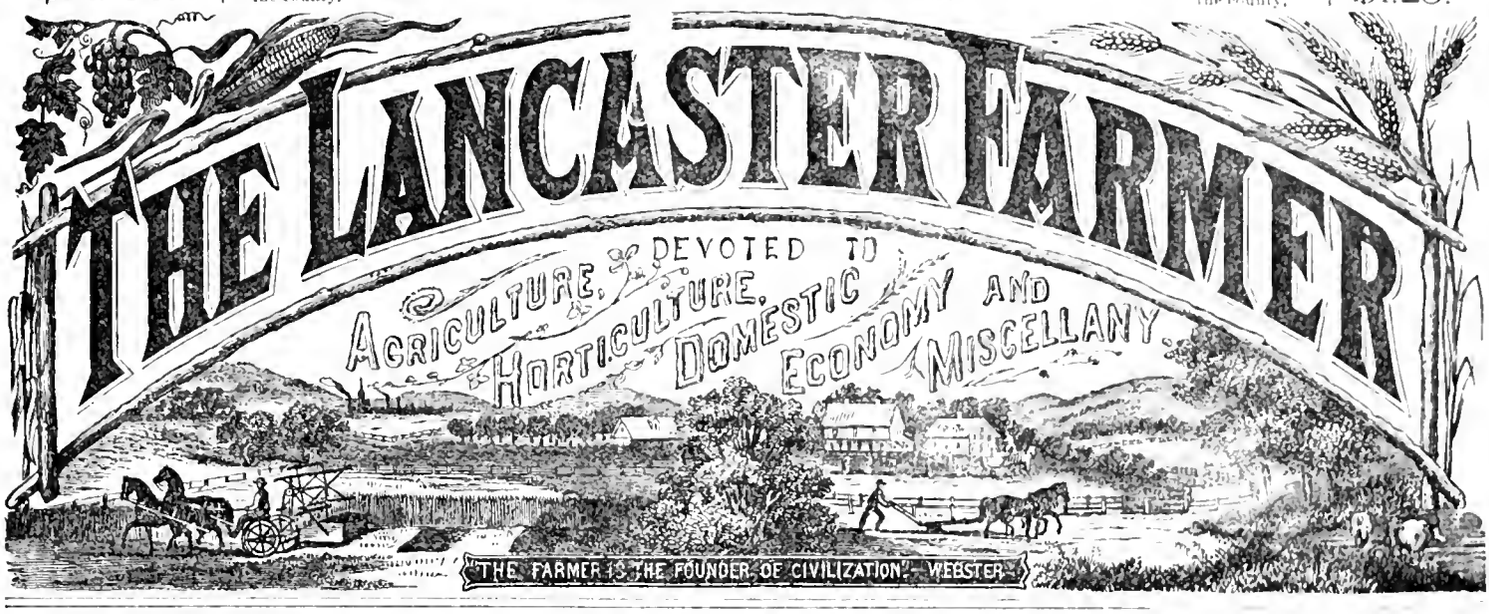
WE CALL the attention of our readers, and especially those out of employment in our community who desire to make an honest livelihood, to the advertisement of GEO. STINSON & Co., art publishers, Portland, Maine, which they will find in another column in this issue of the LANCASTER FARMER. It affords us pleasure in being able to say, from ocular demonstration, that the works published by this company are of the highest artistic order, and such as would be likely to find a ready sale among people of any appreciative intelligence and refinement whatever.

MUSIC CHART.—We admonish professors of vocal and instrumental music, and also school boards and school teachers, that Prof. J. B. Harry, of Chambersburg, Pa., has invented a chart which he recently exhibited to us, embracing the fundamental principles of vocal and instrumental music, in a very comprehensive and yet simple manner; and which seems destined to afford a greater aid in imparting a thorough knowledge of the scientific principles of this accomplished art to pupils, than anything that has yet appeared before the public. This chart is over four feet by over five feet in size—intended to be hung up in the school or class room—and embraces the whole musical "score," from the highest *alto* to the lowest *bass*, illustrating the scales of the human voice and the different kinds of musical instruments, and the relations they bear to each other. Teachers, keep an eye on this *chart.*

WE invite the attention of our readers—farmers and housekeepers especially—to the announcement made this week in our columns by Mr. J. G. Koehler, of 503 North Second Street, Philadelphia. Mr. Koehler is the patentee and manufacturer of an improved Butter Tub, with Cooler attached to each end, the latter consisting of removable tin chambers, thus facilitating the removal of ice, water, etc. These tubs vary in carrying capacity from 0 to 200 pounds. Constructed of white cedar—well seasoned—and bound in galvanized iron and brass hoops, their whole appearance indicates that they have been substantially constructed, as well as neatly finished. They are guaranteed to keep or carry butter in the hottest weather, in prime condition, For particulars send for circular as above.

WE wish to call the attention of our readers to the prospectus of that valuable monthly, *The National Live Stock Journal*, which appears in this issue of our paper. We will furnish *The Journal* with our paper for $1.50 per year.

$1 a Year { To subscribers in the county. SINGLE COPIES 10 CENTS. To subscribers out of the county, } $1.25.



Prof. S. S. RATHVON, Editor. LANCASTER, APRIL 15, 1877. LINNÆUS RATHVON, Publisher.

THE FARMERS HOME ORGAN.

The Lancaster Farmer;

A MONTHLY NEWSPAPER,

DEVOTED TO AGRICULTURE, HORTICULTURE, DOMESTIC ECONOMY AND MISCELLANY.

PRACTICAL ENTOMOLOGY

Made a prominent feature, with special reference to the wants of the Farmer, the Gardener and Fruit-Grower.

Founded under the auspices of the Lancaster County Agricultural and Horticultural Society.

Edited by Prof. S. S. RATHVON.

THE LANCASTER FARMER having completed its eighth year under various vicissitudes, now commences its ninth volume under, it is hoped, more favorable auspices than attended its former volumes. When the publishers of the last two volumes assumed the responsibilities of its publication, it was with a determination to make such improvements as would place the farmer's organ of this great agricultural county in the very front rank of agricultural journalism. That this has been accomplished we think our readers will bear cheerful testimony. If reasonably sustained, our aim is to make it still more interesting and instructive under its new proprietorship. In this, however, we need the co-operation of every friend of the enterprise.

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LINNÆUS RATHVON,
22 South Queen Street, Lancaster, Pa.

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CONTENTS OF THIS NUMBER.

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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., APRIL, 1877. Vol. IX. No. 4.

APRIL.

Had the lot fallen to us—in the nineteenth century, and in the middle of the north-temperate zone—to arrange the festivals, the secular periods, the months and the seasons, doubtless we would have opened the year with its vernal period, on or about the first of April; for, really, as a general thing, there is no opening that can be much depended on before that period; and even then we often realize intervals of "winter lingering in the lap of spring." March—"in like a lion and out like a lamb"—is always more titful, and often meteorologically more unfriendly, than February; and, under the most favorable circumstances, is but a snow-heaver and an ice-breaker for the month of April—a sort of precursor to spring, without exhibiting any of the unqualified elements of spring,

And yet the month of March, when divested of its fickleness, and its opposite extremes, is charged with very essential functions in the economy of the season's successions. It "breaks the back bone" of winter, and "lets down" more easily the thrall of February upon the plane of April. Its furious, moist-absorbing winds dry up the long and excessively saturated soil of winter, and prepares it for the ploughshare of the thrifty husbandman; and if it rested here, its benign office would be universally acknowledged and extolled; but not content with this, it is ever changing to and from all the climatic points of midwinter and advanced spring. One day a blustering "borean railer," the next an Oriental zephyr, if not sandwiched by a day or two of cold, driving rain between, anon indulging in a succession of "blows," with a violence that not only divests the soil of its superabundant moisture, but blows away the soil itself and all it contains.

But, this untowardness of March is eventually succeeded by "showery, flowery, bowery" April; and although we are always pretty sure of the *showery*, yet it often occurs that the *flowery*, and especially the *bowery* do not come until after the first of May. The name of APRIL is derived from the Latin *aprilis* which itself is a contraction of *Aperilis*, from *aperire*, which means to open, as the month in which the earth opens for new fruit; when the trees and plants generally unfold their foliage, and the womb of nature opens with young life; and, as it is physically and often meteorologically the opening of the year, in our latitude of the temperate zone, it easily could be made so civilly and conventionally, if it were not for a great nonconformity in the climate, and that makes all the difference. We could not expect much of an opening up about Behring's Straits on the first of April, and down in Central America it would be quite too late, in a physical point of view.

The first of April has been long and very widely considered "All Fools Day"—longer and wider, perhaps, than we "in our philosophy dream of." The allusion is to the custom of making fools of each other on the 1st of April; and among some people "*My April morn* was equivalent to *my wedding day*, for on that day I was made a fool of." In Hindustan similar tricks were played at the Huli festival, which occurred on the 31st of March, or on "April eve." From this it would appear that "April fool" cannot refer to the uncertainty of the weather, nor yet to the mock trial of our Saviour, in one of which events the custom is said to have had its origin. Rev. Cobham Brewer says: "I am inclined to think it refers to traditions about the flood, when the *foolish* were left to the pitiless pelting of the forty days rain," a conclusion quite as absurd, and fully as irrational as either of the other two. In *fact* we cannot tell from what or from whence this custom originated; and, it is a matter of no importance to us now, from whence it sprung or what its object was.

Still, with few or no contingencies, April is the genial season of the year—taking it all through, from beginning to end—and among that contingent few is the general "flitting day—a day in the *hurry-skurry* of which, super-officious 'helps' often carry out a pillow and gently lay it down, and perhaps the next moment toss a looking-glass out of the window, from a mere love of making themselves *useful*. Meteorologically as well as domestically our 1st of April, in Lancaster county at least, corresponds to New York "May day," on which occasion every family in *Gotham* seems to be "on the move," and Franklin's maxim that "three removes are as bad as a burn," has no appreciation whatever. Indeed with us, there are some people who are just "ninnies" enough to believe that they *must*, and of right *ought* to "move" on the 1st of April—would be unhappy if they did not move, and who would complain and grumble half the year if they had not moved. Well, if that kind of variety constitutes their "spice of life," it is their concern alone, and perhaps they ought to be let "alone in their glory."

April being then, practically, the *opening* of the New Year, in all that relates to human husbandry; the farmer, the gardener, the orchardist or the nurseryman will find enough for his toiling hands to do. Then he will be engaged in a multitude of occupations that will have no end until he markets his crops, and gathers with his family around his Christmas fire. Then the country school-house is closed for the season, and his children eschew their nursery rhymes of

> "Rain, rain, go away,
> Come again,
> April day,
> Little Johnny wants to play."

for, unlike the pinched and idle denizens of the town, big and little, old and young, always find something for willing hands to do, and consequently can eat freely, sleep soundly and be happy.

An old and well-informed cotemporary, in his calendar of the months, writes in regard to this month, as follows:

"There is no period of the year of greater activity, unless it be high harvest, than the month of April. Every farmer knows the importance of being well up with the season, and he who lags behind at this important juncture, may as well withdraw from the "strife of life"—he has mistaken his profession. The farmer is now busy breaking up his corn ground, if he has not broken it up before."

In our latitude, now is the time to plant and sow, if we would expect to reap. But the *exact* time when these things should be done, must be left to the judgment of the farmer and gardener, for they are more or less under the influences of the nature of the soil, the temperature of the weather, and the altitude of the particular locality—its protections and exposures, as soon as practicable. The roots and seeds that should be planted and sown, during this month, are artichoke, asparagus, beans, beets, broccoli, cabbage, carrots, cauliflower, celery, cress, horse-radish; hot beds may be made; and leeks, lettuce, majorum, mustard, nasturtions, onions, parsley, parsnips, peas, potatoes, radishes, sage, salsify, spinnach, thyme, tomatoes, turnips, &c., put in the ground, because this is the season for the main planting and sowing.

The particular variety of plants and seeds selected must be left to the discretion of the farmer or gardener, for soil and situation have much to do in their success. So, also, in relation to the times and modes of culture. In fact, cultivating the soil is analogous to cultivating the mind; the results of either or both are made manifest through the products of culture. When these do not become visible to rational recognition, we may infer that there has been no real culture, but only the semblance of it. The powers and functions of nature as ultimated through the offices of April have not been *used*, but *abused*.

FINE TEST POTATOES.

After the adjournment of the February meeting of our local Agricultural Society, the potatoes which Mr. H. M. Engle had on exhibition, he kindly donated to us, and desired us to test their relative qualities. Without laying any special claim to superior judgment in such a matter, we nevertheless cheerfully assented; for, if nothing else resulted, we could see at least three "square meals" of good potatoes in it, which promised a temporary relief from the inferior articles we had been consuming all winter, with only a few exceptions, and those were foreign to the county. Three varieties were submitted to us, namely: the *Peerless*, the *Imperial Beauty* and the *Snowflake*. We venture no opinion upon their modes of culture, or their prolific qualities, but simply upon their culinary use, and their affiliations with the human palate. The first we had prepared was the "Peerless," (three fine solid tubers, aggregating three and a half pounds) and compared with the general "run" of potatoes of last season, their quality was very superior. From their large size and lateness of the season, we had supposed they might have been strong and hollow in the centre, but the result was quite otherwise; they were finely flavored all through, and reasonably dry and mealy. We consider these, in comparison, VERY GOOD. The next in quality—but not in trial—was the "Imperial Beauty," (three tubers weighing two pounds.) These in color and flavor were very similar to the Peerless, but more yielding and easier reduced to a "mash," and perhaps somewhat drier and more granular. These we voted BETTER. After these, in point of excellence—to our mind—was the "Snowflake," (four tubers weighing two pounds.) These were very white, very mellow, and very mild, faintly recalling our remembrance of the "old Mercer," before its degeneracy. These, without qualification, we deemed BEST, notwithstanding we have named them last. The difference in size may possibly have had some influence upon the quality—the Snowflakes being the smallest, the Peerless the largest, and the Imperial Beauty, intermediate. Perhaps the fairest test would be to take tubers all of the same size.

Whatever may be the personal opinions of others in regard to these three varieties of potatoes, like the Irishman and "Mrs. Mullrooney's pig," "we ate thim and that's the ind of it;" and we would further suggest that we have no objection to be considered a committee of *one* to test potatoes for the balance of the season, and we will make no charges for our services, only suggesting that the *quantum sufficit*, of each variety, to reach an intelligent verdict, is about two pounds.

If we are correct in our impressions, these three varieties of the potato originated in New York State, and if so, they are an immense improvement on the potatoes brought down the Susquehanna from that State some twenty-five years ago, and also at a later date. We can pretty distinctly recall some varieties brought down from that State, in our boyhood, that were almost as black as charcoal, as strong as codfish, and as rough as sandstone, but of very large size, and externally smooth

—especially by the time they reached us in early spring; but their, fine large size always commanded for them a market in comparison with the "poor things" we then cultivated in Lancaster county.

One remarkable "glut" in the market we well remember, when these fine potatoes would not bring *ten cents* per bushel, and one large dealer shoveled three hundred bushels out into the river rather than sell them at less than that price. Some people thought that when the river fell, they could get potatoes for nothing, but when that time came, most of the tubers had been carried down the stream, and those that remained were worthless.

WORDS OF CHEER.

Friend Editor.—Yours of the 27th ult., and a copy of the *Farmer*, were duly received. It was like taking an old friend by the hand, for I began to think it was "all over" with our local journal, and should have thought it a great pity that this great county of Lancaster, the acknowledged "Garden of the Keystone State," could not as much as support one farmers' paper in it.

I am very glad it has not "gone down" yet; and I hope it will live long yet, and do a great deal of good. The amount of the subscription, as you say, will be little felt by the thrifty farmers of our county; for they often spend more than *one dollar* within a week or two, for things useless, and which often do them more harm than good. Then why not deny the body a little, and bestow something on that mind which is immortal? Some people are very foolish in this respect, and labor only for "that meat which perisheth."

Country people generally have a very imperfect conception of city life. They think that most of those who live in cities and towns, live entirely in "clover and honey," whilst it is more often "briers and thistles." I have experienced both.

I will do the best I can for the *Farmer*, with what success you soon shall hear, though I trust I may have good success; and I will try and contribute something to your columns during the approaching summer.

Hoping you may long live and enjoy the fruit of your labor, I remain as ever your friend, *Leoline, Elizabethtown, March*, 1877.

We thank our fair correspondent for her high appreciation of our journal, and her sympathies in our behalf, and would that others would do "likewise."—*Ed.*

THE COLORADO BUG ABROAD.

LONDON, March 13.—The British customs commissioners announce that the Colorado potato beetle has been discovered alive at Bremen on goods brought from New York. The commissioners have issued a circular to the collectors of customs in the United Kingdom directing that the instructions already given for detecting the beetle be applied to potatoes imported from Bremen or any German port.

The above paragraph we clip from a copy of *The Sun*, (Balt.) issued March 14th, 1877. Aside from the extraordinary feature of making such announcements, one day in London and the next day in Baltimore, there is nothing in the *fact*, in relation to the *bug*, that has not been for some time anticipated; and the measures adopted to circumvent it are of that short-sighted policy—in relation to the importation of potatoes—that has been characteristic of the precautions of our transatlantic brethren ever since the advent of the "Colorado potato beetle" in those States lying on the eastern borders of our Union. The "bug" seems to have "been discovered alive at Bremen on *goods* brought from New York," and the "wisdom-chests" of Great Britain, as a preventive, recommend the non-importation of *potatoes* from Bremen. There is usually a commercial distinction made between *goods* and *produce*. If the insect reached the continent on "goods," why not interdict the importation of *goods* instead of only potatoes?

The insect in question has no particular partiality for potato tubers—never deposits its eggs upon them—and is never found eating them, unless it can get nothing else; therefore for one beetle that would be likely to reach the continent of Europe or England, on or among potatoes, fifty would be just as likely to reach those localities in, or on, some other article of bulky commerce, so that its circumvention would involve total non-importation. The best plan, in our view, would be not to trouble themselves about commercial non-intercourse, but to institute a strict quarantine, for a limited period on all vessels coming from infested countries; but even this might be obviated by the institution of a thorough examination of vessels during the voyage, and this should be extended to all packet vessels, with as much vigilance as to trading vessels. About the period when potatoes are usually shipped from the United States or Canada, the most dangerous brood of these insects will be in a state of winter hibernation, and therefore, not likely to be among them at all.

WRITTEN RECEIPTS BY MAIL.

We hope our patrons will not require us to send them written receipts by mail for subscriptions, except to clubs of six or more. The little labels pasted on their papers will indicate to them whether their money has been received or not. For instance, those marked "Jan. 77," or simply "77," show that their subscriptions are paid up to the first of January, 1877, and that they owe us for the present year. Those marked "Jan. 78," or simply "78," indicate that their subscriptions are paid up to the first of January, 1878. We cannot send them a loose receipt without an expenditure of *three cents* postage, besides the cost of envelope, paper, and the labor of writing, unless we resorted to a postal card, to which many people object. We hope, too, that they will exonerate us from answering letters by mail, except such as cannot be answered through the columns of the *Farmer*. We will cheerfully make any reasonable concession in exceptional cases, but as a general rule, it involves more labor and expense than we are able to undergo.

Remittances for advertisements are of a quite different character, and are governed by a quite different rule.

IF some of our contributors do not find their productions in the present number of THE FARMER, it will be because they have been unavoidably crowded out. Having more manuscript on hand than we could accommodate with space, we were obliged to give the preference to priority of date, except in cases where postponement would invalidate the usefulness of the article: moreover several papers which should have appeared in our January and February numbers, only "turned up" a month ago, and we, therefore, publish them in this number as the next best thing we could do. They will be duly attended to.

FERTILIZATION, PREVENTIVE AND CURE.

The following has been clipped from the editorial columns of the Philadelphia *Press*, by a correspondent, and sent to us for insertion in the *Farmer*. If any of our subscribers, in their reading, meet an article relating to Agriculture or a kindred subject, that they wish to have more permanently recorded—and also more conveniently—than it would be in a large folio which, perhaps, they do not *file*, if they cut them out and send them to us, we will, in due time, give them publicity in the *Farmer*. In the matter of recuperating the soil, or forestalling or destroying noxious insects, any remedy within the bonds of probability is worthy of consideration and trial.—*Ed.*

Experiment is constantly making inventions and applications of the greatest value to agriculture, which is itself a science, and the very earliest, of no small importance. 'He who makes two blades of grass grow where there was only one before is a public benefactor, according to the well-known proverb. The substance called paraffin oil is well know for its value when used to lubricate machinery, owing to its power of resisting the oxydizing action of the atmosphere, and by its very slow evaporation. There now is the announcement that paraffin oil is a substitute for the best guano, becoming a clean and fructifying manure when poured over dry earth or sand, which should be used as guano is. More important still is the announcement that grain—corn, wheat, oats, barley, beans, peas, &c.—when steeped for a short time in a preparation of paraffin becomes repulsive to rats, mice, and the various insects that prey upon these seeds in the earth. The plan is to mix 4 oz. of paraffin oil through six gallons of rain water, and sprinkle it on the soil before sowing or planting, and, at a later period, when germination has palpably begun, water between the rows, with the above solution. Seeds of all sorts should be steeped in or sprinkled with the paraffin. It is reported as the result of eight years' experience that this substitute for guano is a remedy for wireworm, grub, and all garden, field and vinery pests. Birds avoid ground thus treated, and flies, wasps, and other disagreeable winged pests equally avoid it. As a hydro-carbon paraffin oil thus acts, and being chemically inert, will not injure the seed, though it gives it temporary flavor which drives away the insects and other pests that prey upon the growing produce. Possibly it might successfully deal with the Colorado beetle, which has lately caused so much alarm and done so much injury. It is somewhat singular that the experiments whose results are here stated were made in Australia, where cereal produce is wondrously large—where, as Douglas Jerrold says, "you have but to tickle the earth with a ploughshare, and it smiles into a harvest."—*Press.*

THE PARK ASSOCIATION.

At the annual meeting of the stockholders of the *Lancaster County Agricultural Park Association*, held at the Stevens House, the reports of the Directors and Treasurer were presented and adopted, and the following Board of Directors was elected for the present year: Robert A. Evans, H. Z. Rhoads, A. C. Kepler, R. J. McGrann, George Youtz, Abram Hiestand, Levi Sensenig, W. S. Shirk, Jno. Murphy, George Styer and James Stewart.

THE WEATHER—THE GROUND HOG.

A correspondent writing over the name "Doubting Thomas," and who says he has read our "exhaustive and almost exhaustless panegyrics on the weather-wise woodchuck," asks us to "account for the difference between the mild weather promised by the wood chuck and the hyperborean blasts that have been chilling us to the marrow for the past few days, with the mercury at zero." The answer is easy: the ground hog promised us six weeks of warm and pleasant weather, commencing February 1. The six weeks expired on Thursday last. The ground hog's contract was then fulfilled to the letter, and like a noble beast, as he is, he gracefully slid into his hole to give Sts. Patrick and Sheelah a chance. You see it, Thomas? "Blessed are they that have not seen and yet have believed."

The above paragraph we clip from the columns of the *Intelligencer* of March 19, 1877, as one among the many that have appeared on the same subject, in various journals the present season, and especially in the county of Lancaster, where it is somehow supposed that there are more believers in the *ground hog*, as a weather prognosticator, than elsewhere. Among all these paragraphs, there has been a want of entire harmony, something of a departure from the original theory—indeed, we may say that the matter has gotten somewhat "mixed up," if not absolutely demoralized; and, in order to get it righted we must go back to the "doctrine of the fathers."

And even the doctrine of the fathers was capable of a two-fold construction, and therefore had two schools of believers among its adherents; so that even among them, there was by no means a unity upon its fundamental principles. Five and fifty years ago—and perhaps much longer—it was said, "If the Ground Hog comes out from his winter lair on the night of the second of February, or 'Candlemas,' and sees his shadow reflected by the light of the moon, he immediately returns to it, and does not come forth again for six weeks;" which is taken as a certain indication that we shall have a six weeks continuation of winter weather; but whether seven or eight weeks was a *literal* verification of the prophecy, never was clearly established.

Per Contra—"If he comes out, as before related, and *does not* see his shadow, then he will remain out, and from that time forward the weather will moderate, and we shall have an early and a pleasant Spring. Six weeks of mild weather succeeding the 2d of February, and then changing to "cold as Greenland," would not have been regarded as a *literal* verification of the prophecy, five and fifty years ago, by any means. That is a modern perversion—very recent, and very local. But, among the fathers there was a "hitch," out of which grew the two schools we have adverted to. It was not clear what was to be regarded as "the night of the second of February," because, a whole day was sandwiched between the two halves of that night. When the clock struck 12 at midnight, on the 1st of February, the next moment thereafter the 2d of February began. At 6 o'clock 58 minutes A. M., the sun rose, and as the moon sets about 7 o'clock A. M., at that period, therefore the Ground hog would have six hours and fifty-eight minutes in which to come out and *see*, or *not see*, his shadow, according to pending meteorological contingencies. The moon rises on that day about 10 o'clock P. M. and the sun sets about 5 o'clock, so that the animal would have two hours in which to make his appearance, and see or not see his shadow.

Now, it will be perceived that the difference between these schools was as between *two* and nearly *seven*. The liberal constructionists contended that he came out between 12 and 7 A. M., as the most likely, because at that time he would be less liable to casual interruption of any kind; but the strict constructionists contended that he came out between 10 and 12 P. M. mainly for the reason that the Ground hog never was remarkable as an early riser.

That was the *status* of the question fifty, sixty, or perhaps a hundred years ago, if not longer, although there were then already innovations upon the ancient doctrine, especially in local districts. But in later years the old doctrinal landmarks became almost obliterated, and now it is almost universally stated thus: "If the Ground hog comes forth from his winter quarters on 'Candlemas' (Feb. 2nd), and sees his shadow, he will immediately return to them, and will not come forth again for six weeks;" and this is an indication that we shall have a continuance of cold winter weather for that length of time. Lax constructionists give him from sunrise to high noon, but the rigid constructionists contend that he immediately returns, and that the cold weather continues six weeks, and by no means any longer.

Per Contra.—"If he comes forth on the day afore-named and *does not* see his shadow, he remains abroad, and we shall have an early and genial Spring."

The 2nd of February, 1876—in the morning—was cold, bright and sunny, although before night it became cloudy. Of course, it was said, "the Ground hog saw his shadow," and returned to his winter quarters to remain there six weeks longer. Although the weather which followed February 2nd, 1876, was not intensely cold, yet the seven or eight weeks which followed, were not such, we think, as would invite forth the Ground hog; therefore, to the literal constructionist, a prophecy that is more than verified, is not verified at all. The morning of the 2nd of February, 1877, was cloudy, and hence "Old Monax" could not see his shadow, but the weather which has since followed has not been such as can be fairly construed into a verification of his prophecy. Even if six weeks of mild weather had followed the 2nd of February, and then a period of cold, foul and dreary weather had succeeded it, it would not have been a fulfillment of the Ground hog prognostication, because that prediction means the advent of a mild and early Spring; and that the month of March will, in *fact*, as well as in *name*, be a Spring month, whereas it has been much more winterish than the month of February, the present year.

But, viewing the whole subject from a practical standpoint, there seems to be a primal qualification in the whole theory which envelopes it in doubt. It is said—"*If* the ground hog," &c., &c., which fairly implies—"maybe he *will*, and maybe he *won't*" most likely he *won't*.

Dr. Godman, one of Pennsylvania's distinguished naturalists, who kept these animals as pets, on several occasions, and who in a very interesting manner tells "what he knew about Ground hogs," says: "At the commencement of cold weather, the "marmont" (ground hog) goes into his winter quarters; having blocked up the door from within, *he there remains* until the return of the warm season revives him again to renew his accustomed mode of life;" and we believe he would remain there until the first of May, or longer, if the weather remained cold so long; and also that he might come out on the first of January, or earlier, if the temperature was high enough to revive him to renew his accustomed mode of life"—candlemas or no candlemas. His accustomed mode of life is to excavate a burrow of from six to ten feet or more in the ground, in such a situation as will leave the entrance inclining downward in order to prevent the ingress of water during a rain, and making an ample nest for himself, his mate, and his family of from four to six or more youngsters, periodically.

Futhermore, his habit is to feed voraciously on vegetation, and especially on young clover, and it is said that a score of them can cut a swarth through a field as clean as a patent mower, and devour it as they go forward. He is not distinguished as an early riser, and prefers midday as the period of his foraging operations; for so cunning is he, that he knows that the farmers have retired from the fields, and are then taking their midday meals and rest. On such occasions—like the "Prairie dogs"—one or more will keep watch, while the others are feeding, and at the slightest distubance he gives the alarm squeak, and they all make a precipitate retreat to their holes. They also, sometimes, come forth to feed on bright moonlight nights, and under varying circumstances, at other times also. Now, if by some diversion in the regular revolution of the planets it should transpire that winter should be displaced by summer, can any one suppose that the Ground hog would lie dormant until candlemas before he ventured forth from his winter quarters in search of food? Not he. The demands of his stomach would become too pressing to long resist them. Or, if summer, or any portion of it, was displaced by Arctic cold, that he would not hie him to his winter den, and become semi-torpid? *Heat* is the medium through which the living power of the universe is exercised, and its vital energies are manifested. Without *heat*, everything would be cold, and chill, and barren, and inert, and so would be "old *monax*" for ever and ever.

If the sunshine or clouds of candlemas have any meteorological significance at all, it must be Zodiacal, and has, in our opinion, no relation whatever to the habits of the Ground hog. 1876 was in contradiction to the ancient traditions, and so was 1877, in this locality at least. If the tradition is now misstated and misinterprated, and night is the time when he ostensibly comes forth and sees, or does not see his shadow, it involves the question with additional difficulties, because of the barriers it would interpose to personal observations on the subject; and perhaps it is the existence of these difficulties, which has kept the question so long an open one. Under any circumstances, however, a belief or disbelief of the doctrine can work no material harm at the present day, for the light of intelligence is becoming so widely and so thoroughly diffused that no one of ordinary intelligence would base the chances of success or failure of an enterprise upon the supposed habits of the Ground hog, and if there are yet any such, we would respectfully recommend them seriously to pray for "*Light, more light still.*"—*Ed.*

CORRESPONDENCE.

The Guava.

Prof. S. S. Rathvon: Seeing an article in the February number of THE FARMER in relation to the *Guava*, but as you give no credit from where you copied it, some readers might suppose this tree could be grown as a fruit tree in our climate—as some have already made enquiries, where the fever tree, *Eucalyptus Globulosa* could be procured, with the intention of planting it as a forest tree. Now neither the *Guava* or *Eucalyptus* will live in a climate where there is the least degree of frost. Even in our most Southern States, both these trees occasionally are injured, or killed, by a more then ordinary cold spell. In California they are planting largely of the Eucalyptus. They are both very interesting when grown in Green-houses, where the trees are dwarfed in pot culture, out of the reach of frost. Mr. Hensel has the *Eucalyptus* growing finely in his Green-house. This tree is said to be of great value as a medicinal plant. By making a tea of the leaves will cure many of the "ills that flesh is heir to." By its vigorous growth it digs up the swamps, thus destroying the malaria, and making the climate more healthy.

The *Guava—Psidium Cattleyanum*—I have fruited for many years; it is a pleasant sweet and acid fruit, and some people are very fond of the fruit, size of a large cherry. Another species of the *Guava*, called "sour sop," from Florida, I have not yet fruited. This is said to be a larger fruit.

Both these trees grown in pots, so as to dwarf them; could be grown in an ordinary sitting room, where no frost enters, and are very ornamental and interesting. *J. B. G., Columbia, March* 28, 1877.

By referring to the article in our February number again, our friend will find that the text is from the *New York Tribune*, and the context from *Rind's Vegtable Kingdom*, page 367. We inserted the article in order to draw out something practical in regard to its outdoor cultivation in this and more southern latitudes, as we found it going the rounds of both Agricultural and secular papers. We thank our friend for his suggestions.

EDITOR OF THE LANCASTER FARMER.—*Dear Sir:* You asked me some days ago why I don't attend the meetings of the *Agricultural and Horticultural Society* any more. Well, I was a member at one time, and pretty regularly attended the meetings, but was compelled to discontinue attending them. The reason for doing so was not owing to a want of interest in them, or in the cause of agriculture, but because of my inability to lose so much time. The fact is, I attend regularly the Wednesday morning market, and when the market is over, I transact what business I have in the city, and, if at all, I then could also attend a meeting of a society; but I cannot afford to leave my work and go to town expressly for that purpose on Monday. No man who himself cultivates his farm, cares about losing double time, and incurring double expenses to attend a town meeting, especially when he participates in no fancy speculations, by means of which he expects to compensate himself for loss of time. I entertain the greatest respect for all who claim to be

farmers, whether that claim is real or assumed, and I also feel an interest in all that relates to the real success of farming, but, whatever may be the status of the society *now*, it seemed to me that those who exercised a controlling influence in its proceedings when I attended, were not what I considered practical, or working farmers. Except perhaps in a few cases, they were not the men who follow the plow; and therefore, although honorable men, they were not at all congenial to me, and I did not feel at home among them. Some of them have farms, and good farms too; nice and clean, and well cultivated perhaps, but they do not cultivate them themselves. They get hired men to do the work, and they are out on some speculation; and the society meeting on Monday, it just suits that class of farmers; but I am not in that line of business, and therefore it would be inconvenient for me to attend. I have nothing against them, however, for as I said before, they are honorable and respectable; but farmers like I am, want to be at home as much as possible, and *ought* to be. They can not leave home and farm, and spend an additional day, and money also, to attend the monthly agricultural meetings. —Yours, &c.—*J. G.*

[Our correspondent is a plain, unobtrusive, industrious, and withal an intelligent farmer, and has been a constant subscriber to our journal, and also a reader of it, from its origin. We well remember, when he attended the meetings of our local society some years ago, that he usually sat from their opening to their close, without once leaving the room, all the while manifesting an interest in the proceedings, without any divided thought outside. And when he rose to speak, which he frequently did, he was always listened to with profound respect, by the most intelligent and practical members. Situated as he is, his reasons for not attending now, seem conclusive. We *know* he is not alone in these sentiments in respect to the day of meeting, and we *know* also that other members of the society have suggested a change, but it seemed questionable whether any other day would not be equally objectionable to other members, and finally the matter was dropped. As to the rest, time may eventually develop some ground upon which all can meet in harmony. —*Ed.*

Bird-in-Hand, Pa., March 8th, 1877.

Mr. S. S. Rathvon.—*Dear Sir:* I found the accompanying insects yesterday while cleaning a bedroom upon the first floor. I lifted out the fireboard and laid it upon its face on the front porch. Beginning to sweep off some of the adhering matter, I found a cluster of those insects gathered, I think at one of the crevices in the board. Are they the *Galerucæ*, which feed upon the elm? Respectfully yours.—*P. E. Gibbons.*

Although the insects alluded to in the above communication are somewhat darker in color than those that infested the elm tree last summer in Lancaster city, yet they are of the same size, and are otherwise marked exactly like them. The difference in color is no doubt due to the fact that we bred all our specimens last summer from *larvæ* and *pupæ* that we secured as they were coming down the trunks of the elms, and killed them within a day or so after their final evolution, and before they had partaken of any food, or had acquired their full coloration; and therefore we have little hesitancy in saying that they are the genuine *elm-leaf beetle*; and which Harris, and Fitch, and Emmons, and Morris, and even Prof. Riley in his late little work on "potato pests," have alluded to as *Galeruca calmariensis*, but which we—according to Stephens—could not identify with that species, and hence referred it to *xanthomælena*, Schon. in which we were sustained by Dr. Le Conte. (See Lancaster Farmer, page 131, Vol. VIII.) According to Stephens, *calmariensis* feeds on aquatic plants in London district, Bottisham, Weston, Bristol and Swansea.

When received, the insects were all alive, and must have sought the place you found them in, as a convenient cover for their hibernation. If you have any elm trees on your premises there is where they came from, and there is where they will go to as soon as they are in foliage this spring, therefore destroy them wherever you may find them.—*Ed.*

Safe Harbor, Pa., March 24, 1877.

Prof. S. S. Rathvon—*Dear Sir:* Am glad to see The Farmer on its feet again, and sorry I could not do more to extend its circulation. My name should have been omitted as one of those specially named.

In looking over some of the numbers I am struck with the amount of labor it devolves on you. In fact I think you do entirely too much, and if in your place you would dun some of the patrons personally, or by post, as convenient, for articles that are suitable for the coming season, they might assist you. Certainly such persons as Casper Hiller, H. M. Engle, L. S. Reist, Johnson Miller and many others, have a little time to spare for the preparation of articles which would do somebody good to read.

In current (March) number I find that *you prepared* or culled *all but two and a quarter columns*. This is too bad, and you should, at the "point of the pen" make somebody "toe the mark." Tell that "somebody," in plain words that by the first of each month, you expect an article, and if not received in three days thereafter you will be under the painful necessity of reminding them that they did not come up to the "chalk."

Hoping that you will be able to lighten your labors; I remain yours respectfully *A. B. K.*

We appreciate our correspondent's sentiments of sympathy, and feel thankful for them, and furthermore we commend his suggestions to all those "whom it may concern." As to labor, it has become a kind of "Second Nature" to us, and we feel a reward in being able to labor; nevertheless as we are getting old, we would not object to a little more of the *Substantial.*

Pittsburg, March 21, 1877.

Ed. Lancaster Farmer—*Dear Sir:* I having offered a *premium* of your paper, for one year, at our last Poultry Exhibition, viz.: *The Western Pennsylvania Poultry Society*, and it having been won by D. B. McLean, Mansfield Valley P. O., Allegheny county, Pa., you will, therefore, please forward the same to his address for the term above stated, and inclosed please find $1.25 in payment thereof. Yours truly, *C. B. E.*

We publish the above, not merely to show the appreciation of our journal outside of Lancaster county, but as a suggestion of what might be properly and conveniently done —during the approaching Exhibition season— by the State Society, by county Societies, and especially by our own local Society—when they make up their own premium lists—towards encouraging the Agricultural journals of the State, and elsewhere. Doubtless there are many exhibitors who would by far rather receive such a journal, than to receive a $1.00 or $2.00 premium, as the case may be, especially, since under the present postage laws the mail expenses thereof are paid by the publishers, and in no case by the subscribers. *Committees on premiums*, will please "stick a pin in this."—*Ed.*

Mr. Editor.—Allow me to offer the following as my report on canvassing for The Lancaster Farmer, and the number of subscribers I have obtained. The members of the Society are aware, that at first I made no promise as to what I *would* do, or *could* do. Upon a second thought, however, and finding that some of our more liberal and energetic members were quite successful, and that it was either "life or death" to our representative journal, I promised *twenty*, and these I soon obtained. I then promised *fifty*, but now have obtained *seventy-five*, and expect to increase the number to *one hundred*.

I take this opportunity to tender my sincere thanks to all those who have so liberally, and with such good motives given me their names and influence, and I ask to be excused, for my apparent importunity, by those who could not see the propriety of giving me their names, or who could see no benefits accruing from a subscription to the Farmer; assuring all that we are receiving no pecuniary compensation for the labor we have been performing, but have been doing all for the advancement of Agricultural literature, and the good of the community.

I would also respectfully beg leave to state, that a number of our good people declined to subscribe, because they already received a newspaper. This I invariably urged them to continue; but if they *could* add another thereto, let that one be The Farmer. I also admonished them to patronize the local papers of our county, without regard to sect or politics.

My experience in canvassing has been similar to that of some other members, in that, as a general thing, I have less difficulty in obtaining subscribers from among those who were already taking one or more papers, than among those who do not take any.

In conclusion allow me to say, that we may consistently feel, that The Farmer is the "farmer's paper"—that it stands or falls upon its own merits—and that it offers no tempting premiums for subscriptions, but relies upon the moral intelligence, and the good will of the people, for its support. In literary composition and mechanical execution, it compares favorably with any in the country; and any farmer who takes a copy, preserves it, and has it bound, will refer to it with pleasure in after years.—*P. S. R.*

Linnæus Rathvon, Esq.—*Dear Sir:* I am really glad that The Lancaster Farmer has been resumed, and is to be continued. And as a native of the county, and living on a fine farm in this "garden of the State," I sometimes feel ashamed that my fellow-farmers are so slack in sustaining so valuable a journal—and one so essential to their interests, and their reputation abroad. And I blame myself, too, for not attempting to do the little that I can, in contributing memorandums of my observations, experiences and experiments—in planting, pruning, and cultivating—to its columns.

This, however, is little to my present purpose, which is to acknowledge my remissness in attending to another and paramount duty—namely, paying up for my last year's and the present year's subscriptions. Assuming that I owe you this much (for I can find no "slip" to indicate that point definitely) I enclose $3.50, and the additional name of Robt. H. Gamble, Bridgewater, York county, as a new subscriber, beginning with 1877, and will remit any balance I may yet be in arrears, on being made known to me.

And here I would respectfully suggest, to my fellow-farmers, that they would do well in sustaining their Home journal—at least every subscriber should feel it incumbent upon him to send at least one name in addition to his own, for the volume of 1877. *One dollar* seems a small sum for the matter it contains during the year.

Wishing abundant success to The Farmer, I am yours truly *J. H. M., Columbia, March* 15, 1877.

We feel grateful towards all for the efforts that have recently been made in behalf of the Farmer, but when their efforts are accompanied by such words of appreciation and encouragement as the above (backed up by the material) we feel doubly grateful. Our journal has now fairly started upon its 9th volume (a longer period than that of any former enterprise of the kind in the county), and we are determined to carry it through the year, whether we are pecuniarily sustained or not. Having been born and brought up in the county of Lancaster, with an ancestry in it dating back to 1740, we are a descendant of a pre-Revolutionary, and claim a birthright to its privileges of citizenship. Having spent five or six years of our early boyhood delving on a farm (without professing to *be* a farmer),

and having now obtained the age of *sixty-five*, with sympathetic proclivities towards farming interests, we do not deem it at all presumptuous in us to ask the farmers of Lancaster county to sustain a local journal amongst them. Taking a birds-eye view of Lancaster county, from almost any elevation in it, the beholder is struck with the idea of untold wealth that must still lie undeveloped in her soil, and in the bowels of the earth beneath it. Whatever we may be able to do towards the development of that wealth, and to expand and elevate the minds of those who are its legitimate custodians, will find a ready exposition in the columns of our journal. *Ed.*

Our sentiments are entirely in harmony with our friend S. P. E., Esq., who has placed the following in our hands for insertion in the FARMER.

MILTON GROVE, March 12, 1877.

MR. E.—*Dear Sir:* While looking over the pages of the *Lancaster Inquirer*, I saw the proceedings of the *Lancaster Agricultural and Horticultural Society*, in which I find the members of that society differ very much on the question of lime as a fertilizer. I thought I ought to write you, not my *experience*, but my *observations* from my childhood up to the present day, on my father's farm. I shall begin with what the farm had previously been. My father bought the farm about forty-eight years ago, and the land was very poor. He commenced burning lime, not only for his own use, but also for sale; and continued applying some of it to our farm until within about twelve or fifteen years ago. Since that time no lime has been applied to the farm. I can very well recollect that about thirty-six years ago we had a field of 19 acres, which, for three years in succession only yelded *five* loads of hay in in a season. Now it will yield *thirty* loads, or more, in a season, and this is the result of the application of lime. I also recollect, that about the same period we had a field of rye, which we only cut in some of the best places, because it would not pay to go over the whole field, but for the last twenty years we did not sow rye in it, because it grows too rank—no grains, but an abundance of rank half rotten straw, so that it don't pay in rye. In applying lime we generally put it on the sod in the latter part of summer, or in autumn, and plowed it down for corn. We hardly ever put any lime on for wheat now, only occasionally for experimenting, but it does not pay. In putting on lime, in order to realize the speediest and largest return of profit, put your lime on grass or sod, at least one year before planting in corn. On hilly land, the rain will not draw as much lime from the grass or sod as it will from a bare or plowed field. In putting lime on grass, in either winter or spring, or at any time, it will pay the lime in grass the first year, and you will have a stronger sod to plow under for corn, and it will also plow so much the easier. We apply lime to the same field every six years, about one hundred bushels to an acre. Yours very truly.—*A. H. G.*

We commend the above to the attention of the members of our local Society; because, it seems to be the practical result of many long years of experience and local observation. As THE LANCASTER FARMER now publishes the full proceedings of the *Agricultural and Horticultural Society*; the *Tobacco Growers' Society*; the *Bee-Keepers' Society*; the *Millers' Society* and the *Linnæan Society*, and also the *Essays* read before those societies; it is a perfect *vade mecum* to the progressive cultivators of the soil in our county, and ought to be in their hands, and read by them. It has many advantages over large unwieldly folios, in this, that it is printed on better paper and in clearer type; is more compact and easier referred to; is not so liable to be destroyed, and is annually accompanied by a copious alphabetical index. At the end of the year it can be divested of its transient advertising pages without interrupting its numerical order, and then be bound into an interesting volume, for future reference. ($1 a year postage paid.)

We hope soon to see A. H. G's name among the list of our subscribers, and to occasionally receive from him such practical contributions as the above.

GERMANTOWN NURSERIES, March 21, 1877.

PROFESSOR RATHVON. *Dear Sir:* Can you tell me the name of the enclosed fly? I am anxious to know, in connection with my studies in relation to insect fertilization of flowers. It makes a pretty little oval outline when at rest, or, perhaps, I may say spathulate—the head giving it the narrowest end of the oval. There were two other species in the woods with it; all in large numbers, which I could not catch one with *antennæ*, the pair being as long as the body, perhaps not a DIPTEROUS insect. It was too active to catch, and perhaps one-half smaller than the one I send. The other a yellowish bronze fly, similar to the one which always seems to come, as if by instinct, to fresh *fecal* deposits, but apparently narrow. I am particularly interested in these flies, because the thermometer has been very much below the freezing point, up to within four hours of the time these flies were so numerous, when it was 45°. Very truly yours, *T. M.*

We regret to state that we are unable to give our correspondent the information he desires; *first*, because the specimen he sent us was so badly crushed in impaling a small subject on a large pin (like impaling a mouse on a crowbar) that we could not get a good idea of its form; and *second*, because we parted with our collection of *Diptera* before the Rebellion, and have not had time or opportunity since then to make another; moreover, our literature in local species of Dipterous insects has always been exceedingly scant. We, however, do not think this species would assist him much in the study of the "fertilization of flowers" by insects. The mouth and feeding organs seems to be "obsolete," but we lost the head before we had completed our observations. The wings were hyaline and beautifully iridescent. It is not unusual for flies to evolve in winter, even when there is snow on the ground. The larva is probably stercoraceous in its habits, and pupates in the ground. Send a specimen to Osten Sacken, Russian Legation, N. Y., or to Prof. Riley.

Pieris Rapae.

A friend has called my attention to a copy of a Michigan newspaper, in which is a communication from "Prof. A. J. Cook, of the Agricultural College." The communication is headed "Imported Cabbage Butterfly, *Pieris Rapæ*," &c.

The writer says that in 1875 he had stated that this latest arrival from England was fast nearing their own beloved State, Michigan. He now reports that it is sorely vexing the gardens along the eastern and south eastern confines.

This foe, he adds, has few if any equals. One of the many principles, he continues, established by the adherence to the doctrine of natural selection, is the fact that plants and animals when introduced into a new country, find the "struggle for life" less severe, and as the fittest survive, usually thrive, even at the expense, and frequently to the utter extermination of the natives. This fact, so amply sustained by our experience with the Hessian fly, wheat midge, codling moth, currant saw-fly, etc., is no pleasing one in view of our subject. I can only answer in the language of one Patrick Henry. "*We must fight*," nor can we hope to vanquish our foe, even in eight years. This imported species, when scarcely half a dozen years on this side the ocean, was said to destroy annually, about the single city of Quebec, $240,000 worth of cabbages.

It was first observed and taken by a Canadian entomologist, in 1859, at Quebec. From this it has spread rapidly to the West, and more rapidly to the south.

The remedies suggested are the catching of butterflies—which are lazy—in a net; children should always have these. He says they will do the work cheaply and greatly enjoy it.

As the insect propagates, or goes into the chrysalis form, under some projection of building, fence or tree, keep the garden free from rubbish, and place boards horizontally about three or four inches from the ground, between the cabbage rows, and the insects suspended beneath may be collected. He also says "Paris Green and White Hellebone will kill the caterpillar, but they will also kill any one who eats the cabbage; especially as the Paris Green cannot be washed off so as to remove the danger." In reply to this, I may refer to my experiments of last year with Paris Green, as reported to you, fellow-members of the Linnæan Society. If applied early it will nip the insects in the bud, and be washed off by the rains before the cabbage matures; at least it injured no one in our family, although it was applied a number of times. Still, I recommend caution.—*Phebe E. Gibbons, March 23, 1877.*

LANCASTER, March 14th, 1877.

PROFESSOR RATHVON.—*Dear Sir:* I enclose a copy of a letter of Henry Clay, the original of which is in my possession. It has occurred to me that you might be pleased to publish it in THE FARMER, as illustrative of the great interest which the great statesman continued to take in his farm and cattle while engaged in important affairs of the State. It is also somewhat curious that Mr. Clay should write from Washington to his son in Kentucky without saying anything about his own health, or making inquiries about that of his family. Yours truly, *J. H. D.*

Unpublished Letter of Henry Clay.

WASHINGTON, Jan. 2, 1836.

"*My Dear Thomas:* I received your letter of the 25th ultimo. You may say to Mr. Headley that I have no wish to rent the house at Mansfield. I could get no price for it that would compensate me for the inconvenience of having tenants there.

"I have two Durham bulls; one that is gone out is an imported bull, and he is an uncommonly fine animal, showing high blood, and good at all points. His pedigree I have not yet received. His name is Orozimbo. The other, nearly white, named Hector, was got by Malcolm out of Delight, an imported cow purchased in England by Mr. Whitaker and selected by the editor of the Herdsbook. Hector was raised by Col. Powell and presented to me.

"They are both fine bulls, and each would be preferred by different people. Hector having got his feet very tender in traveling from Philadelphia to Shepherdstown, I have detained him until February or March, by which time he will, I hope, recover.

"I wish if, as I requested, you offer to Major Smith one-half of Don Manuel, you would say to him that the price at which I offer the half must be regarded as confidential between us. I have a prospect, if he declines, of getting more for him.

"You will tell Mr. Headley to let you have one of the stacks of oats, if he thinks we can spare it.

"I wish you would inform me how Magnum Bonum is attended to by Aaron. Your affectionate father, *H. Clay.*

"MR. THOMAS H. CLAY."

Answers to Correspondents.

H. M. E., Marietta, Pa. The little green "hopper" which you say you caught on the 11th of February last, is a juvenile specimen of *Tragocephala viridifaciata*, or the "green-faced, goat-headed locust," and is very common in pasture lands, from June to September, but never to our knowledge, numerous enough to be particularly destructive. This individual is still in that developmental condition which corresponds to the *larvæ* of other orders of insects—beetles and butterflies for instance—and is one of those late broods which are overtaken by cold weather before they have had time to complete their full

growth, and which go into their winter hibernation immature, and finish their development the following spring. During the cold weather they are in a state of suspended animation, but are capapble of being revived at any moment of supervening heat, and during such periods they will come forth and feed—if they can find anything to feed upon—no matter what particular month it may be in. We have known caterpillars and cut-worms to do the same thing in mid-winter. To-day the thermometer was nearly down to zero (March 10) and "hoppers" quiet."

J. W. M. Adams Express Office. The large Spider you found in the Express wagon, from which you were delivering Baltimore oysters, seems to be a species of *Dolomedes*, although it differs from any figured or described by Prof. Hentz, whose work on spiders is all to which we have access. Prof. Hentz considered it allied to *Lycosa*, the genus which contains the famous "Tarantulas." It is represented as a wanderer, hiding under stones, and sometimes diving under water. The mother spiders of this genus construct an orbicular cocoon, which contains her eggs or young, and which is usually attached to the posterior portion of her body, or is carried on her back, and which she often bravely defends. We have allied species in Pennsylvania, but we have seen none so large as this, which was likely brought from Maryland in a cargo of oysters. It is a very handsome specimen.

ANNUAL ADDRESS.*

To the members of the Lancaster County Agricultural and Horticultural Society—Gentlemen: As has been the custom of my predecessors, it becomes my duty to address you, at this, the last meeting of the year to which I was elected as your Chairman. The duty I assure you is *not* a pleasant one to me. It is not my forte to speak in public, nor to make an address, therefore I trust you will accept the few remarks I shall make, with due allowance for my inexperience.

Our society has passed through another year of its history, the many valuable hints, and the observations and experiments so freely given by the practical men enrolled, have been sought and digested by others, who as yet have not taken interest in the public good, to join our roll, and assist us in disseminating Agricultural and Horticultural knowledge. Our existence as a society now is only due to a few who have labored earnestly and well for the perpetuation of our little band of workers. Let the unbiased judgment of those who have observed the records, pass upon our merits or demerits.

The year just closed is one long to be remembered as the great Centennial of our nation. Is it not a fitting time at this, the opening of the new, to look back upon the past, with thankful hearts to an all-ruling Providence, for the bounteous provisions of his goodness, for the great success of our country as a nation, for the peace existing between us and all other nations, for the bountiful crops that have blessed the labor of the husbandman, and encourage us to renewed euergy in pursuing our respective callings.

The great success of our country as a nation has struck wonder and admiration in the hearts of many foreigners who have visited us the season just passed, seen the great show at Philadelphia, and were amazed at its magnitude. It becomes us as Americans to begin now anew, as the great anniversary has but just passed into history; and we have just ushered in the new year, like the new-born babe in its mother's arms, unable to foretell its destiny. Therefore, let us start afresh on the broad track of honor and integrity, that our posterity may revere in memory dear the foundation laid for the next National Jubilee.

I have the pleasure of congratulating you through the information of Mr. H. M. Engle, and the research of Simon P. Eby, esq., the discovery of an Act of Assembly, granting an annuity from the county in amount equal to the annual contributions to the society, provided the sum does not exceed one hundred dollars. The necessary papers having been prepared by Mr. Eby, and filed in the Commissioners' Office, the sum of thirty-two dollars was realized, that being the amount voluntarily contributed the past year. Since we have some accessions to our treasury from the county, it seems to me some action might be taken by this society, by which the greatest good may result to Agriculture and Horticulture, for instance, the analyzation of soils and fertilizers, with a view to supply the exhausted field, with ingredients necessary for certain crops. The examination of seed, to discover, if possible, its freshness and purity, and prevent the sale of millet and other undesirable, and even mineral matter, in clover and other seeds, offered by unprincipled dealers, who are ever ready to take the advantage of the unwary, as the fine crops of "fox-tail" and other fall grasses give abundant testimony of the adulteration. Science is one of the farmer's most valuable servants, and is ever ready to do detective service for the watchful husbandman. By a statement from the State of Connecticut, a fertilizer was sold for $55 per ton; the analyzation at the State Experimental Station proved it to be nearly one-half sand, and to have a commercial value of $8 per ton.

In the same journal I see that detective business is carried on to discover false and impure seeds. Numerous and ingenious adulterations have been found in the common seeds sold to farmers. Among them have been found old seeds that have lost their power of germinating, seeds of useless and injurious plants, and pieces of quartz rock, ground, colored and sifted, to imitate genuine seeds.

Can the soil withstand the persistent tillage as followed in our section, and not become exhausted? The falling off and irregular crops of wheat and other cereals, have been a source of anxiety to the farmer. The consumer, too, begins to enquire from whence come the supply to satisfy the hunger of a rapidly increasing population. Many cast a wistful look over the blasted field and wonder why we are not blessed with a yield as of yore. Let science answer. I therefore recommend for your consideration the appointment of a committee with authority to take such action as may secure and result in the greatest good to the community.

There is also much room for improving the common "slip-shod" way of wintering stock. The thin, gaunt form, with hair on end, and back elevated 15 or 20 degrees above its natural level, ever on the outlook for some luscious bit to gratify the craving appetite created by the piercing blasts of our northeastern winter storms, remind us there is something wanted to compete with the well-rounded form and sleek, glossy coats of the herds of our modern farmers and stock breeder of the day, who, with his improved labor-saving machinery, cuts, steams and uses such means as scientific experiments and observation have convinced him are as necessary to prepare and cook food for his stock as for himself. And in the spring, after having wintered 20 to 30 per cent. more stock from the same number of acres, than his old fogy neighbor, and hay to sell besides, while "slip-shod" has been saving all winter, and in the end has to buy to keep his hungry herd from starving.

In Horticulture we have the gratifying indications that the many enemies to our fruits are gradually diminishing, and encouraged us to hope, by the vigilant protection of all insectivorous birds, that we may, ere long, pluck bountiful crops of luscious fruits from our own vineyards and orchards, and furnish a supply for the incoming demands of a rapidly increasing population. The well-filled orchards of apples and peaches give the disheartened fruit grower such encouragement as to hope for abundant remuneration for the labor and money expended on his fruit garden. Had it not been for the great storm from the east last fall, our markets now would be supplied with luscious home grown apples. Even plums and gages, that have so long been strangers on our markets, are beginning to make their appearance on the stall to tempt the palate of all lovers of the delicious pulp that underlies the skin of a well ripened "Green Gage," or a Washington Plum. The little hard-shelled "curculio," with its crooked proboscis, (the great destroyer of all smooth-skinned fruits) is slowly disappearing from our midst, and I trust, ere long, will be among the things that were.

The revised constitution and by-laws, recommended by your committee and adopted by the society, offer a broad platform for usefulness, which, I trust, the members will embrace, and create an organization that *every one* interested in Agriculture, Horticulture and Floriculture will feel that they cannot afford to be absent. I find, as your chairman for the last year, that, at times, there is a great want of interest in the proceedings. A little more promtness on your part in disposing of the different topics under consideration would greatly assist in making the meetings both interesting and instructive, and facilitate the chair in carrying out the routine, laid down by the rules of order, with the dispatch that is always advisable in public meetings. Another matter I will take the liberty of calling your attention to here is the habit of some of the members of waiting to be called on to express their views on the various subjects under discussion. I find it impossible to infuse spirit or life in a meeting while there is a tendency to withhold opinions and observations; and a little more free expression would ofttimes bring about a spirited and instructive debate.

In conclusion allow me to return my kindest acknowledgments for the courtesy and respect you have shown me during our meetings, and, if aught has been done or said on my part to wound the feeliugs of any one, I humbly ask pardon. Hoping you will believe that it has been my endeavor to be impartial in my rulings of all subjects under my control, and ever cherishing the very best interests of the society and its members, I have the pleasure of wishing you a very happy new year. Most respectfully submitted.—*Calvin Cooper.*

[An apology is certainly due from some one, that the foregoing excellent annual address of the worthy President of the *Agricultural and Horticultural Society* should have met with such an unjustifiable delay in its publication; but, the *fact* is, that, notwithstanding our frequent inquiries about it, it was not placed into our possession until the 26th ultimo, ten days subsequent to the issue of the March number of THE FARMER, whereas it should have appeared in our January number. Without indulging for a moment in any kind of censure, and willing to regard it as a mere act of inadvertence, we cheerfully do the next best thing, by inserting it in our April number, and in making this explanatory record, as the only compensation *we* can make for a dereliction that was entirely beyond our control. —*Ed.*]

*Read before the "Lancaster County Agricultural and Horticultural Society," January 1st, 1877, by the President, Calvin Cooper.

For THE LANCASTER FARMER.

LARGE OR SMALL POTATOES?

The oldest business in the world is farming. Exactly how old it is, it would be unwise to say in these days when geologists are settling and unsettling things regulary every twelvemonth. But even they let us go back over 5,000 years, and that is sufficient for the purposes of any argument. Agriculture is a science as truly as chemistry, astronomy or mathematics; and as more good, common sense individuals have been at work on it than on all the rest put together half a dozen times over, we have a right to expect that it ought to be so systematized and understood, that its canons and principles should rest on such sure and immovable foundations, that acquiesence therein should be universal and not exceptional. In the wide world of Art and Literature, we recognize certain unchangeable

conditions which govern and regulate their productions, and which fix their degree of merit or demerit. But when we come down to farming, at which countless millions have toiled, we oftentimes find that the divergence of opinions on points so often and so regularly brought to the farmer's attention, is as wide as it well can be, and the real issue as undecided as when Adam delved and Eve spun.

To one of these disputed points I propose to call attention. The question whether farmers shall plant large or small potatoes is an old one, and as long as it is old, and will no doubt continue to agitate the agricultural mind for a long time to come. If every theorist on this question would convert himself into an experimentalist, the case would not be long in doubt, but unfortunately, the more our favorite theories are assailed, the more we feel disposed to stick to them. Farmers are perhaps the most conservative people as a rule, in the community, and this applies to things within the line of their calling even more than to outside matters. They are apt to hold on to that which experience has taught them produces satisfactory results, and too infrequently refuse to better what seems to them already good enough.

Every reader knows farmers who plant only small potatoes, not from necessity but from choice, and others who select the choicest of their crop for planting purposes. If the former succeeds in gathering a large crop of fine tubers, he is confirmed in his theory that size has nothing whatever to do with the matter, and if his crop proves short in quantity and inferior in quality, an abundance of reasons drawn from the season, condition of the soil and what not, are always at hand to sustain his original view. Paradoxical as it may seem, the man who has planted the very best article in his cellar, applies this identical line of argument to his own system, no matter whether failure or success has attended it. The result is nothing is proved, and each party is as strongly wedded to his theory as ever.

My father invariably planted small-sized potatoes, and was careful, when none such were to be had, to cut the large ones until no piece contained more than a single eye. He had a neighbor, a brother, whose rule through life in this matter was the exact opposite. The fields adjoined, and in so far as anything could be discovered, there was no difference whatever in either the quality of the soil or method of cultivation. Yet there were failures and successes on both sides, as often on the one as on the other, and an experience of 50 years' potato growing left both satisfied as to the soundness of their individual views, without any other perceptible difference except that my father had the satisfaction of eating his finest potatoes, while my uncle dined on small ones. This is but a single instance by way of example, and everyone will remember plenty of others in his own experience.

Last year a somewhat similar experience fell to my own share. I had about half an acre of ground to plant. I put down Peerless and Early Rose, mostly small ones, freely cutting the large ones. Finding several rows unplanted when night came and being anxious to finish, these were planted with very large Peerless, whole, for I would not take the time to cut them. The result was that this last lot was the most unsatisfactory of the whole, although I am not prepared to say this was *in consequence* of having planted entire potatoes. Several years ago a lot of mere parings, planted in the rich, mellow soil of the garden, gave unusually fine results.

If there remains attached to the eye, merely sufficient of the substance of the potato to sustain its vitality until it has had time by its contact with the soil to throw out rootlets, which it quickly does, everything has been attained which need be asked for; the soil, with all its component parts, must do the rest. The old potato furnishes sustenance merely until the growing eye makes arrangements, so to speak, to find other and more substantial nourishment to support its growth. What is drawn from the potato is at most only a matter of a few days, while on what is taken up out of the soil, and that only, depend our expectations of a vigorous growth and a profitable crop.

Is not this view, in all its bearings, abundantly confirmed by the manner of planting resorted to by those who have planted small lots of potatoes in competition for prizes. If Mr. H. C. Pearson had planted his single pound of the "Alpha" variety, without cutting the tubers, how many would he have obtained by the experiment? Most likely his crop would have been 17 pounds instead of 1707, and his 1982 pounds from a single pound of "Ruby" would, in all probability, have dwindled down to a figure which half a dozen hungry farm hands could have demolished at a single meal. When a single eye of a potato can be divided and subdivided until ten or more parts have been obtained, and these planted and cultivated until the result is an increase of nearly 2000 per cent., I apprehend the advocates of whole potato planting have very little ground left in the way of argument, to stand upon.

Instead of being beneficial, planting whole potatoes can hardly fail to result in direct injury. Some potatoes have more eyes, some less, but the average is anywhere from six to a dozen. Were all these to grow and thrive, it would of itself effectually demolish the "whole" planting theory; for that number of plants or shoots, all drawing nourishment from so limited and circumscribed a space, would literally starve and the expected crop prove a failure.

There can be little room for doubt but that sound healthy potatoes, when properly cut into pieces and planted, will yield the best results. That being done, other most essential factors step into the foreground, and control the size of the crop, and its quality. The soil must be rich, light and productive; thorough and constant cultivation must be practiced, and when all this has been done, one thing more remains to do, and unless that is done in season, and effectually, neither rich soil, careful cultivation, whole potatoes, or anything else will bring good results—you must exercise eternal vigilance against the assaults of the Colorado beetle, for at that price the potato crop must now be purchased.—*F. R. D., Lancaster, Pa.*

ESSAY *

The year just closed ended the first century since the independence of the country, and the second, since the first settlers landed on the banks of the Delaware, for the purpose of making this State their home.

They found the valleys of Eastern Pennsylvania wooded, and the hills clear of timber. These they called barren, and considered them unfit for cultivation.

Their rude houses were built by springs and running streams, everywhere found in abundance, and the work of opening farms in the wooded timber commenced.

Those who have no experience in clearing land for cultivation, have but little idea of the labor required. But the early settlers had been inured to toil, and year after year saw the timber disappear and fresh acres of the virgin soil added to their farms, to take the place of those that had become exhausted by continued cropping. During this time the old Indian custom of hunting the scanty vegetation on the hills had been discontinued, and they had grown up with a vigorous growth of young timber: and when the century closed the order was reversed. The valleys were cleared and the hills were wooded.

At the opening of the second century there were causes operating to, in a measure, change the habits of the people, which led to some improvement in their agriculture. Many of the first settlers, in all our new States, have been nomadic in character, and those of the old were no exception to this rule. From 1725 to the close of the century, Virginia and North Carolina furnished an outlet to the wanderers from this State. When the lands in those States were occupied, their attention was turned to the Northwest Territory; but the Indians had become jealous of the encroachments of the pale-faces, and disposed to dispute their right to extend their settlements.

This, for a time, checked emigration, and turned the attention of the people to the improvement of their buildings and the land already occupied and under cultivation.

In making these improvements, the people for the first time discovered their mistake in destroying their best timber. To remedy their error the land covered by the growing timber on the hills was taken up and added to their farms, and from this time till the introduction of coal, the timber was carefully preserved. After the introduction of coal a large portion of the remaining timber land was cleared and brought under cultivation. How far this action was wise, this and future generations will have to settle. Independent of the questions of rain fall and the failure of springs now being discussed, there are others that in the end may prove of greater importance: Timber belts for screens or wind brakes, their influence in regulating the temperature of our climate, and their effect on the cultivation of fruit. Their attention was also directed to the use of water for the purposes of irrigation. They had depended on the grass growing on the meadow land, for hay and pasture. To enlarge the area and increase the supply, ditches were made to convey the water from a higher level, and the marks indicating the lines of those old ditches still remaining on our farms, attest the industry and perseverance of our ancestors to accomplish their purpose. Farms with water rights for purposes of irrigation were in demand at a premium, while those without were a drug in the market. In 1798 cloverseed was introduced and sown in this section of the State.

Greeley's saying, "that the man who makes two blades of grow where one grew before, is a public benefactor" if true, would entitle the man who first introduced cloverseed in a tenfold sense, to this appellation. At the time of its introduction the farm land had gradually deteriorated. The cultivation of many acres that had once been fertile and productive, had been abandoned. The growing of this plant, and the practice commenced near the same time, of using lime, made the turning point in our agriculture. Clover, in connection with timothy, grew so well on our uplands that they took the place of the meadow grass for hay, and the ditches that were dug with so much labor and expense, were in a few years abandoned.

After the defeat of the Indians in 1794, the Northwest Territory was open for settlement; the Government offering inducements, not only to our own citizens, but also to those of Europe, to occupy the land at a nominal price.

The population rapidly increased, and the surplus products harvested from the fertile soil of the Mississippi Valley waited for the means of transportation to a distant market.

The eastern cities saw the importance of this trade, and their capital and energies were directed to secure it. But the distance was great. The ways and means of overcoming the difficulties to be encountered were not yet devised.

In those days civilization and settlement were in advance of the means of transportation. In the meantime the now crude products of the vegetable kingdom walked to our eastern markets in the shape of cattle and swine, and for the first time we had a competitor from a distance in our markets for those products. I need not enumerate the different enterprises contemplated by our commercial cities of the east to control and direct the course of the internal commerce

* Read before the "Lancaster County Agricultural and Horticultural Society," March 26, 1877, by Levi Pownall.

between the States. How eastern and foreign capital was largely expended. How a canal leading to the lakes, and railroads over the mountains were constructed. How, when extended and completed to all portions of the west, the rival lines carried western products for less than cost of transportation, and made up the deficiency on their eastern traffic. How farmers in the eastern section of the State had to change their farming operations to meet the altered circumstances under which those improvements in transportation had place them.

These are matters of history, and for us to examine and see if we, as eastern farmers, have been the gainers or losers by our public improvements.

Looking from the standpoint of an old-time farmer, when all the profits of the farm were derived from the sale of beef and grain, we would constantly be the losers. But, looking from another standpoint, we may be able to see some compensating features.

The construction of lines leading to the coal regions of the State; the organization of companies to develop the other mineral resources and of our various manufacturing interests—made possible by cheap coal—and whose extensive works now line all our highways of public improvements—paying into our State Treasury a sufficient amount in taxes to relieve our farmers from State taxation.

The increased trade brought to our cities—causing a rapid increase in population and making the last twenty years an era of city building, east and west—creating a market for perishable articles and dairy products.

In the southern part of the county we have found our compensation in the increased demand for the products of the dairy. A few years ago raising grain and feeding cattle were the rule with farmers, and the dairy interest was of small importance. It has now grown to be the main reliance to make both ends meet at the end of the year.

Here, in the northern part of the county, growing tobacco appears to be the paying business. Either dairying or raising tobacco will prove more exhausting to the soil than the old system of grain raising and feeding cattle; and in making the change we should be careful that we bring no discredit to the reputation our county has gained of being the "Garden County of the State."

We have now entered the third century of our history. In taking a review of the past, we cannot claim that the agriculture of our country has been a success. It is true, we have always had a surplus of agricultural products to export, but this has been accomplished by bringing new land under cultivation, not by increasing the productive power of that already occupied. Our statistics show that the average yield per acre of the different grains raised, has decreased in nearly all the States. The reason for this decline, I think, can be traced to the natural fertility of the soil, and the abundance of unoccupied land that could be obtained at a mere nominal cost; and those causes have been operating to the injury of our agriculture, all through our history. The policy of the Government of holding out inducements for the settlement of new territory, has been an injury to the older States, and no advantage to the new.

As remarked, many of the first settlers of a State are nomadic in character. This class make no permanent improvements and leave the land less productive than they found it. They rob the soil of the elements of its fertility and making no return, move on, finding fresh fields to repeat the same process. You can trace their progress through the States like a tidal wave from the east to the west—impairing the productive power of the country to an extent that will require years of careful tillage to restore. They committed the wrong through ignorance of the truth that the products of the soil are the basis of our national wealth, and the foundations of our mutual advancement. By impairing its productive power they were striking a blow at their country's prosperity.

HOW MUCH LIME TO THE ACRE.*

The practice of liming land has been pursued for many years in Lancaster county, and the question is, did we apply it in a scientific manner or not? The question also arises, whether the fertility of this section of the State is owing to this practice.

Farmers are not all agreed as to the way in which lime acts on the soil. Some argue that it is a direct fertilizer, while others contend that its fertilizing qualities depend on its chemical action on the soil.

If the first argument is correct, we may attribute the present generally rich condition of our fields to the free use of lime.

However, agricultural chemists are not agreed as to the manner in which lime acts. Some have claimed that as lime is found in the ashes of most crops, it is one of the essential constituents and must therefore be found in the soil naturally, or applied, in order to supply the proper elements to the plants.

But does this explain its action? A single illustration will give a conclusive argument on this point. The neighborhood where we were brought up, though a diluvial, or loam soil on the surface, rests on limestone rocks which often protrude through the surface. The well and spring water is so saturated with lime as to yield a thick coat of it in the tea kettle in a brief time. Yet lime applied in the usual way seemed to benefit that soil as much, if not more, than clay or slate land. On this point we also wish to add, that chemists tell us that in analyses of samples of water from different localities and qualities of soils they found lime enough to supply the wants of any crop, in every one of them.

With these and other facts in view, we rather favor the doctrine that the chief utility of calcined lime is in its action as an alkaline re-agent to neutralize the acidity of the soil and to decompose organic or vegetable substances and tit them for food for growing plants.

Those who are familiar with chemistry will remember the fact that a compound is more readily decomposed if there is a substance present which has a strong affinity for one of the elements liberated. Thus all vegetable substances in rotting produce a considerable amount of carbonic acid, and this has a strong affinity for lime. Hence the presence of lime in a soil hastens the destruction of dead grass, roots, manure, etc., and sets the elements at liberty to act in direct or indirect nourishment to the growing crops.

May not lime also extract ammonia from the atmosphere? We think it does, for its sulphate (gypsum) does so in a remarkable degree.

With the above theory of the action as an alkaline reagent we may conclude, viz.:

That on new soils where there is an abundance of vegetable matter, and some sourness, an application of lime will hasten the preparation of the natural manure, and should not be applied in greater quantities than 15 to 30 bushels per acre, but every year.

On dry, sandy soils lime is beneficial in retaining the moisture by compacting the soil. In this case lime acts mechanically by cementing the soil.

On heavy clay soils lime is often beneficial in the same way, but care is necessary not to apply it largely, as it sometimes cements the clay and is deleterious.

The best form of application is in a freshly slaked state, in the *finest condition possible*, and immediately stir it with the soil. The farmers in our section of the county (Manor township) have a practice of hauling their lime on large heaps of from 50 to 200 bushels, during the winter. This we do not favor as a general thing for the following reason:

If the spring is wet it will be apt to drown and in this condition it benefits the land very little as it can not be mixed as intimately with the soil, as it is lumpy; covering the heaps after they are slaked with straw or boards will be better.

*Read before the Lancaster County Agricultural and Horticultural Society, March 2d, 1877, by E. K. Hershey.

We have always marked out land after it is plowed in the spring, in squares of six steps and put one-half bushel on the intersection, and as soon as slacked, spread and mixed with the soil immediately, with good results.

As per quantity per acre soil must be taken into consideration, some soils taking more than others, but we are inclined to believe too much is applied at a time and not often enough. One hundred bushels applied on a light soil may decompose all the vegetable matter in it, and be used the first year and render it sterile, while a less quantity might just decompose enough to benefit the first crop and the roots, leaves, &c., of this crop may benefit a succeeding crop. We do not favor plowing it down, as lime, as every observant man knows, has a tendency to sink. It should always, in our opinion, be applied as a top dressing.

And now a word to the farmers of Lancaster county: There is large room for experiment in regard to this lime question, and I hope you will not let the matter rest, but try it on your land in every possible way—twenty-five, fifty, seventy-five, one hundred, and even one hundred and twenty-five bushels to the acre, and determine which is best; also, before and after planting a crop, plowed down or top dressed, and let each one make a record and bring it before the society, and then we may arrive at more definite conclusions.

[The same inadvertence which delayed the publication of the President's annual address, has been instrumental in withholding this paper from our March number, namely, it was closed up between the lids of the Secretary's records. We would suggest that hereafter Essayists keep their papers in their own possession, after they have been read, and hand them directly over to the editor of THE FARMER. If it is desired to publish a synopsis of them in the body of the proceedings, Reporters can obtain that privilege from him. We have no desire to enjoy a monopoly of these things, but we do desire to obviate unnecessary inadvertence, indifference, delay or neglect, wherever and whenever we can.—*Ed.*

For THE LANCASTER FARMER.

SAP, ETC.—PLANT LIFE AND MOLECULAR FORCE.

What a wonderful labyrinth we find in seeking knowledge through what is termed scientific investigations. The things we learned at one time or period of our lives we have to unlearn; as subsequent enquiries have brought new facts to light, the old theories would no longer explain the phenomena, and new ones had to be devised, only to give place to modification and changes as other investigators made new discoveries. The trouble is, men see in part, as through a glass, darkly, then jump at conclusions, and advance their theories, and being an F. R. S. or M. D., or the like, of course minor lights must reflect the brilliancy of these luminaries, and land them for their effulgence. It is nevertheless true the varied experiments lead to new discovery and new truths are brought to light and made available, although the theories founded are often delusive and too hastily arrived at.

I am led to those reflections on reading an abstract of a paper read by Mr. Andrew Murray at the last meeting of the Scientific Committee of the Royal Horticultural Society, in which he combats the theory of a descending current of sap at any period or under any circumstances. He maintained that absolutely no proof whatever has hitherto been adduced of a descent of sap, nor would he admit of an assimilating process in the leaves and a transference of food thus prepared to where growth is taking place, or where under certain conditions growth would take place. His views are based upon the experiments of Herbert Spencer (Linnean Society's Transactions, vol. xxv.) and since repeated and extended by Prof. W. R. McNab. It is essentially declared that the ascending sap deposits the wood as it rises, and the surplus water is evaporated through the leaves into the air, Now refer to "Gray's school and field book of Bot-

any, 1870," page 168, section 485. Of the sap he says: "Although contained in cells with closed walls, nevertheless the fluids taken in by the roots are carried up through the stem to the leaves even of the topmost bough of the tallest tree. And the sap, after its assimilation by the leaves, is carried down in the bark of the cambium-layer, and distributed throughout the plant, or else is conveyed to the points where growth is taking place, or is accumulated in roots, stems, or wherever a deposit is being stored up for future use." This is what Messrs. Murray, McNab and Spencer flatly contradict. Dr. Gray's theory is the one accepted by all the most eminent vegetable physiologists, and yet it cannot be denied that there exists a difference of opinion as to the functions of the tubular vessels, which permeate vegetable tissue, from the tip of the roots to the petals and pistils. Some affirm that they contain air, others fluids, other gases, etc. I find that Herbert Spencer has shown that these vessels are not only charged at certain seasons of the year with fluid, but that they are intimately connected with the formation of wood; and from experiments with colored fluids capable of entering the tissues without impairing vitality, not only in cuttings of plants, but in individuals in which the roots were uninjured, that the sap not only ascends by the vascular tissue, but that the same tissue acts in its turn as absorbents, returning and distributing the sap which has been modified in the leaves. This view of Spencer certainly gives no foundation for the broad assumption of Mr. Murray. That the tissue acts some important part is clear from the constancy with which it is produced at a very early stage in adventitious buds, establishing a connection between the tissue of the old and new parts. According to M. De Monchy, "Comptes Rendus," March, 1868, the sap of vegetables contains large numbers of granules having an oscillating motion, called by botanists "movable globules." The same granules have been noticed in the pollen-bearing utricles, in the liquids of insects, especially in the eggs and larvæ of lepidoptera, and in the posterior part of the body of spiders, also in the pigment layer of the choroid coat of the eye. His experiments there detailed, show that these oscillating granules, from all the above sources, are organisms acting powerfully, like ferments, on the matters with which they are naturally in contact. They act on cane-sugar, starch, and gelatine as ferments, transforming them more or less quckly and completely into glucose.

The function of these granules is to assist the ripening of fruits, and in both the animal and vegetable kingdom to elaborate certain matters for the nourishment of germs and the incessant regeneration of organs. Leydig says: "We may state absolutely that what we call 'elements of formation,' are preceded by a series of creations." These experiments are important, and the results furnish much desirable materials for the study of cellular physiology.

Much is said about 'Molecular force.' Prof. Tyndall in his address on the subject before the Physical Section of the British Association, says many good things, and some rather equivocal,—when he says, comparing a grain of corn with a crystal—"the architecture of the grain resembles, in some degree, the architecture of the crystal. In the corn the molecules are also set in definite positions, from which they act upon light. But what has built together the molecules of the corn? I have said," he continues, "regarding crystalline architecture that you may, if you please, consider the atoms and molecules to be placed in position by a power external to themselves. The same hypothesis is open to you now. But if, in the case of crystals, you have rejected this notion of an external architect, you are bound to reject it now, and to conclude that the molecules of the corn are self-posited by the forces with which they act upon each other," adding—"It would be poor philosophy to invoke an external agent in the one case, and to reject it in the other." We would infer, from his notion, that there is no architect or creator wanted in any department of nature, that, like the school-boy's excuse for whistling, saying it "whistled itself"—as if he had no part in it. Further on he, Mr. Tyndall, says, "Now there is nothing in this process which necessarily eludes the power of mind as we know it. An intellect the same in kind as our own would, if ONLY SUFFICIENTLY EXPANDED," (The underscoring is mine He continues) "be able to follow the whole process from beginning to end. The duly expanded mind would see the process and its consummation, an instance of the play of molecular force. It would see every molecule placed in its position by the specific attractions and repulsions exerted between it and other molecules." * * * "A *necessity* rules here similar to that which rules the planets in their circuits round the sun."

But Mr. Tyndall continues: "But I must go still further, and affirm that in the eye of science the animal body is just as much the product of molecular force as the stalk and ear of corn, or the crystal of salt or sugar. Many of the parts are obviously mechanical." Well, if *many* of the parts are, what of the *other* parts that are not mechanical?—he refers to Trevethyck's walking engine, that derives motion, like the animal from its food, from the fuel in the furnace of the engine—declaring, "As regards matter, the animal body creates nothing; as regards force, it creates nothing," and yet man, plants, etc., grow and live.

Prof. Tyndall actually says: "I think the materialist will be able finally to maintain this position against all attacks; but I do not think, as the human mind is at present constituted, that he can pass beyond it. I do not think he is entitled to say that his molecular groupings and his molecular motions explain everything. *In reality it explains nothing.*" Just the conclusion we had arrived at. Finally he sums up the matter thus: "The utmost he can affirm is the association of two classes of phenomena, of whose real bond of union he is in absolute ignorance. The problem of the connection of body and soul is as insoluble in its modern form as it was in the pre-scientific ages." Just so. But what is a molecule? in a chemical sense, it means the smallest quantity of an element or of a compound that can exist in the free state, perhaps a single atom; for instance ammonia (N. Hs.) is, chemically considered, both a molecule and an atom; but the molecule of elements is said to consist of two atoms. Now what is an atom? The definition is: "A part so small as not to be divisible;" that is, if you can conceive that there is an upside or a downside, it must be divisible, and not an atom. This Atomic and Molecular force theory is as vague as that of the monadic theory of Leibnitz and his school. A monad (nomosa unit) is explained as "a simple substance which has no parts; a compound substance is an aggregate of simple substances, or of monads! Monads having no parts, are neither extended, figured, nor divisible. They are the real atoms of nature; in other words, the elements of things." Every monad is a living mirror, representing the Universe, according to its particular point of view, and subject to no regular laws, as the universe itself! Every monad with a particular body makes a living substance! Such we find is the ground work of the monadic theory or systems of philosophy of Zeno, Leucippus, Democritus and Epicurus; but Leibnitz was the first who reduced it to a system.

Thus alas, we find ourselves quite incompetent to annex any precise idea to such systems of philosophy. And in spite of such profound teachers as Huxley, Tyndall, Darwin, Leibnitz, et. al., we prefer to hold on to revelation, and the inductive or inspirational intuitions of a spiritual element outside of and acting upon matter, to a purpose founded in wisdom and prompted by love, and boundless in power. This All-wise and All-powerful, we call God, who, like an independent sovereign, governs the mighty universe, as my mind, in a limited sense, governs the motion of my pen in setting forth what arises in my mind, so that my thoughts become visible. That God-given element of mind or soul uses the brain through the nerves, to operate the muscles of my arm and fingers but the brain in itself no more thinks than the eyes see apart from an indwelling, immortal element, nor does it signify whether that *element* is composed of *molecules, atoms* or *monads*, since we have as clear a conception of the one as of the other; and the spiritual in us and outside of us, when rightly understood, links us with the great first cause in a more intimate and loving relation. This is *Revelation*, if not Science. *J. Stauffer.*

CORN CULTIVATION.

Now is the time to plow and make ready for corn planting; a good many farmers plow their corn ground in the fall.

There is an argument sometimes, as to which is the best time to plow for corn. This depends a great deal upon the soil, and the season of the year. A stiff clay soil ought to be plowed in the fall, so as to have the action of the frost. The fall plowing should not be too early; if plowed so early it settles too much, by the heavy rains before winter sets in. A loose soil, such as gravel or sand, or sandy loam, is best plowed in spring. If a farmer has too much on his hands, that he can do it in time, I prefer winter plowing; but we cannot depend on that; it is very often impossible.

This last winter I visited a farmer in Lebanon county; he said he plowed no corn ground in the fall; he also said he gets more wheat, if the corn ground was plowed in the spring, than if it was plowed in the fall:—that is, he plows the sod and puts in the corn; the next year he plows the corn-stubble and puts oats in; after the oats, he puts wheat in, and he gets more wheat where he plows in the spring than where he plows in the fall. Only try it. Plow the half of the field in the fall, and the other half in the spring. Now, about the cultivation of the corn: I plant with a corn-planter that throws the dirt on both sides and makes a deep furrow, which is regulated by a wheel under the beam: the tube where the corn drops through is a foot behind the plow; some loose soil rolls into the furrow before the corn reaches the ground; then a small harrow behind to cover it. The furrow is left open a few inches deep: after planting I roll the field lengthwise, over the rows, if nice and dry; then, in about eight days, or just before it comes up, if dry enough, I harrow it with a common spike harrow once over each row; those spikes on the row only should touch the ground a little; if they run too deep, they may be raised a little. This breaks the crust, loosens the soil and destroys weeds that are germinating.

Three years ago I went out one morning with one of the boys to start him to harrow corn. While he was driving around I walked over the field and saw a good many corn plants out. When the boy came round I stopped him and said, "this wont do. There is a good deal out already, and this covers it, and smothers that which is out." The soil was very fine and loose. We took the harrow and went home. It was raining and was too wet to harrow any sooner.

But that row got ahead of the others all summer, and could be seen from a half-mile off until the whole field had the tops out. It would be well if all the farmers would experiment about those cultivations, and a good many others.—*J. G.*

AN experiment was recently made in Sidney, New South Wales, by way of utilizing the blood from an abattoir outside of the town. A five-acre lot adjoining the abattoir was prepared for a crop of barley, the waste blood being used instead of manure. In eight weeks the barley was four feet in height, remarkably heavy, and giving promise of an extraordinary crop.

AYRSHIRES.

Ayrshires are justly famous for their superior milking qualities. For a milk dairy no other known breed of cattle can equal them. They give the largest quantity of milk of very fine quality. For butter, while an Ayrshire will not make as much from the same quantity of milk as an Alderney, yet an Ayrshire cow giving so much more milk will make per week fully as many pounds of butter as a first-class Jersey or Guernsey. They keep in fine condition on a comparatively small amount of food. They are unsurpassed as family cows, being more than any other breed, naturally very quiet and docile. As to quantity of milk, a writer quoted by *Youatts* says: "To sum up into one sentence, I now repeat that hundreds and thousands of the best Scotch dairy cows, when they are in their best condition and well fed, yield at the rate of 2000 Scotch pints (equivalent to 1000 gallons) in one year; that in general, 7¼ to 8 pints (3¾ to 4 gallons) of their milk will yield a pound of butter, county weight (1½ pounds avoidupois); that 55 pints (27½ gallons) of their milk will produce one stone and a half (36 pounds) imperial weight of full milk-cheese."

Ayrshires have been bred in America for over forty years, and have proved well adapted to the soil and climate. On the New Jersey Agricultural College farm, the greatest yield of milk reported from one Ayrshire cow in a year was 4558 quarts, another cow of only medium excellence yielded 2957 quarts. There are numerous instances on record where the milk of an Ayrshire cow annually exceeded the entire live weight of the cow.

The following facts speak for themselves:

Daisy (No. 330), in 1870 weighed 970lb, and gave during the year 6953lb of milk.

Beauty (No. 240) the same year, weighed 955lb, and gave 8011lb of milk.

The ordinary yield of Ayrshire cows is 30 to 50lb of milk per day, but a committee under oath testified that one Ayrshire cow of a New York herd, gave 85lb of milk per day, for several days in succession.

Ayrshires are also superior for beef.

Sufficient facts have already been given to fully demonstrate that for milk all the year round none are so profitable as the thoroughbred Ayrshire; but, in order to more fully demonstrate their adaptability to this country, we quote the following trial, made during the year 1875 with a thoroughbred Ayrshire cow, belonging to the Roadside Herd of this city:

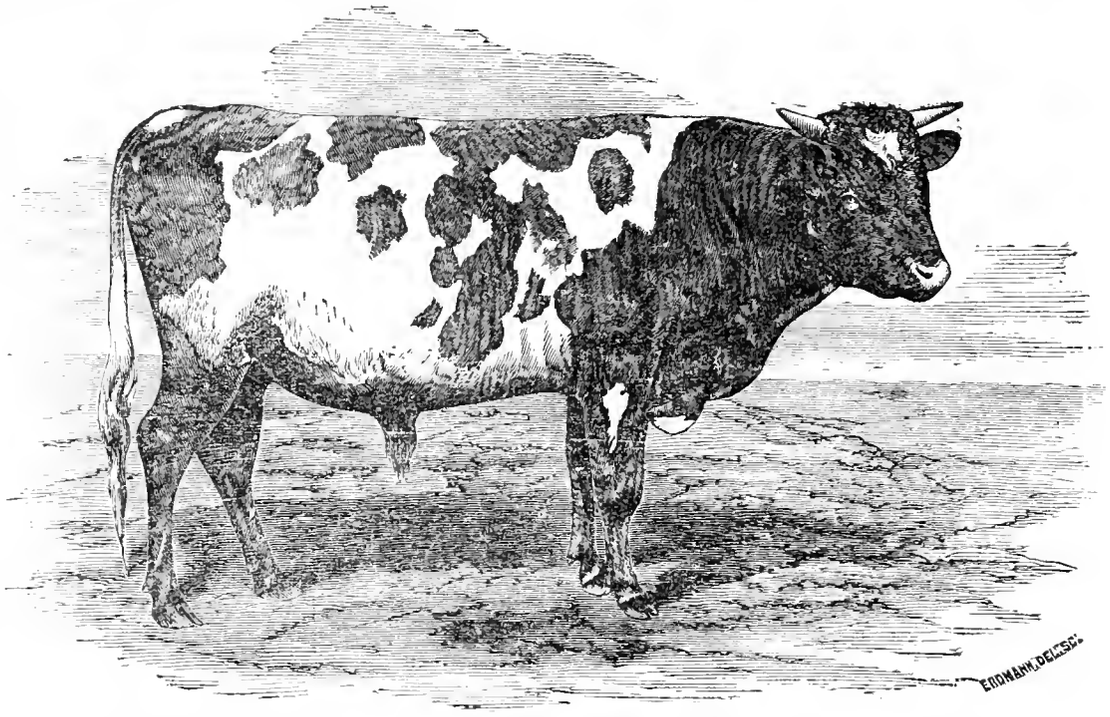
Hensie (213 N. A. A. R., Vol. 1), height, 4 ft. 10 in., weight, 830lb, girth, 5 ft. 7½ in. In the year 1875, by weight reduced to measure, gave 3600 quarts or 7745lb of milk—more than nine times her weight. Too much can scarcely be said in praise of the Ayrshires. Kindly in disposition, beautiful and attractive in appearance, they are agreeably diversified in color. "In general they have large lustrous eyes, symmetrical head, well-developed chest, deep flank, broad across the hips, bag reaching well forward, milk veins large and of handsome curvature and neck graceful, to which may be added a straight spine, whip-like tail, bushy at end, full, convex rump, and well defined milk mirror."

We give herewith illustration from life of our first prize Ayrshire Bull Casper, 4th vol. American and Canadian Herd Register. He won first in strong competition at the Burlington County, N. J., Fairs, 1875 and 1876.

In concluding our remarks on this variety we append the recognized standard of points of excellence for judging an Ayrshire Cow or Bull:

Head,	40	Ribs,	80
Nose,	20	Rumps,	40
Eye,	20	Tail,	10
Ear,	40	Legs,	30
Horns,	20	Udder,	120
Neck,	40	Handling,	60
Shoulder,	60	Hair,	40
Chest,	120	Color,	10
Crops,	40	Carriagr,	10
Brisket,	40	Quality,	10
Back,	80		
Pelvis,	40		1000
Quarters,	60		

Now is the latest time to destroy the cocoons of the "Drop-worm," hanging on the naked branches of the trees, in a few days it will be too late.



YOUNG AYRSHIRE BULL, CASPER. Owned by Benson & Burpee, Philadelphia, Pa.

GARDENING FOR FARMERS.

Paper by J. S. Harris, of La Crescent at Meeting of the State Agricultural Society, February 6th and 7th, 1877.

There are but few thinking farmers who will not concede that a good vegetable garden is both convenient and profitable, and it would seem that people possessing all the conveniences that they have, as regards land, and leisure to take care of a garden, would consume the largest amount of vegetable food, but the truth is that more is used in villages and cities than by the same number of land owners. Take a look among the farmers and it will be found that one-half of them have no garden at all, or, at most, only a little corner in some grain field which is over-run with weeds. Some have a place set apart for the purpose, but put off planting it until the bulk of the farm crops are put in, thereby making it too late to secure any early vegetables on those that require early planting. The reason usually given for being without one is, that they have no time to attend to it. With many the truth is that it requires a little attention, almost daily, and demands thought, patience and system in order to secure success and profit; and they would much rather attend the larger crops where the horse furnishes the muscular power, and machinery enables them to get over acres of ground in a day. It is a well established fact that a single half acre devoted to garden culture, and which may be planted and attended without encroaching very much upon the farm work, economizing odd spells while waiting for teams to feed, &c., aside from health, comfort and refinement, would annually produce more profit than four or five acres in any other crop on the farm.

Without a garden, the winter diet of a farmer must be mainly confined to bread, meat, and potatoes, or a large draught must be made upon the profits from the sale of farm crops to purchase the extras that are essential to good living. This kind of living may be tolerated in winter, but when the warm weather returns the system requires less stimulating food, and the appetite craves cooling and juicy vegetables and fruits fresh from the garden, and the stomach of the weary and hungry farmer is apt to revolt against salt pork and soggy old potatoes in the season for green peas, string beans, early potatoes, radishes, cucumbers, &c., and when company is expected how it taxes the ingenuity of the good wife to get up a passable meal. These early vegetables are luxuries within the reach of every farmer's family at a very trifling outlay of time and money, and if he must procure the support of his family from his farm, why not give them the most healthful support as long as it is the cheapest.

Location of the Garden.

The garden should be near the house, so that it may be readily accessible and and under the constant supervision of the household. House-keepers do not always have time to go to a distant corner of the farm to gather its products for the dinner, and if it is near by, a great many leisure moments may be spent in weeding and taking care of it. It should be so enclosed with hedge or fence that neither fowls or stock can enter it. It is not reasonable to expect success if cattle occasionally break in and the poultry are allowed a free range in it at all times, as their instinct leads them to the freshly moved soil for some of their most essential food. They are always ready to scratch where the gardener has formed his new beds and planted his choicest seeds. A garden is better for containing a variety of soils and if it can be so located that it will embrace high and dry soil and that which is more moist, it will be an advantage, as early vegetables need a warm and dry situation, while some that are later, as cabbage, cauliflower and celery, thrive in moister locations. For early vegetables a gentle southern slope is desirable on account of its getting the more direct rays of the sun; and if it is sheltered on the north by a hill, bluff, grove of trees, or a high close board fence, it is afforded a protection which most early vegetables will appreciate in their early stages of growth.

Soil.

It is a mistake to suppose that some specific soil is indispensable to success. Good gardens have been made on rocky hillsides, on arid sand banks, and on heavy clay soils, but neither of these are desirable, and there are very few farms in Minnesota that cannot furnish us a better. The very best soil is a sandy loam which will work easy, dry off quickly after a rain, and yet retain sufficient moisture to withstand drouth, and the soil should be brought into a high state of fertility by deep plowing and the incorporation of animal manures. If sand predominates to excess, it will be benefited by the addition of lime, ashes, clay and muck. If too stiff a clay it will become more arable by sub-soiling and the application of ashes, sand and manure. On clay soils good drainage must be secured or it will become sour and sodden, and secure but little benefit from fertilizers. Every fall after the crop is gathered in, all rubbish should be cleared off, and a liberal coat of well rotten manure spread over, and plowed under. Plow again in the spring when dry enough to work well. During the summer no weeds should be allowed to grow and mature their seeds and afford herbs for noxious insects.

We will now suppose that we have located, fenced, and manured a spot for a garden. What shall we plant in it, and how shall we manage it? I would lay off a border all around next the fence, six or eight feet wide, separate from the rest of the garden by a walk three or four feet wide, and upon this border I would make permanent plantation of fruits, etc., as follows:

First, on the north side commencing at the end nearest the dwelling, leave room for hot beds, cold frame, and early lettuce and radishes, plant a few roots of horseradish, rhubarb or pie-plant, and occupy the rest of the border with grape vines, set three feet from the fence and ten feet apart in the row, finishing out the border with an asparagus bed. East and west borders I would plant to currants and strawberries, and the south to strawberries and raspberries. Through the centre one way leading from the house I would have a road or walk six or eight feet wide, and this walk I would have bordered with shrubs and flowers, always keeping it a straight and narrow and flowery way, so inviting that it would tend to lead my children to virtue and peace, and also tempt the feet of visitors. This arrangement will leave an ample plat on each side between the borders and the walk for the raising of the supply of vegetables. These plats after each spring's plowing may be laid off according as fancy or convenience dictates, and planted with such vegetables, and in such quantities as the wants of the family may require; and always bear in mind that it is more pleasure to cultivate a tasty, well laid out garden than one where things are mixed up and hap-hazard. The essential vegetables for the farmer to grow are, string beans, Lima beans, beets, cabbage, cauliflower, celery, cucumbers, sweet corn, lettuce, radishes, early potatoes, onions, tomatoes, turnips, etc., in some of their varieties.

Hot-Beds.

It is aggravating to know that one's neighbor has radishes, lettuce, cucumbers, tomatoes, etc., before us. Market gardeners fully appreciate the importance of being the first in the market with these things, and use every available means to hasten them forward, and resort to artificial shelter and protection as afforded by hot beds, cold frames and hand glasses. But few farmers are able or willing to incur the expense and use the time that is necessary for their construction and successful management; but even a cheap and rude hot-bed, that could be watched and attended by the younger members of the family, would bring forward a supply of lettuce, cucumbers, cabbage and tomato plants several days in advance of those started in the open ground. Sashes about two and one-half by five feet are a convenient size to use for covering the bed, and they can be made by any ordinary carpenter, or purchased at a sash factory, and ought not to cost, glazed and painted, more than $1.50 each, and if housed when not in use, will last many years. Four of them will cover a bed of sufficient size to start all the plants that will be required for a half acre garden, and furnish a few messes of lettuce, besides starting a few flowers for the wife and daughters. A frame of inch-boards is required which the sash will just cover the front side to be twelve inches high and the back eighteen, to give slant for carrying off water and admit the more direct rays of the sun. The frame being ready, dig out a pit (which should always face the south) six or eight inches larger every way than the frame and about one foot deep. Fill this pit with fresh litter and manure from the horse stable, that has commenced heating and has been previously forked over, shaking it on evenly to the depth of twenty inches or two feet, tramp the whole down firmly with the feet, put on the frame and sash, and bank up the outside with coarse manure. After the heat is up, which will be in a day or two, cover the bed inside the frame at least six inches deep with good mellow soil, and after raking out the lumps put on the sash again, and in a day or two more it will be warmed through and ready to receive the seed, which should be sowed in rows about three inches apart, scattering a little lettuce seed along the lower edge of the bed where other plants would be spoiled from the shade and drip of the sash. The fermenting manure will keep the soil warm at the bottom and the sun will warm the surface, furnishing a congenial place where the seeds will come up quickly and the plants will grow strong and thrifty, and be ready to transplant by the time they could be brought up if planted in the open ground.

In this latitude about the first of April is early enough to start a hot bed. The bed will need watering whenever it begins to get dry, and the water should be applied through the fine nose of a watering pot, and should be as warm as it would get by standing in the sun during the day. The sash must be opened or taken off upon bright, clear days, and replaced at night. Keep the bed closed in cold, stormy weather, unless the bottom heat is greater than the plants will bear. About a week before the time to take the plants out for transplanting, keep the bed open night and day, to harden up the plants. If sash and glass are not available, a few days' time may be gained in raising plants, by making a bed of fine rich soil well filled with warm compost, under the shelter of a close board fence, wall or building, covering it nights and during cold storms with boards or matting. Another method which may be adopted to get plants of early tomatoes and, where hot beds are out of the question, is to sow the seed about the 20th of March, in good soil in shallow boxes, keeping them in a warm place near the stove until they come up, and then set them on a bench or table inside, and close to a south window, giving them air whenever the weather will permit, transplanting the plants about two or three inches apart into other boxes of fresh soil, before they begin to get crowded and spindling, and if when they are large enough for the garden, the weather is not favorable for planting them out, another transplanting will be found beneficial. They should be transplanted at evening, or shaded for a few hours, to allow the roots to take hold of the soil. Such plants if properly hardened off, are superior to hot-bed plants, and if carefully taken up with the soil adhering to the roots, can be transfered to the garden and scarcely feel the change.

Season or time for Planting.

Peas, onions, beets, lettuce, and radishes for the earliest crop, should be planted as early in the spring as the ground can be worked, and they will come forward faster if under the shelter of a fence or wall. The fall crop of onions will do better if sowed early and a few early potatoes should be planted as soon as the frost is out of the ground.

It is useless to plant beans, corn, cucumbers, squashes, and tomatoes in the open ground until about the first week in May, or until the ground becomes somewhat warm and dry. Cucumbers may be hastened a few days by protecting them with hand glasses or a box without top or bottom, ten or twelve inches square and six inches deep, covered with a light of glass for each hill. Cucumbers, melons, and Lima beans for early use may be started by taking quart berry boxes, filling them with soil and planting in each four or five seeds, and setting them in the hot bed, and afterwards transplanting them in the open ground, cutting the bottoms of boxes away to allow the roots to run out in search of nourishment. Carrots and parsnips do the best when planted early in May.

Beets, peas, string or snap beans, sweet corn, radishes and lettuce, should be planted at intervals of two or three weeks until the first of July.

Cabbage and cauliflower for early use may usually be transplanted as early as the plants are ready, and for late and winter use, about the 20th of June. Celery from 15th of June to 15th of July. Tomatoes from 10th of May to 20th of June. Turnips may be sown in July after peas and early potatoes.

The following according to my experience, which extends over thirty years as a market gardener, are the best varieties to grow for family use.

Beets.—Egyptian Turnip Rooted, Dewey's, Early Red and Long Blood.

Beans for snaps. Early Valentine, Black Wax, and Striped Cranberry. For shell beans.—Large White Lima, Dutch Case Knife.

Cabbage.—Early Jessie, Wakefield, Fotler's Improved Drumhead, Premium Flat Dutch, Silver-leaf Drumhead.

Carrot.—Early Horn, Improved Long Orange.

Cauliflower.—Early Dwarf, Erfurt, and Lenormand's Short Stem.

Celery.—Sandringham, Dwarf White.

Corn.—Early Minnesota, or Campbell's Sixty Days, and Stowell's Evergreen.

Cucumbers.—Early White Spine, Short Green, and Green Prolific.

Lettuce.—Early Curled Simpson, and Large India.

Musk Melons.—Green Citron, Casaba, and Yellow Canteloupe.

Water Melon.—Mountain Sweet, Phinney's Early, and Black Spanish.

Onions.—Top Sets, Extra Early Red, Large Red Wethersfield and Yellow Danvers.

Parsnips.—Student and Guernsey.

Peppers.—Sweet Mountain, Long Red Cayenne.

Peas.—Carter's First Crop, Champion of England, and Marrowfat.

Potatoes.—Extra Early Vermont and Early Rose.

Radish.—Early Short Top, Long Scarlet, and French Breakfast.

Squash.—Yellow Bush, Scallop, Boston Marrow and Hubbard or Marblehead.

Tomatoes.—Canada, Victor, Trophy and Green Gage.

Turnips.—Early Red-Top, Strap Leaf, and Yellow Scotch.

As a garden is not complete without sweet and pot herbs, sage, caraway, fennel, dill, sweet marjorum, summer savery, tanzy, and thyme will be found among the most useful.

The tools used to the best advantage in garden work are the usual plow and harrow of the farm, a bright Ames spade, a spade fork, a manure fork, steel rake, steel hoe, wheelbarrow, garden trowel and a line and ten foot pole and a few stakes.

Fruits.

If a few varieties of fruit are to have a place in the border the following are recommended as most likely to prove the best: Concord and Delaware Grapes; Red Dutch and White Grape currants; Doolittle or Seneca Black Cap and Turner's or Philadelphia Red Raspberries; Wilson's Albany, and Charles Downing Strawberries.

To insure good returns from small fruits they must be cultivated and kept free from weeds. Strawberry beds are not profitable to stand more than three years, therefore, a bed should be planted every year, and after the third year, a bed may be dug up, or plowed under each year. Spring is the safest and best time to set them. To prepare the ground for a strawberry bed it should be liberally enriched, and plowed, and harrowed, and smoothed over with a rake. Set the plants in rows two and one half feet apart and two feet in the row. No fruit should be allowed to mature on them the first season, and by fall they will mostly cover the ground. Keep a space between the rows just wide enough to step in clear of plants and allow no weeds among them. Grapes will require pruning and laying down every fall any tying up to stakes or trellis every spring and cultivation sufficient to keep grass and weeds down.

Currants appreciate cultivation, liberal manuring, and mulching, and if some of the old wood is removed occasionally to give place for new, and too many sprouts are not allowed to come from the roots, a plantation of them will last for a great number of years.

Raspberries are greatly benefited by mulching. The young canes should be pinched back about the first of July to induce them to throw out side branches, and the old canes should be removed each year after the first has all ripened, as they have fulfilled their mission, and will not live to bear again. I had intended to give detailed instructions for the growing of Asparagus, as I hold it to be a valuable article of food that can be grown with very little trouble or expense, but as the paper is already too lengthy, I will leave it for some other occasion. Respectfully,

John S. Harris.

BETTER PRICES FOR SEED LEAF.

Excepting in a few favored localities, and for a few favorite growths, growers of seed leaf tobacco express dissatisfaction with the prices that are offered, or are likely to be offered, for their crops, old and new. Between the prices which they are now receiving and those which they have been accustomed for a few years past to receive, there is in many instances a marked difference, and it is accordingly not surprising that they do not take kindly to the altered circumstances by which their profits have been and are being gradually diminished—reduced, in fact, here and there, below the point at which any profit at all enures to them. But if they have reason for dissatisfaction, so, too, have dealers in that variety of leaf. With them, as with the growers retrospection conjures up other than delightful emotions, for they also have tasted and are tasting the bitterness of declining profits, the draught being made all the more unpalatable by the many losses which they have patiently endured.

Seed leaf, like all other kinds of tobacco, and all other commodities, has declined in value in conformity with a general law of trade which is tending toward an adjustment of prices upon a legitimate basis. Fictitious values are yielding to the necessities of the times and the logic of events, and tobacco growers, tobacco dealers and tobacco buyers have to accept for the time being the inevitable as they find it. In the existing condition of business it is vain for growers to expect the prices for their tobacco that were formerly paid, for though the demand is unabated, other circumstances combine to render their payment impracticable and impossible. These circumstances might be enumerated here in detail, but it is unnecessary to do so as they will be readily recalled by every one. Growers, however, though they can not wholly recover the past, yet have it in their power to materially increase the prospective gains not only of themselves, but of dealers as well. A review of some of the statistics of the Seed leaf trade discloses the fact, as will presently be seen, that by a moderate decrease in the amount of planting, growers can exercise a very great influence upon the prices of the stock now available, and every year hereafter they may do as much if they see fit. How necessary or even desirable it may be to diminish the aggregate annual volume of tobacco we do not undertake to volunteer an opinion, and if we assumed that to do so would in all ways be better, it is not likely our assumption would be greatly regarded. So long as farmers can turn a dollar more readily by raising tobacco than by raising corn or other farm products, they will continue to produce it, despite suggestions to the contrary, whether they realize as much as they hope from it or not. This is only natural, and there can be no objection to their freedom of choice in the premises, unless, possibly, it can be clearly demonstrated that by producing less they might produce better tobacco than, on the average, is now obtained—a consummation, all will agree, much to be desired. Our purpose here is not to debate abstract propositions, but to draw conclusions from statistical data at hand, deferring to other occasions the consideration of other phases of our subject.

The estimated production of Seed leaf tobacco for the years 1871 to 1875, both years inclusive, was as follows:

1871	180,000 cases.
1872	173,000 cases.
1873	140,000 cases.
1874	80,000 cases.
1875	105,000 cases;

an annual average of 135,600 cases. The domestic consumption for 1872 to 1876, the first and last year inclusive, was:—

1872	74,785 cases
1873	80,659 cases
1874	89,140 cases
1875	71,785 cases
1876	68,789 cases;

averaging 76,431 cases annually. The exports for the same period were:—

1872	96,349 cases
1873	33,617 cases
1874	81,301 cases
1875	35,015 cases
1876	51,426 cases;

showing a a yearly average of 59,541 cases. Combining the tables of domestic consumption and export, and comparing them with the production of the five years previously shown, the following remarkable result is revealed:—

1871 to 1875. Production Cases.	1872 to 1876. Consumption and Export. Cases.
180,000	168,134
173,000	114,276
140,000	170 441
80,000	106,800
105,000	120,215
678,000	679,866;

the total appropriation, it appears, having exceeded the total production for the period by 1,866 cases. The average annual appropriation for the years 1872 to 1876 seems to have been 135,973 cases, while the average annual production from 1871 to 1875, as before indicated, was 135,600 cases, an apparent deficit by an average or 373 cases per annum.

As previously observed, these figures disclose a remarkable result, and might very well tend to reconcile tradesmen to the surplus volume of stock usually deemed a dead weight—carried to each January inventory. As compared with the period from 1866 to 1870—five years—the production of Seed leaf increased in the five years beginning with 1871 and ending with 1875, one hundred and thirteen per cent. plus; and during the same two periods the increase in the exports of the same material was one hundred and twelve per ceunt. plus. That there was a still greater increase within those ten years, as divided, in the domestic consumption of Seed leaf tobacco no one familiar with the matter will doubt.

It follows from all that has been shown that our own and the rest of the world's needs of this tobacco keep pace, and are likely to keep pace, if good and reasonable in price, with our capacity to produce it even if we extend the area of its growth. The available home supply, old and new, on hand on January 1 was estimated at 190,000 cases, and if to this estimate we apply the average annual requirement as above deduced, namely, 135,973 cases, it will be seen that the apparent surplus stock for the calander year is 54,027 cases. On this surplus, and this alone, the influence of growers can be impressed, and as they elect to plant, so will be the degree of the influence imparted by them. The New England States are believed to have produced in 1876 about 30,000 cases, Pennsylvania 40,000, New York 15,000, Ohio 35,000, Wisconsin and other States 20,000; total 140,000. In 1875 they respectively produced: New England 40,000 cases, Pennsylvania 30,000, New York 10,000, Ohio 15,000, Wisconsin and other States 10,000; total 105,000; and if in 1877 the production should be made equal to that of 1875 the existing surplus would be practically reduced thereby to 19,000 cases above actual necessities. Prices, it will thus be perceived, are entirely at growers' option if they can agree to avail themselves of their privilege. But they can not, and this probably is well. As a rule, it will pay them best in the end to raise all the tobacco they can so long as it is of desirable quality, remembering meanwhile, that though appropriation follows, as seen above, closely upon production, what we do not use at home *must* go abroad, and to get it abroad buyers must have to be allowed the option. Assuming our figures as here collated to be approximately correct, the strong position of the Seed leaf interest everywhere at this moment is made strikingly manifest.

THE LANCASTER TOBACCO CROP.

Names of the Principal Buyers.

The Lancaster correspondent of the *U. S. Tobacco Journal*, a gossipy and decidedly long-winded fellow, writes a rattling letter of three and a-half columns, to that journal, wherein he tells all that he has seen, heard tell of, or imagined during his visit to our inland city. We make room for the following extracts from his letter:

A great many of the transient tobacco buyers are quartered in the Cadwell house, Stevens house and Franke's hotel. Especially the latter is crowded with tobacco operators. Before the first glimmer of the day appears, the tobacco buyers are up and hurriedly take their breakfast, after which their driver with a horse and buggy whirl them away into the country—a hunt for the almighty dollar. Some stay away for several days, but as a rule they return to the hotel when nightfall comes.

The reporter of the *United States Tobacco Journal* visited several of the tobacco raisers, and the warehouses of most of the local as well as the transient tobacco packers in Lancaster. These packers are all happy, no care, no fear of ultimate unprofitable result is expressed by their language, action or look. And why should they?

The tobacco has not been bought at such extremely high figures; the tobacco in general is fine, silky, spongy, without any white or heavy veins; no frost or poleburn is perceptible in the leaves, the burning is excellent and when in bulk, it is easily heated, an undeceiving sign of early and successful fermentation. With the exeeption of a portion of the '76 Connecticut crop there are hardly any competitors to the new Pennsylvania in the market; the stock of old and useful tobaccos in the markets of the United States is small; business and consumption, even if it does not increase, will certainly not decrease. The quantity of this new Pennsylvania crop does not exceed 40,000 cases; from 8,000 to 10,000 of these will go to the Pacific coast and New Orleans without touching and therefore influencing other markets.

A few thousand cases will certainly be sold for export; therefore the deluge of Pennsylvania tobacco, so much talked about early in the season, will be but a light shower—just sufficient to make business in this article grow. Of the 40,000 cases raised, over 20,000 are already sold.

Lancaster county is the most popular tobacco raising district in Pennsylvania. Bucks county also produces a very desirable plant, but the great central point for tobacco packers to congregate is Lancaster city. A stately old place, with a mass of two-story red brick buildings with marble steps and marble trimmings, so characteristic with most Pennsylvania towns. In the business portion of the place are many elegant stores and imposing warehouses; an air of solid wealth hovers over the town, and the flush of health, prosperity and contentment is depicted in almost every face.

In her most happy days Hartford, Conn., has not seen such an astonishingly large number of transient tobacco buyers assembled at one time as Lancaster counts within her walls at present. New York city, though, has contributed the largest quantum, as will be seen in the list of firms below:

NEW YORK.

Fatman & Co., represented by Mr. Strasser.
Emanuel Hoffman & Son, by Mr. J. Hoffman.
H. Shubart & Co., by Mr. Aaron Shubart and Mr. Friedman.
N. Lachenbruch & Bros., by M. and N. Laehenbruch.
Chas. F. Tag & Son, by Mr. S. Moore, jr.
Kerbs & Spiess, by Mr. Spiess, Mr. Meyer and Mr. Reblas.
Rosenwald Bros., by Mr. Sig. Rosenwald and Mr. Schultze.
Havemeyer & Vigelius, by Mr. Levy and Mr. Rohrer.
Hirshhorn & Co., by Mr. Feldman.
Gerschel Bros., by Mr. M. Gerschel.
A. S. Rosenbaum & Co., by Mr. Rosenmeyer.
Jos. Mayer's Sons, by Mr. M. Davis.
Lemon & Ottenberg, by Mr. Ottenberg.
Schroeber & Bonbon, by Mr. Hilke.
E. & L. Wertheimer (New York and San Francisco), by Mr. Frank Baer.
M. H. Levin, by Mr. Cahn and Mr. Lederman.
Arckenburg & Co., by Mr. Conklin.
N. Spitzner, by Mr. Charles Schuberth.
Strohn & Reitzenstein, by Mr. Reitzenstein.
Bunzel & Dormitzer, by Messrs. Fridy and Mosser.
S. Rossin, by Mr. Altshul.
Levy & Newgrass, by W. G. Sehinder.
Mr. Ruppel.

PHILADELPHIA.

Teller Bros. by Messrs. R. and D. and L. Teller.
L. Bamberger by Mr. McCloughlin.
Moore & Hay by Mr. J. De Haven.
Samuel Moore, jr.
N. Sterner.
J. Mayer.

BALTIMORE.

Becker Brothers, represented by special buyers.
Barker & Waggner, by Mr. Waggner.
Parlett & Co., by Mr. Owens.

NEW ORLEANS.

Hernsheim & Co., by Mr. Fink.

ST. LOUIS.

Mr. Benson.

CHICAGO.

Rothschild, Sehroeder & Elliel, by Mr. Rothsehild.

POTTSVILLE.

Mr. Wetzel.

SAN FRANCISCO.

E. & L. Werthheimer by Mr. Frank Baer.

Esberg, Bachman & Co. by Mr. Ehrman and J. Shirk.

Falkenstein & Co. [also N. Y.] by Mr. Falkenstein.

Schoenfeld Bros. by Mr. Altshul.

A. S. Rosenbaum & Co. [also N. Y.] by Mr. Rosenmayer.

PITTSBURG, PA.

Pretzfedler & Bros., represented by various parties.

LOCAL FIRMS.

Skiles & Frey, Frey & Weidler, and various small operators.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The regular stated meeting of the Agricultural and Horticultural Society was held on Monday, March 26, at the Athenæum room, the President, Calvin Cooper, in the chair.

The following members were present: Messrs. Calvin Cooper, H. M. Engle, M. D. Kendig, Casper Hiller, Levi Pownall, John Huber, Levi W. Groff, Levi S. Reist, Simon P. Eby, Ephraim Hoover, Israel L. Landis, Peter S. Reist, Prof. S. S. Rathvon, Johnson Miller, John M. Stehman, Wm. McComsey, Peter Hiller, David G. Swartz, L. C. Lyte.

In the absence of the Secretary, M. D. Kendig was called to the chair; the reading of the minutes were dispensed with.

Crop Reports.

LEVI POWNALL, of Sadsbury, reported grain improving, and that it looks very good. Prospects good. Clover and timothy not so good, but hopes for a good crop.

CASPER HILLER, of Conestoga, said crops was about the same as in the above neighborhood. Mr. Engle said that the crops in his vicinity were also about the same. Nothing important to report.

LEVI S. REIST, of Manheim township: Late wheat looks better than that early sown.

JOHNSON MILLER, of Warwick, reported the condition of crops as pretty fair. The late sowing looked the best. This was the case last fall, when the wheat was attacked by the Hessian Fly. His fields have a poor appearance this spring. Grass fields look remarkably well, although in some cases it has been frozen. Clover is better than last year. The old crops are generally all sold. More tobacco will be raised this year than last. He recommended the rolling of grass and wheat fields. Fruit, such as apples, peaches, and some smaller fruits he thought were injured by the intense cold of the winter.

LEVI POWNALL read an essay on the

"Agriculture of the Country."

The essay was a very interesting one and was a general review of the Agricultural history of the country. He first gave an account of the early settlers and the hardships they endured in clearing lands and emigrating, which was followed with an account of the first experiments of irrigation and the raising of timothy and clover, the timothy being principally grown on the uplands. The effects of commercial enterprise was commented upon. In those early days the chief sources of profit to the farmer were derived from the sale of beef and grain. The dairy interests was then of small importance, but now it is a source of great income in the southern sections of this county. In this district the raising of grain and the feeding of cattle are now the main reliance to make both ends meet. In the northern districts, tobacco seems to be the paying product. These two systems were regarded by the essayist as more exhausting to the soil, than the old system of raising wheat and feeding cattle. In making this sudden change, great care should be taken, for our reputation may not always be known as the garden spot of the country. In reviewing the past, the agriculture of our country cannot be claimed as a success. The reason we have always a surplus of agricultural products, was because new land was always being brought into cultivation, and not by the increased cultivation of that already cultivated. Statistics showed that the average yield of different grains raised has decreased in nearly all the States. The policy of the government of holding out inducements for the settlement of new territory, was attributed as an injury to the older States and a benefit to the new. The essayist closed by advocating that an earnest feeling should be taken in the restoration of our lands, and that it could only be done by careful tillage.

A vote of thanks was tendered the essayist.

The essay was discussed both pro and con by Messrs. Simon P. Eby, Levi S. Reist, Casper Hiller, H. M. Engle, Israel L. Landis and others.

H. M. ENGLE read an essay on

"Growing Potatoes."

In opening his essay, Mr. Engle read the following paragraph:

"Among the anecdotes related of Sir Walter Raleigh, (who is supposed to have introduced the potato into Ireland in 1584) is, that when his gardener at Youghall, in the county of Cork, had reared to the full maturity of "apples," the potatoes which he had received from the Knight, as a fine fruit from America, the man brought to his master one of the apples, and asked if that were the "fine fruit." Sir Walter having examined it was so dissatisfied that he ordered the weed to be rooted out. The gardener obeyed, and in rooting out the weeds found a bushel of potatoes."

In concluding the above, the essayist continued by reading the following:

Ever since Sir Walter Raleigh made a wry face over his first bite of potato, the tuber has risen in importance and its area of cultivation extended. Although originally found in South America, near the tropics, experience has proven that it is most successfully grown in the higher latitudes. From its insignificant debut as an esculent it has become one of the most important of crops, over a large extent of the earth.

In the United States the crop of 1875 was over 166,000,000 of bushels, valued at 65,000,000 of dollars; and now we are importing of the surplus crop of Ireland, a country whose citizens we helped to save from starvation some years ago, when their crop had failed. Although not of so much importance in our, as in some other countries, it is over half that of our wheat crop, in bushels. Should, therefore, the potato crop at any time fail in the United States, we would no doubt experience an ordeal similar to that which Ireland passed through in 1843. The country being so rapidly overrun with the Colorado beetle, it has made the crop a feeble one. Now for a judicious antidote, Paris green is no doubt the cheapest remedy. That the potato bug came among us to remain is evident, but the indications are now that he has enemies that will help to keep him within bounds; but will not likely exterminate him. It is therefore conclusive that the potatato can hence forth not be grown with the same labor and expense as formerly. The demand, even at the high prices, is evidence that few are willing to dispense with it altogether; consequently the importance of the crop.

It is not the object of the essayist to enter into details of planting, manuring, cultivating, varieties, &c., which the importance of the subject deserves, but more especially to point out one fundamental principle which is generally overlooked by many planters. Farmers in this section generally plant a few as early as the ground will permit, but the main crop is put out about corn-planting season, and although the early crop is almost invariably the better, the common custom has been continued withal. The Colorado Beetle, however, has caused a change which, after all, may prove him a blessing in disguise. His ravages have brought about the disposition of early planting in order to fight him more effectually. This will likely cause the main crop to be planted early, when it will grow while the soil is moist and cool, and before the greatest heat will set in.

These conditions are always more congenial to the potato, and will produce a larger crop and of better quality, than when grown in midsummer, when heat and drouth are generally greatest. Our best success, however, has been with the other extreme, viz.: to plant as late as is safe, on account of frosts. The main crop is put out from the middle of June to 15th of July, according to variety. Those requiring the longest season we plant first and vice versa. By this method the crop will mature during the cool weather of autumn, at which time the ground is generally moist. In short, it is *the* season most congenial to the growth of the potato. Some of our largest crops and of best quality have been produced by such late planting; besides they will retain their quality much later in spring than the early crops. In planting potatoes in midsummer, the seed should not be exposed to the hot sun, and must be well covered, as extreme heat and dry ground will injure the germ when covered shallow.

It is however not to be inferred that any other necessary means pertaining to potato culture should be dispensed with, but by taking advantage of the season, in connection with the best method of cultivation, we need hardly ever fail of producing a full crop of best quality. In order to prove the futility of attempting to grow a good crop of potatoes in dry, hot weather, we have only to observe where and under what conditions the best and poorest crops are grown.

For instance: In England, Ireland, Canada and our northern tier of States and Territories, this esculent is grown to its greatest perfection, while in our Southern States the crop is insignificant, as well as inferior, as a rule. It seems somewhat strange that in the country where the potato originated it is of so much less importance that in its present domain, but on the table lands of the Andes Mountains it will grow to probably as great perfection as anywhere. There is also no question in the mind of the writer, that, even in our Southern States, on the high lands, by taking advantage of the coolest part of the season it may be made a crop of much greater utility and importance than at the present. There are comparatively few in the Southern States, as well as in our section, who are aware, at how low a temperature the potato will flourish. Our experience is that tubers will grow rapidly and of best quality at a temperature a little above freezing, and that maturing in extreme heat it is impossible to obtain the most favorable results. It may therefore be easily inferred, what are the essentials to obtain the best results, and by whatever methods these may be obtained, whether by mulching, partially shading, or by taking advantage of the season, so that it has moist earth and a cool atmosphere, in connection with all other requisites, the potato crop need seldom be a failure.

The essay led to an animated discussion of the subject by several members.

MR. MCCOMSEY was glad attention had been directed to the importance of the potato crop and hoped the present tendency to increase the growth of tobacco would not engross the attention of the farmer so much as to cause him to neglect the potato. Mr. McComsey gave his experience in growing the potato, which was in brief that small seed produced small potatoes and large seed large ones. He planted early in April.

CASPER HILLER regarded late planting as dangerous. He had lost several late planted crops by wet weather setting in while the vines were growing. They grew as rapidly as hot-house plants, and when the sun shone out upon them the foliage was scorched and withered. He believed in planting early. With good seed, good ground, and a favorable season, he believed 500 bushels of potatoes might be raised per acre. He had raised by actual measure 40 bushels to one twelfth of an acre, which is 480 bushels per acre. He used large peerless potatoes for seed, so cut that only a single eye remained to each cutting. Sod ground is no doubt the best for potatoes, but farmers cannot afford to turn it down for that purpose—they must keep it for their corn. His own plan was to thoroughly manure the cornstubble in the fall; no matter how much manure is applied—so long as there's enough—plow it in the fall. In the spring plow the ground again. Plant early in furrows, not too deep, and ridge up more deeply afterwards. Cultivate carefully to exterminate weeds, and with good weather and other favoring circumstances there is no reason why a yield of 500 bushels of potatoes to the acre should not follow.

EPHRAIM HOOVER said he regarded good seed as necessary in growing potatoes as in growing wheat, corn or oats. Good seed will yield good fruit, and poor seed poor fruit. The seed should be frequently changed or procured from a different locality from that on which the potatoes are to be grown.

M. D. KENDIG said that farmers were apt to defer the cultivation of their potato fields too long. He believed in commencing to cultivate as soon as the young plants show themselves above ground, or even sooner. By this plan the grass and weeds are more easily killed and the potatoes get a better start.

Johnson Miller, secretary, having entered the room explained the cause of his absence. The train on which he came in was delayed by an accident. He was excused.

L. C. LIGHT differed with most of the speakers. He planted small potatoes for seed, being careful not to leave in them too many eyes. He had raised by this kind of seeding as much as 400 bushels to the acre. His crop had sometimes suffered by the ravages of a small insect that bored into the vines and killed them.

PROF. RATHVON explained that the insect was the potato weevil. The parent insect lays its eggs on the vine; when they hatch, the young worm eats into the centre of the stock, and works downward enervating or killing the plant. Here the worm becomes transformed and lives in the vine all winter. The best remedy to exterminate it is to burn the vines. Prof. Rathvon exhibited a specimen of the potato weevil.

P. S. REIST believed in planting potatoes early, ridging up the rows and then before the young plants come up, harrowing the ground thoroughly. This will kill the grass and weeds before the potato plant appears.

I. L. LANDIS suggested that farmers should put in a good crop of potatoes this year. They are bringing good prices and as the tobacco crop will engross much attention, those who plant potatoes will probably be well paid for them.

HENRY M. ENGLE hoped members would make careful experiments with large and small seed for potatoes. He believed in using the best, but acknowledged that results had sometimes staggered his faith.

CASPER HILLER thought a principal objection to the use of small potatoes for seed was that there were too many eyes and consequently too many sprouts. He had frequently pulled off the sprouts and from them got excellent potatoes, but not in such great quantity as from the seed.

Bills for removing the library and for freight on exhibits sent to the Centennial were presented and ordered to be paid.

"Corn culture and what are its best varieties," was postponed for discussion until next meeting.

"What is the best method of destroying the peach-

tree borer?" a question referred to Mr. H. M. Engle, was answered by that gentleman, who said that he knew of no more effective remedy than the knife. Search for the borer twice a year, spring and fall, and when found kill him. Another but not so reliable a plan, is to bank up the butt of the tree with ashes. It is important to attend to the borer during the first and second year of the tree's growth; after that they cannot seriously injure the tree.

CASPER HILLER said "an ounce of prevention is worth a pound of cure." There are two ways of preventing the borer from getting into the tree: First, tie the butt of the tree securely with paper, early in the spring, and take it off in the fall. Second, make a mixture of cow dung and lime and apply it to the tree as a paint. It soon hardens and is proof against the borer.

PETER S. REIST read an intereresting essay on the selection of seed wheat. He recommended that the best portion of the best field be selected for gathering the seed; that any stalks of rye, cheat, or other plants be removed before harvesting; that the grain be then carefully cleaned from smut and all other imperfections. It would always pay to be particular in this respect.

Messrs. Engle, McComsey and others followed in elaboration of Mr. Reist's suggestions.

LEVI W. GROFF presented a sample of the "mainstay" wheat—a new variety received from Europe. The grains are very large and plump. Mr. Groff was requested to experiment with it, and let the society know the result of his experiment.

MR. GROFF said he did not know whether it was a spring or winter wheat, but he would plant half of it in the spring and the other half in the fall to find out.

MR. ENGLE predicted it would be bearded, tall and coarse, and would not make good flour. He hoped, however, his prediction might proved untrue.

MR. LANDIS presented a small bag full of very large shell barks or hickory-nuts grown in Missouri from seed from California.

PROF. RATHVON explained that the reason the annual address of the president of the society and some other papers had not appeared in THE FARMER was because he had not received the maunscript until to-day.

LEAI S. REIST presented a fine specimen of the York imperial apple.

The following questions were proposed for discussion at next meeting:

"How can the fertility and productiveness of our farms be maintained under our present system of cropping?"

"How can we best secure farm help?"—Referred to E. Hoover.

"Is the growth of Hungarian grass for hay a desirable crop for farmers to engage in?"—Referred to Levi Pownall.

Adjourned.

Tobacco Growers' Association.

A stated meeting of the Tobacco Growers' Association was held on Monday, March 19th, in the rooms of the Athenæum.

The following members and visitors were present: Martin D. Kendig, Manor; Colin Cameron, Elizabeth; I. L. Landis, Manheim; John M. Stehman, East Hempfield; Peter S. Reist, Manheim; Levi S. Reist, Manheim; A. L. Lane, Manor; I. W. Groh, Lebanon; W. L. Hershey, Rapho; J. H. Yeager, East Lampeter; A. R. Landis, Manheim; Isaac Leaman, Upper Leacock; Samuel Bushong, Upper Leacock; Michael B. Landis, city; John Bossler, Manheim; Harry Shiffer, Manheim; Silas K. Eshleman, Paradise; Sylvester Kennedy, Salisbury; B. H. Hershey, Penn; Abraham Hostetter, Penn; A. H. Yeager, East Lampeter; H. Bomberger, Manheim; Martin Miller, Manor.

President M. D. KENDIG occupied the chair, and in the absence of the secretary, Colin Cameron acted in that capacity.

Crop reports being called for, MR. I. L. LANDIS, of Manheim, said that the greater part of the tobacco in his neighborhood had been sold at good prices. Buyers were as active as ever, but were endeavoring to reduce the figures, and in some instances they were buying lower than they did at the opening of the season, as some farmers found it necessary to realize on their crops before the first of April. Two-thirds of the crop has been sold, among it being the bulk of the first-class leaf.

MR. HERSHEY reported fifty cases sold to a local buyer in West Hempfield, at good prices.

Mr. Yeager, of West Lampeter, said nearly all the crop in his neighborhood had been bought.

MR. ESHLEMAN, of Paradise, said that not much tobacco was grown in his township, and very little of that sold. The prices asked for wrappers ranges from 18 to 20 cents.

MR. KENNEDY, of Salisbury, said there was a considerable quantity raised in his township; not one-third of which had yet been sold. Some of it is of good quality and some considerably injured by the worm. Prices have ranged from 20 cents down—some selling very cheap. He thought the reason so little of the crop had been sold was because there had been but little heretofore grown; the growers generally have not learned how to handle it and the township is distant from the tobacco centre.

MR. BEAR, of Leacock, said nearly all the tobacco in his neighborhood was sold. A good deal was raised about Enterprise. The crop was a fair one and brought fair prices—say 15 to 20 cents.

MR. JOHN M. STEHMAN, East Hempfield, offered for inspection several very fine hands of tobacco grown by E. M. Bricker, of Manheim, on a farm owned by Henry Hostetter. Mr. Bricker had sold his crop at 30 for wrappers, 20 for seconds and 5 for fillers. The samples were of Connecticut seed leaf, Chestnut seed leaf, Bastard and Florida seed leaf. The preference was given by Mr. Bricker to the Chestnut and Bastard. The Florida was only grown as an experiment. Mr. Stehman said that about two-thirds of the crop in his neighborhood was sold.

A vote of thanks was returned to Mr. Bricker for his fine specimens.

On motion of J. M. Stehman, the secretary read from *The Lancaster Farmer* an article copied from the *Intelligencer* showing that in the New York market Lancaster tobacco had the call over Connecticut.

MR. I. L. LANDIS urged growers to use the greatest possible care in growing and handling their tobacco. He had no doubt that a great deal of good Pennsylvania tobacco had been sold for Connecticut when Connecticut was considered the best; and now that Pennsylvania was in demand, western tobacco is being shipped in this State and palmed off as Pennsylvania. He knew of one large lot of Wisconsin that had been brought to this county, and he supposed it would be palmed off as Pennsylvania, to the injury of the Pennsylvania staple.

President KENDIG, of Manor, said the interest of buyers in his district had heretofore centered in fancy grades; there were a good many buyers yet in the field; about two-thirds of the crop has been sold.

MR. P. S. REIST, Manheim, said two-thirds of the crop in that township is sold; the choice lots were first bought; buyers are now picking up second quality. The farmers are considering the advantages to be obtained in raising first-class tobacco, and many of them have resolved to plant less next year, and give more attention to its growth and handling.

MR. CAMERON read a letter from Mr. C. P. Hughes, of West Chester, asking for information on the following points: "What is the average weight of dry tobacco per acre raised in Lancaster county? Do you find highly ammoniated fertilizers an advantage? If fish guano is used could it affect the taste of the tobacco? In the use of different salts of potash, is there any difference in the burning of the tobacco or in the yield?"

In answer to the first interrogatory the average yield was variously estimated at 1,200 to 1,600 pounds per acre. In answer to the second some of the members thought there was and some thought there was not much advantage in the use of highly ammoniated fertilizers. The other questions were briefly discussed but no result agreed upon.

MR. CAMERON also read a communication from Hiram E. Lutz, calling attention to a poudrette manufactured by him which he claimed to be peculiarly adapted to the growth of tobacco.

On motion of MR. P. S. REIST, Mr. Lutz and other manufacturers were requested to send samples of their fertilizers to the president of the society to have it tested.

On motion of MR. JOHNSTON, Mr. Cameron was requested to prepare answers to the questions asked by Mr Hughes, and read them before the society at the next meeting.

In further discussing the question of the best fertilizer for tobacco, pig manure, sheep manure, hen manure and horse manure were each recommended.

COLIN CAMERON read an essay on tobacco and its cultivation, of which the following contains the principal points:

Every one that has attempted to grow this plant fancies that he has learned enough from his own experience to not only govern him in all future operations, but enough to supply all the neighbors and friends from what he looks upon as an endless quantity of valuable knowledge. The less the time one has been engaged in the business the more garrulous he will be, and the local savants that on every occasion offer gratis from their store of stuff, almost invariably make him who hearkens to them repent his folly. I believe with the other essayists before me that there are certain fixed facts that it is well to ever keep in view, and that there are certain conditions of soil and plant-food necessary to the growth of a full crop, but I differ with them in regard to the manner of preparing the soil. I hold to what I consider should be a settled principle among advanced agriculturists, that no crop save grass should be made to feed directly of the manure. And I fancy that I have noticed enough in my own fields and in my neighbors' to know this to be the case; especially in tobacco. I know very well that I bring down the unfavorable judgment of a vast majority of tobacco-growers for the utterance of this statement, but I am so well convinced of its truth that I think I can well bear this judgment and wait for the future to prove its correctness. We all are aware and acknowledge that the plant in its growth is necessarily rapid, and that it absorbs from the manures something scarcely definable, that, to say the least, affects the structure if not the flavor of the plant, and these keen-eyed, tender-fingered buyers that Mr. Frantz speaks of are the first to know it. I could not dwell upon the reasons entire that cause me to come to this conclusion; they are many and long, and so interwoven that to speak of one necessarily introduces all. Nor do I consider heavy manuring in itself essential; it might be a desirable requisite, but I could not allow it to be considered any more than that. Before either plant-bed, plants or soil, I would place the farmer—a perfect tobacco farmer.

I have seen tobacco grown side by side where the soil was necessarily alike, and yet there was as much difference in the yield per acre as Mr. Frantz named in his essay. I well know that a poor farmer with good soil and plenty of manures may with the stimulus of a good growing crop get more per acre than the best farmer under unfavorable conditions; but this proves nothing, and I ask each one present, thinkers in the field of practical agricultural experiment, if we ought to sustain any statement, without qualification, that tends to bear one into any channel of thought that may break up the idea of personal responsibility.

I would like to know something more about the statement made by Mr. Frantz—of hog bristles being a superior covering for the germinating seed and growing plants. How many have thought of this, and what has been the general conclusion? Theories advanced here, or facts stated, if not investigated are only as shadows. We all well know that as a class, in the production of tobacco, we are not above mediocrity, and until the false is separated from the correct, and true principles only promulgated, can we hope to advance to a better knowledge of the wants of this plant. Many never use the bristle; some use glass; others condemn all and sow the seed and grow the plant unassisted; and each one for himself claims to have the plan whereby the best results are attained. If the after-growth of a crop depends on the manner of its first start, let us know it and the reason as well.

I would always grow tobacco on sod, fall plowed, and plowed again as often in the spring previous to planting as the weed seeds germinate and sprout. Set the plants in rows not closer than four feet apart and twenty inches apart on the row. Allow no weed to grow nor the ground to become so much settled after a rain as to even approach a state of being baked. I think I know that tobacco once retarded in its growth by the compactness of the earth never again regains its wonted rapid, but natural growth. While speaking of ground in its different conditions affecting the plant, I wish to refer to the manner of planting. I believe all will agree that there is but one correct way to set a plant; that is to place it in the ground that every root shall tend towards the bottom of the hole. I have known each alternate row of tobacco in a field to vary a very great deal, and could find no solution of the cause, except attributing it to the manner of sticking the young plant. I would insist on this mode of planting as a prime necessity; its real or imaginary effect is within the reach of all, and a few well tried and reported experiments would determine this in the minds of all.

In stripping there are several things to be considered at once; first, I should never take tobacco from the nails or lath until it could be handled in almost any manner without breakage. If it is taken down before thoroughly damp and conditioned you will lose almost beyond belief in weight; and no other process, to my knowledge, can make up for this. The leaf stripped and bulked dry will always present a dry and rough appearance, and will never have the soft, silky feel that those "tender-fingered buyers" look for. I would strip tobacco into three grades always, and would never sort the filler for seconds, but rather the wrappers, and each hand should be perfect in itself. I mean by this that it should contain leaves exactly alike in shape, size, color and condition. This is easy to do. The leaves should be pulled down in the hands till the tips are even, and bound at the butts so as to hide the unevenness. This done by the grower, saves the sprigging by the buyer and makes it worth from one to five cents more per pound. Then no one can grade as well as the grower. Having his tobacco in the shed as it grew, each kind alone, he can take it down, exercising due care, and strip it, again using an extra amount of vigilance to make it perfect. The great trouble with many parties is the desire to be done, not to be well done. A day or a week's additional care in this part of the work may add half the value to the whole crop. The stripper should know the exact condition of every leaf that goes into each hand, and those miserable shriveled, short and frizzed leaves should be thrown away; it will pay much better than to put them with any other than a lot by themselves. Once stripped, each kind should be bulked down by itself. I would prefer a cool but not over moist cellar, and should always leave the butts of the hands exposed, covering with boards and enough weight to keep it in position, and to give it something of a pressed look.

Care should be exercised to have each kind by itself. For I assure you if you put a second with the

wrapper, or a filler with the second, the "tender-fingered fellow" will pull it out certain.

After you have raised a good plant, stick it properly, grow it to maturity, harvest it without burns or bruises, take it down and assort it properly, then study to know its value, and resolve never to deal with men whose honor is as cheap as their words.

I saw in Durham, N. C., the planter hauling his tobacco into town without the shadow of a fear, well knowing that he would get its full market value. Why can we not do the same? Are all the men in the trade banded against the growers, or is our knowledge of its value so slight as to enable them to take it at will? Or is the sale of this crop a matter of chance rather than one of square business dealing?

I hope to see this organization prosper and attract to itself the best practical thinkers and growers in the county, and as we educate each other and ourselves, bring to a higher level all engaged in the same avocation.

On motion, a vote of thanks was tendered the essayist.

The several points of the essay were discussed at some length by the society. Mr. Reist said there was an old maxim that "every man should be considered a rascal till he was proved to be an honest man;" both tobacco buyers and growers had too long acted on this principle. Mr. Reist believed the maxim should be reversed, and that if growers and buyers should deal honestly and fairly with each other they would be mutually benefited.

The best mode of preparing the ground, selecting the best variety of plants, the proper mode of growing plants and other questions of interest were discussed, but nothing new was elicted, except that Mr. I. L. Landis rather jocularly suggested that tobacco plants should be grown by Gen. Pleasonton's blue glass process; to which Mr. Cameron replied that he would rather have an acre of blue *grass* sod than two acres of blue *glass* cover.

The question selected for discussion at next meeting was: "How to construct the most convenient tobacco house for curing, stripping and sorting tobacco."

Notice was given that the Lancaster County Agricultural and Horticultural Society will meet next Monday, instead of the 1st Monday in April.

On motion adjourned.

The Linnæan Society.

This society held their stated meeting on Saturday, March 31, C. A. Heinitsh in the chair; six members present. After the preliminary duties, the donations to the museum were examined, and found to consist of a very fine specimen of star fish (asterias) from the Pacific coast, California, presented to S. S. Rathvon by Mr. Kinzer, of East Walnut street, this city. This, when taken out of the water by Mr. K., while on a visit to California, was of a deep red-scarlet color. A large brown spider, found in the Adams Express wagon, supposed to have come among oysters, from "down the Bay," which were delivered—presented by Mr. J. W. M. of the Express office. It may be a species of *Dolmedes*, a stranger at least with us. "Elm-leaf beetles," found behind a fire-board in the dwelling house on the 7th of March, 1877, by Mrs. P. E. Gibbons; a queer place to hide for the *Galeruca*. A small green grasshopper, found by Mr. Engle, on the 11th of February last, curious, chiefly for being out so early. Some good-sized shellbarks, introduced originally from California; these nuts were raised in Missouri, presented by Israel L. Landis. Five fossils, collected near Paris, Edgar county, Illinois, and given by E. G. Reist, of Mount Joy: *Spirifer Terebratula*, and portions of the articulated stems of the stone lily—*Crinoideans*.

Additions to the Library.

Proceedings of the Academy of Natural Sciences of Philadelphia, Part III. October, November and December, 1876. An essay with illustrations on New South Wales, by G. H. Reid, 1876. Report of the Life Saving Service of the United States and its operations, 1875 and 1876. Copy of *Field and Forest*, February number, per C. R. Dodge. The title page, etc., to vol. x of the *Patent Office Gazette*. Pamphlets from our correspondent, Dr. W. J. Hoffman, read by him before the Philadelphia societies, viz.: Pah-ute Cremation, December, 1874. Ancient Hearths and Modern Indian Remains. List of Birds observed by him in Dakota while surgeon of the United States army. One in pure French, by M. Fernand Latasta, on "*Le tetard* Du. Bominator Igneus," about the Branchia of "Frogs and Polliwogs." Mrs. Gibbons readily translated it to English. (We, like Pat, understand French very well when spoken in English.) *The Book Exchange Monthly*. The "American Palæozooic Fossils," by S. A. Miller, about being published. The "Medical Intelligencer." List of new publications. *The Lancaster Farmer* for February and March, 1877. From our Representative, J. L. Steinmetz, esq., copy of Industrial statistics, Part III. Vol. III. Report of the Superintendent of Public Instruction. June 1876. Annual report of the Superintendent of Soldiers' Orphans of Pennsylvania, 1876. A report of State Treasurer, November, 1876. Message of Gov. John F. Hartranft, January 3, 1877. Reprints from papers published in 1776, and of later date. Six envelopes containing sixty-three historical scraps, cut out of the various papers. Several containing specimens of colonial bills and continental money—among them lottery tickets for church benefits, so common in those days.

Papers Read.

J. Stauffer read a paper—showing the divers opinions among men of science, about the sap in plants—quoting Dr. Gray's theory so flatly contradicted by Mr. Andrew Murray in a paper read at the last meeting of the Scientific Committee of the Royal Horticultural Society. He also presented a fine drawing taken grom what seemed to be a double calla, grown and given him by Ex-Mayor Zimmerman, of this city, March 15. The white spathe with its golden yellow spadix was like the common African lily, only the ordinary green leaf in this case assumed the texture and shape of the flower, close to it, so as to appear like two lilies on one stem, close together.

Mrs. Zell read a paper on certain observations in a Zonale Geranium under cultivation in the window, which manifested a change of the perfect stamens into petals; in one flower she found a single perfect stamen, and the filaments of other petaloid. This is not a very rare case; it occurs in the water lily, and other plants under cultivation, especially if inclined to become double.

Mr. S. S. Rathvon read a paper on the several donations made, in which he speaks in high praise of Mr. Kinzer, and his valuable collection of objects of Natural Science; his skill in mounting birds, &c., and his labors in this field, so little known to the general public; his collection with that of ours would form a truly valuable museum.

Mrs. Gibbons read notes and observations on the Cabbage butterfly—larvæ, and Paris green.

The following resolution was presented by S. S. Rathvon and adopted, viz:

"Resolved, That the Secretary be instructed to examine the records and see who (under the original resolutions, authorizing the same) are entitled to additional certificates of the stock of the museum, and to issue the same on the conditions named in said resolutions and report the same at the next stated meeting of the Society."

On motion the Secretary was authorized to set up a form of notice to delinquents, and have blanks printed, to fill out and distribute.

No further business offering, Society adjourned to meet on Saturday, April 28.

AGRICULTURAL.

Valuable Formulas.

Professor Stockbridge, of the Massachusetts Agricultural College, Amherst, issues the following formulas for compounding phosphates, which it might be well for Granges to paste in their book of minutes.

To produce fifty bushels of corn to the acre *more* than the natural product of the land use:

Nitrogen, 64 pounds, in the form of sulphate of ammonia;

Potash, 77 pounds, in the form of muriate of potash;

Phosphoric acid, 31 pounds, in the form of muriate of superphosphates.

To produce one ton of hay per acre *more* than the natural product of the land use:

Nitrogen, 36 pounds, in the form of sulphate of ammonia;

Potash, 31 pounds, in the form of muriate of potash;

Phosphoric acid, 12 pounds, in the form of superphosphate.

To produce 25 bushels of oats and the usual proportion of straw per acre *more* than the natural product of the soil, and in proportion for other quantities, use:

Nitrogen, 10 pounds, in the form of sulphate of ammonia;

Potash, 31 pounds, in the form of muriate of potash;

Phosphoric acid, 8 pounds, in the form of superphosphate.

To produce 1,500 pounds of dried leaf tobacco, with the usual proportion of stalk, *more* than the natural yield per acre of land, use:

Nitrogen, 119 pounds, in the form of sulphate of ammonia;

Potash, 172 pounds, in the form of sulphate of potash;

Phosphoric acid, 16 pounds, in the form of superphosphate;

Lime, 160 pounds, in the form of sulphate of lime (land plaster);

Magnesia, 38 pounds, in the form of sulphate of magnesia.

To produce 100 bushels of potatoes per acre, and their usual proportion of tops, *more* than the natural production of the land, and other quantities proportionally, use:

Nitrogen, 21 pounds, in the form of sulphate of ammonia;

Potash, 34 pounds, in the form of sulphate of potash;

Phosphoric acid, 11 pounds, in the form of superphosphate.

By the use of these formulas, upon any ordinary level lands, with a good clay subsoil, corn can be raised at about 22 cents per bushel; oats, 20 cents; potatoes, 10 cents, and tobacco about 8¢ per hundred pounds (all of superior quality), counting in the cost of farm labor.

These mixtures should be sown over the land broadcast when the ground is well prepared, before planting, and not put in the hills, so that the roots may seek the food and not concentrate and thereby cause the plants "to burn up."

Utilizing Coal Dust.

An invention has been made by Mr. G. K. Stevenson, of Valparaiso, for a furnace for burning coal dust, which is made in the shape of a retort, of fire brick, open at both ends, and provided with radical or inclined discharge channels at the upper parts. This is placed in position on the walls, and is partly charged with a quantity of wood and coal, and lighted. The apparatus by which the powdered fuel is introduced is then placed in position, and the fuel led to the furnace, after the coarse fuel is thoroughly ignited by the blast from a blower used in connection therewith. The powdered fuel is then continually introduced, care being taken to remove the ashes from beyond the mouth of the inner end of the retort, which can be done in a few minutes. The apparatus may be detached and replaced, and the operation proceeded with, without a great decrease in temperature, as the firebrick retort retains some of the heat from previous firing. The fuel is said to be completely consumed by the addition of air injected with the same into the retort, and thereby a high and uniform degree of temperature is kept up, while the fire may be instantly interrupted without the loss of large quantities of fuel, and also be started again with great rapidity, so as to facilitate the getting up of steam in boilers.

What Soil Consists of.

The bulk of all fertile soil consists of three earths, to wit: silica, alumina and lime. Unmixed with clay, sand, or other organic or inorganic substances, lime consists of the oxide of the metallic element calcium, and as it enters into the composition of all plants, it necessarily occupies a large place in Nature's laboratory. Chemistry tells us that it has an affinity for water and carbonic acid; when applied to the land it absorbs water, forming hydrate of lime; this hydrate then absorbs carbonic acid, so that lime, although applied to the land in the caustic state, really exists, shortly after its application, in the form of carbonate, along with a little sulphate and phosphate as previously mentioned. Lime has for a long time been used as a fertilizer, when land previously unworked is brought into cultivation, or when worn-out pasture land is broken up, lime is generally applied. It affects chiefly the vegetable matter contained in the soil, promoting its decomposition, and thus rendering it available as plant food.

A New Agricultural Plant.

A new agricultural plant for cattle-feeding and paper-making has been introduced to public notice by Mr. William Gorrie, Rai Lodge, Edinburg. It is a variety of a tree-mallow, "Lavatera arborea," the natural habitats of which, in Scotland, are the Bass Rock, with other islets in the Firth of Forth, and Ailsa Craig. Its ordinary heights vary from 6 to 10 feet, but it can be grown to twelve feet. It is biennial, but the first year it may be planted after the removal of any early crops and matures the following year. Chemical analysis of its seeds shows them to be equal in feeding properties to oil-cake, which is now worth in Scotland about $50 per ton, and paper-makers offered the same price for the bark that they now pay for esparto grass, which is also about $50 per ton. This shows a return of about $200 per acre, for the seed and bark, and it is expected that the excess of fibre in the latter will allow the heart wood being mixed up with it, which will add very considerably to the value of the crop.

Hints to Farmers.

A bare pasture enriches not the soil, nor fattens the animals, nor increases the wealth of the owner.

One animal well fed is of more use than two poorly kept.

The better animals can be fed, and the more comfortable they can be kept, the more profitable they are—and all farmers work for profit.

Ground once well ploughed is better than thrice poorly.

Bountiful crops are more profitable than poor ones. Make the soil rich, pulverize well and keep clean, and it will will generally be productive.

When you see the fence down, put it up. If it remains until to-morrow, the cattle get over.

What ought to be done to-day, do it—for to-morrow it might rain.

A strong horse will work all day without food; but keep him at it, and he will not last long.

HORTICULTURAL.

Florida and Its Oranges.

A correspondent of the *Tribune* thus writes to that paper in regard to Florida :

About half of the orange crop this year has been destroyed by the longest spell of cold weather ever known in Florida. The history of the orange culture shows that at long intervals the crop is cut off or injured by frost something below 30°. What other crop is not injured at shorter intervals? The trees have never been killed but once (1835.) They are not injured this year, except the young ones in exposed localities. So this cold snap need not deter those who are wishing to make an orange grove in Florida. There are places on Lake George, for instance, and other very wide openings of the river where neither orange buds, nor pineapples, nor early vegetables have been hurt.

One word more. When an orange is frozen it does not rot or show any external signs of decay, or does not, for a long time drop from the tree. It is, therefore, difficult to tell a bad one from a good one. It is likely, then, that perfectly honest packers will send a good many bad oranges to the North, or rather have done so. But money is so scarce that others will not be so honest, and will purchase bad fruit at low prices and ship them, and they will get into the hands of street venders, and all this will damage the reputation of the Florida orange, which last year won such high favor as to command about double the price of any other orange.

Transplanting Large Trees.

The London *Garden* gives the details of some experiments in the removal of trees of the Cedar of Lebanon upwards of twenty feet high, which had been prepared by root pruning the previous year. A timber wagon was backed up with a wheel on each side of the tree, the pole (tongue) placed upright, with a bundle of straw on the axle to prevent barking; ropes were passed under the ball of earth and secured it to the axle, and the stem of the tree was lashed to the upright pole, a rope at the top of which pulled the tree down in a horizontal position. The tree was then carried to its destination. A heavy mulching of leaves kept the ground moist during the heat of the summer, and it succeeded well. A better mode for removal is figured and and described on page 210 of the third volume of Rural Affairs. The removal of trees of such size is not to be recommended in this country of hot and dry summers; but if previously prepared by transplanting or cutting the roots, the tree may be made to succeed if not too large. In the cooler and more moist climate of Britain, the operation does better, but even there some of the best cultivators have learned to prefer smaller size. Sir Henry Stewart's famous park, made at once by the removal of large trees, never became luxuriant and satisfactory in growth. Loudon said he would undertake to give larger and better trees from small ones in five years, by deep trenching and good cultivation, than could be obtained in the same time by transplanting large ones.

Shipments of Apples.

About 250,000 barrels of apples raised in this country last year, were shipped to Europe. More than half went to England; 11,000 were taken to St. Petersburg. The trade will doubtless increase largely, if shippers are careful to send only the best selected specimens, which will at the same time afford the best profits. Sending goor apples there will be the very worst thing that could happen to the business, and be as bad as shipping poison to taint the whole. Those who are interested in the success of the trade should devise some way to protect themselves from such injury and imposition.

LITERARY AND PERSONAL.

To the Liberal and Patriotic Citizens of the United States of America :—The undersigned have procured a charter, granted December 22, 1876, by the Court of Common Pleas of Lancaster county, Pennsylvania, authorizing them to organize "The Robert Fulton Monumental Park Association of Lancaster County," having for its object the acquiring of a piece of ground, not less than ten acres, to improve and embellish the same, and to erect thereon a collosal statue of Robert Fulton, not only to perpetuate the world-wide fame of a distinguished American citizen in the county that gave him birth, but also as a Centennial memento of one of the world's most ingenious and beneficent inventors.

They therefore appeal to the patriotic spirit of the country for the pecuniary means to carry a laudable and most praiseworthy enterprise into effect, by gifts, bequests, subscriptions and purchases, in behalf of said Association.

Robert Fulton, from the best records extant, is said to have been born in that part of Little Britain now called Fulton Township, Lancaster county, Pennsylvania, in the year A. D. 1765, where the house in which he was born is still pointed out with local pride to the historical wayfarer; but his genius and his fame are not limited to a district, a county, a state or a nation, for it belongs to universal civilization. Although honor is due to other inventors and experimenters, yet wherever inland lake, or ocean navigation is effected by means of steam, the name and genius of Fulton is unequivocally recognized. No event that has occurred in the last half of our first century as a nation has given a greater impulse to progress throughout the civilized world, than the application of steam as a propelling power, and most especially in its relation to river and ocean navigation; and, therefore, the successful adoption of it is entitled to rank the inventor among the world's most useful and greatest benefactors.

Officers : President, Francis Shroder ; Vice President, Thomas Baumgardner ; Secretary, Charles M. Howell ; Treasurer, A. C. Kepler ; Solicitor, C. M. Hostetter, esq.

All communications should be directed to C. M. Hostetter, Lancaster, Pa.

The Poultry Yard and Market.—A practical Treatise on Gallinoculture, and description of a new process for hatching eggs and raising poultry, by means of horse manure, by Prof. A. Corbett, inventor, 1877. Published by the Orange Judd Company, No. 245 Broadway, New York. Price 50 cents.

This is a handsome letter 12 mo. volume of 100 pp., including paper covers, mechanically executed and on good paper, and embellished by a fine portrait of the author, and illustrations representing the inculcating apparatus. Neither the author, his inventions, nor his book are new things to us, and the significant fact that several gold medals and diplomas have been awarded to him, is an evidence of the merits of his invention, the perfection it has attained, and also, that he has overcome the difficulties which he encountered in the early part of his experimental career.

As an illustration of the magnitude of the poultry trade of France, a country that is content to draw large incomes from small things, we quote the following paragraph on page 23 of the work before us.

"Poultry has always been a source of revenue to the French people, as the following figures will prove: In France there are 40,000,000 hens valued at $20,000,000. One-fifth are marketed yearly for the table, bringing about $4,000,000; the annual productions of chickens 80,000,000, worth in the city markets $24,000,000, and $2,000,000 are added for the extra value of capons and fatted hens. The production of eggs is estimated at 40,000,000, making the total value of eggs, capons, chickens and hens annually sold about $80,000,000, or $2.22 to every man, woman and child in France. The eggs imported from France to England in 1874 represented a value of $1,,00,000 and from Belgium $300,000." [See p. 50, vol. 7, Lancaster Farmer, April, 1875.] Prof. A. Corbett, Office, No. 7 Warren street, Post-Office Box 5470, New York.

Twenty-seventh Annual Wholesale Catalogue of Nursery Stock, for Spring of 1877, for sale by Thos. Jackson, Portland, Maine, (formerly of Vesey street, New York.) This is a demi-octavo pamphlet of a dozen pages devoted exclusively to trees, vines and shrubbery, including Fruit Trees, Fruit Tree Stocks, Small Fruits, Grape Vines, Forest Trees, Nursery-grown Evergreens, Deciduous Trees, Weeping Trees, Hedge Plants, Shrubs, Climbing Shrubs and Roses. Also, illustrations and price lists of "Beecroft's Wheel Hoe," and his "Hand Weeder." Of course, we could not attempt to give the contents of this catalogue in detail, nor the prices of the separate articles, and therefore we would recommend our readers to send a postal card to the above address and obtain one for themselves, for they will find the varieties extensive, the prices moderate, and the terms accommodating.

The Evening at Home : A Royal 8 vo. monthly devoted to social life, morals, and instruction ; published by H. A. Mumaw, Orrville, Ohio. Terms, $1.00 a year. The March number of this publication is on our table, and in moral and material it is not inferior to the best extant, and seems to fulfill its mission as fully and as clearly as those of a high pretension. There is much in it to induce young people to remain at home, unless they are of that class who cannot be entertained, except by those things in accord with the morbid and sensational, which are deplorably on the increase in this generation.

The Young Folks Monthly : Good sound food for the mind is just as essential to its moral health and vigor as healthy for the stomach and pure air for the lungs are to the health and vigor of the body. In view of this fact it is the duty of every parent to be careful what kind of mind food his or her children are feeding upon, for impressions made in youth are lasting and can never be entirely effaced. As the twig is bent so the tree stands. If the mind is allowed to feed upon the vile "yellow back" novels and sensational publications which are having such a wide-spread circulation among our youth to-day, just so surely will the mind of the man follow the bent of the impressions acquired therefrom. There is plenty of good healthy reading to be had. We have on our table now a young folks' publication called the *Young Folks' Monthly*, published by Milton George, Chicago, Ill., which, while it is highly interesting and instructive, and is read alike by old and young, yet is of a high moral tone, always avoiding the sensational and low. Send ten cents for one month's trial and see for yourselves. The terms are only $1.00 per year, 5 copies for $4.00. Address the *Young Folks' Monthly*, Chicago, Ill. The *Farmer* and *Young Folks*, in the county, $1.75 a year, out of the county, $2.00.

Jersey Cattle.—We learn that Colin Cameron, agent for G. Dawson Coleman, has purchased the prize winning Jersey bull "Commodore Roxbury," Herd Register 1586. It is intended to use this animal in the herd of Registered Jerseys now owned by Mr. Coleman, which is a large herd, of both imported and native bred, and comprises some of the best specimens of Jersey cows in the United States. Commodore Roxbury was owned by Mr. C. B. Moore of "Glen Dale" stock-farm, and, in 1874, won eleven First Prizes, in Pennsylvania, Ohio, Maryland and Virginia. From this cross great results are anticipated. The imported horse, favorably known as Jenifer's Arabian, has also been recently purchased by Colin Cameron, and is now kept at Marietta in this county. We have seen Jenifer, and regard him as a specimen of almost matchless beauty, and, we doubt not, his mettle will correspond with his appearance. We expect to publish illustrations and pedigrees of the above two animals, in future numbers of The Farmer.

"He Holds the Fort of Heaven." We thankfully acknowledge the receipt of a complimentary copy of this piece of sheet music, published by F. W. Helmick, No. 50 West Fourth street, Cincinnati, O. It is embellished with a beautiful lithographic title page, and is intended as a tribute to the memory of the late Prof. P. P. Bliss, one of the victims of the Ashtabula disaster. The bust of Mr. Bliss is the central and most prominent figure (apparently in the early prime of life), and two angels are hovering above him bearing a crown, which they are about placing upon his head; with a number of cherubs, bearing floral wreaths, floating in the diverging rays above. The words are by Mrs. D. M. Jordan, and the music by Charlie Baker. Both the words and the music are very touching, and an appropriate tribute to a most worthy subject; and it is sad to reflect that so much excellence should have been sacrificed to

"Man's inhumanity to man."

Thanks : In addition to the names of the active canvassers of the *Farmer*, mentioned on the first page of our February number, we take pleasure in mentioning our worthy friend Levi Pownall, of Christiana. Mr. Pownall not only reaps his wheat, but he also rakes and binds, and "brings his sheaves with him," relieving us of all anxieties in relation to contingent delinquencies. There are many districts yet in Lancaster county in which we desire responsible canvassers, on the terms published in our prospectus.

We are poor yet, but that much we will engage to do at least, and hope that we may be sufficiently sustained before the incoming of 1878 to offer desirable premiums for that year, since it seems to be "the fashion."

Don't all speak at once; but still, we would like to know who will be the "next customer."

The Southern Husbandman—An Organ of the Tennessee Grangers to be published in Nashville : We have before us the initial number of the *Southern Husbandman*, published in Nashville, Tennessee, by authority of the Executive Committee of the State Grange, as the organ of the Patrons of Husbandry in Tennessee. It will appear monthly, and oftener, should the subscription and advertising patronage justify it. Each Grange, through its lecturer, will receive one copy gratuitously, and the paper will contain the reports of the Executive Committee of State Grange officers and of the National Grange, "Suggestions for the good of the Order," and all other official matters of interest to the Patrons. 75 cents a year, in advance.

George Francis Train's Paper is an eight-paged Royal-Quarto, the use of which is exceedingly doubtful, although it may fill a *vacuum* in the social circle of those who delight in the atmosphere of extremes. We do not think it will be a very efficient help to any cause it may advocate, because of its ultra, or overwrought political sentiments.

The Real Estate Broker, an eight page monthly, S. H. Peirsol, editor, Parkersburg, West Virginia, at 50 cents a year, circulation 2,500.

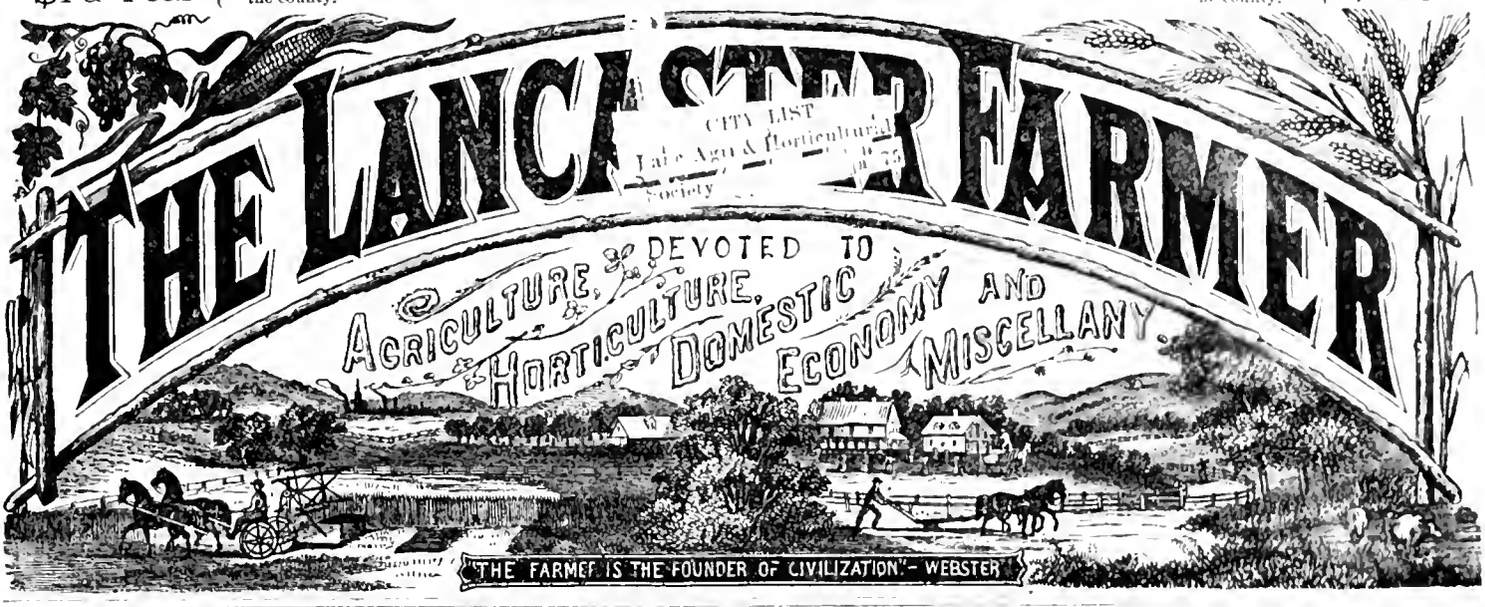
"By the way, West Virginia received the award against the world, at the Centennial, for the finest, heaviest, and best quality of wheat."

The North American Ayrshire Register, wherein every animal is traced to importation; Vol. II., 1877, by E. Lewis and Jas. N. Sturtevant, South Farmington, Mass. Historical and critical.

The Wonders of Blue Glass, as Seen Through a Glass Bluely," a burlesque, by Sam C. Upham, Philadelphia, No. 25 S. Eighth street, 1877. Price 10 cents. 15 illustrations.

The Naturalist's Agency, publishers and importers of standard scientific books, S. E. Cassins, Salem, Mass.

$1 a Year { To subscribers in the county. SINGLE COPIES 10 CENTS. To subscribers out of the county. $1.25.



Prof. S. S. RATHVON, Editor. LANCASTER, MAY 15, 1877. LINNÆUS RATHVON, Publisher.

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THE FARMERS HOME ORGAN.

The Lancaster Farmer;

A MONTHLY NEWSPAPER,
DEVOTED TO AGRICULTURE, HORTICULTURE, DOMESTIC ECONOMY AND MISCELLANY.

PRACTICAL ENTOMOLOGY

Made a prominent feature, with special reference to the wants of the Farmer, the Gardener and Fruit-Grower.

Founded under the auspices of the Lancaster County Agricultural and Horticultural Society.

Edited by Prof. S. S. RATHVON.

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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., MAY, 1877. Vol. IX. No. 5.

THE EUROPEAN WAR.

It is just possible that before the end of the year it may be demonstrated in Lancaster county and elsewhere, that a larger acreage should have been devoted to wheat, corn, potatoes and oats, and less to tobacco. Not that the demand for tobacco will be less, but that the demand for wheat, corn, potatoes and oats, is likely to be more, in consequence of the war. Note the present market of these products, and see which is making the heaviest advances. It is true, that through the deft intrigues of diplomacy, a long and devastating war may be averted; but this is not likely; the cards have been too long "shuffling," and as they now seem to be "stocked," it is likely that the "game" will be played out to its bitter end. The extra costs for breadstuffs and horse feed, exorbitant as it may become, is nothing in comparison with the human suffering, the fearful carnage, the death, devastation and general demoralization which will follow in the wake of the contending armies.

Any one who has observed closely the political history of Europe for the last twenty years or more, must have been impressed with the idea that the "Powers" were jealous of each other, and that in all their adroitly constructed treaties, there was a mental reservation that contemplated the ultimate absorption of *Turkey*, by one or the other of them, if no amicable division could be made of its tempting domain. This war may not lead to its ostensible dismemberment as a nation, but if there is no effective interference by an allied power against Russia, it is likely to dwindle down to a tributary province—so far as "Turkey in Europe" is concerned, at least.

But, if the war is long, general, and destructive, we perhaps will be financially benefited; but we hope no Christian nation will *desire* to prosper at such a fearful sacrifice of the human family. If prosperity *comes*, we of course will not reject it, for in its rejection we may but increase the distress of the afflicted countries.

A REMINDER.

Those of our readers who have not attended to the removal of the cocoons of the "drop-worms," the pupæ of the "cabbage butterfly," the eggs of the "tent caterpillar," or the capture of the parents of the "canker-worm," will now find it too late to contend successfully with those insects, as some will be secreted by the foliage of the trees, and others will have already evolved from their pupæ, or have deposited their eggs. But, from this time forward, a war of extermination should be waged against the "Colorado potato beetle," wherever or whenever it may make its appearance. One impregnated female, destroyed before she has oviposited, is equal to destroying one thousand later in the season, and will save much *Paris Green* or other remedies, besides a great amount of weary and vexatious labor. Now also, and the coming month, is the most prolific period of insect evolution in the whole year—quite as much so with some species as all the rest of the year put together. The "striped apple tree borer," the "flat-headed apple tree borer," the "linden tree borer," the "raspberry borer," the "currant borer," the "peach tree borer," the "potato stock borer," and a host of other noxious insect borers, will all effect their final transformations during the period indicated above, evolve from their long pupal sleep, and go forth on their destructive mission. Peach, pear, apple and quince trees should have the surface borers cut out, and those buried deeper in the wood should be gouged or poisoned out, and the bases of the trees should be protected against the attacks of matured insects of the present season, when their ovipositing period arrives.

WHAT THE BIRDS ACCOMPLISH.

"The swallow, swift and night-hawk are the guardians of the atmosphere. They check the increase of insects that otherwise would overload it. Woodpeckers, creepers and chickadees are the guardians of the trunks of trees. Warblers and fly-catchers protect the foliage. Blackbirds, crows, thrushes and larks protect the surface of the soil. Snipe and woodcock protect the soil under the surface. Each tribe has its respective duties to perform in the economy of nature. It is an undoubted fact that if the birds were all swept off the face of the earth, man could not live upon it. Vegetation would wither and die. Insects would become so numerous that no living thing could withstand their attacks. The wholesale destruction occasioned by grasshoppers, which have lately devastated the west, is undoubtedly caused by the thinning out of grouse, prairie hens, &c., which feed upon them. The great and inestimable service done to the farmer, gardener and florist by the birds, is only becoming known by sad experience. Spare the birds, and save your fruit. The little corn and fruit taken by them is more than compensated for by the quantities of noxious insects they destroy. The long persecuted crow has been found by actual experience to do far more good by the vast quantities of grubs and insects he devours than the little harm he does in the few grains of corn he pulls up. He is one of the farmer's best friends."

We respectfully commend the above to the calm consideration of those of our readers who may feel themselves injured or annoyed by the pugnacious little English sparrow, that is now becoming so numerous in this country. A complaint comes up against him from several quarters, that during the latter part of winter, and the early part of spring, he has been guilty of destroying the leaf and flower buds of trees, and especially fruit trees. Now this may be all very true, but then taking the whole question in its entire economical sense, it does not make a *case* against these sparrows by any means. They no doubt had eaten all the insects, their eggs and their *pupæ*, that were accessible, and finding nothing else eatable, and moreover being active little creatures, and bound to live through the winter, they must necessarily have eaten *something*, or have starved before the opening of spring. Starving to death must be a hard death to die, and that animals, or even men, should clandestinely appropriate the property of others rather than pass through such a trying ordeal, is not at all surprising. Is not this suggestive? Should we not be able to conclude that this is only another way of asking to be fed. We feed many animals through the winter in order that we may have the benefit of their labors during the spring and summer, and why not extend the same providence to our little feathered friends? Sometimes insects become so numerous that the birds cannot eat them all, and then fault is found with them again. Nobody pretends that birds will destroy insects for the mere purpose of destroying them, and in obedience to the comfort and convenience of the human family. They eat just the quantity that their natural instincts dictate they should eat in order to sustain themselves; and if all creatures gifted with a higher intelligence would do the same, we should have a healthier, a wealthier and a happier world.

MONTHLY REMINDER MAY.

"Thin out the early sown crops of beets, parsnips, carrots, etc. Transplant cabbage, lettuce, egg plants, tomatoes, peppers, etc., from the hot-beds, frames and warm border-seed beds. The sowing of any seeds that were neglected last month should now be attended to without delay.

"Sow borecole, brussels sprouts, broccoli, cauliflower, cabbage, beans, endive, carrot, cucumber, cress, melon, water-melon, squash, nasturtion, *martynia, okra, peas, sweet corn, pumpkin, tomato, radish and sweet herbs. Plant potatoes, sweet potatoes, and any plants still remaining in the frames or hot beds.

"Water all newly transplanted plants at the time of transplanting, and two or three times afterward, if the weather is dry, or until the plants are established.

"Keep the hoe going in order to destroy the weeds, which will now begin to be troublesome."

Of course, latitude, elevation, exposure, and the temperature of the season—its forwardness or backwardness—its drought or humidity—will have a corresponding effect upon these vegetable productions, but under ordinary circumstances, in the middle States, this work should now be done, without delay. The price of good crops in almost any contingency, is "eternal vigilance."

TOBACCO STEMS.

It is almost universally conceded that tobacco growing exhausts the land beyond any other crop that is usually planted, and therefore it is a matter of constant solicitude how to keep up the necessary fertility of the soil; although it is generally conceded that this can be best accomplished by liberal manuring; but there is still some difference of opinion in regard to the *kind* of manure. Good barn-

*The long, horn shaped seed-pods of Martynia are used for pickling when in their young green state, and by many persons are preferred to cucumbers. The seed should be sown in an open border in April or May, and in June should be transplanted into the permanent bed at a distance of two and a-half feet apart each way. It will thrive in any good garden soil, but does not need to be heavily manured.—*Buck's Garden.*

yard manure seems to be most in favor, but there are many places where tobacco is grown that this kind of manure cannot be obtained. Recently, on several occasions, we have noticed that tobacco stems have been highly recommended as a fertilizing manure.

The stems are broken up, or are laid down whole, and plowed under. This is supposed—as in the case of mulching with forest leaves, around the trees from which the leaves have fallen—to return to the soil the elementary substances which had been drawn from it by the previous crop.

This has suggested to our mind that if these stems, as well as the "runts," were all gathered, dried, broken into pieces, and then run through a mill constructed for the purpose, so as to be reduced to a powder, it would make a capital fertilizer, and would return to the soil what the previous crop had drawn from it. There is a probability that the county of Lancaster will, in the near future, become a vast *tobacco garden*, and therefore there should be some good and cheap manure ready at hand. This would also furnish occupation during the "weary waitings" on a market, and would be the next job after the stripping season. We merely call the attention of tobacco cultivators to it, as a subject, for the purpose of experimenting on it.—*Scor.*

MANURING LAND.

The quantities of each kind of manures to be applied to an acre are given below. They vary much in their range, as the present condition of the soil as to fertility must be taken into consideration, and this must be left to the judgment of the cultivator.

Barn-yard manure: Five to twenty tons, or thirty to fifty cubic yards.

Bone-dust: Sixteen to twenty bushels, or from seven hundred to twelve hundred pounds.

Fresh fish: Twenty-five to forty bushels.

Fish guano: Four to six hundred pounds.

Guano: Three to eight hundred pounds.

Gypsum: Five to six hundred pounds.

Horn-shavings: Twenty-five to forty bushels.

Hops: Thirty to forty tons.

Lime: Fifty to one hundred and fifty bushels.

Night-soil: Twenty bushels.

Poudrette: Twenty-five to thirty bushels.

Salt: Two to six bushels.

Soot: Twenty to fifty bushels.

Sulphur: Six to eight pounds.

Sulphuric acid: Thirty to forty pounds.

Super-phosphate: Five hundred to a thousand pounds.

Farmers' refuse: Five to eight hundred pounds.

*Wood ashes: Twenty to forty bushels.

If there is anything in which amateur cultivators are lacking, it is in having a liberal supply of manure, the very corner stone of all gardening and field operations. It is therefore of the first importance to know how to make the most of it.

SIX MONTHS FOR AN OWL.

The Osborne county (Kas.) *Farmer* says: "We have taken wood, potatoes, corn, eggs, butter, onions, cabbages, chickens, stone, lumber, labor, sand, calico, sauerkraut, second-hand clothing, coon-skins and bug-juice on subscriptions, in our time, and now a man writes to us to know if we would send the paper six months for a large owl. There are few things an editor would refuse on subscription, and if we come across any fellow who is out of owl, and is in need of one, we'll do it."

That is a little more liberal than is the case with *some* people about this "neck of woods," who, when they capture an owl or any other kind of wild fowl, expect to be handsomely compensated for it in something more convertible and substantial than the copy of a newspaper. We have tried live owl, as a *gift*, and our experience is, that a live owl on our hands is only exceeded by having a "live elephant." Judging from the above paragraph we should conclude that the "circulating medium" about Osborne is something like it was in North Pennsylvania, Ohio and Indiana some years ago; when the Indians and the whites had their social gatherings at the country taverns, where, when a man called for a single drink, he would offer a "coon-skin" at the bar, and get his drink and three rabbit skins in change. In the lumber regions, shingles, staves and hoop poles were the "current currency," and when the "vendee" returned to his home in the evening he carried quite as heavy a "load" as he did with his *currency* in the morning.

*If the ashes are *leached*, from one hundred to one hundred and fifty bushels may be used to advantage.—*Dick's Garden.*

"AMERICAN POMOLOGICAL SOCIETY."

Our readers will bear in mind that this distinguished association—at the invitation of the Maryland Horticultural Society—will hold its sixteenth annual session in Baltimore, to commence on Wednesday the 12th of September next, at 10 o'clock a. m., to continue three days. All horticultural, pomological, agricultural and other kindred associations in the United States and the British Provinces, are invited to send delegations as large as they deem expedient; and all persons interested in the cultivation of fruits, are invited to be present, and to take seats in the convention. Specimens of all kinds of fruit will be exhibited, and a large meeting is anticipated.

STATE BOARD OF AGRICULTURE.

Programme of meeting of the Penn'a State Board of Agriculture, at Harrisburg, commencing Tuesday, May 22, 1877, at 2 p. m. Meeting for business; report of the Secretary of the Board; Report of the Chemist of the Board.

Essay—Fertilizer Laws, by E. L. Sturtevant; Essay—Valuation of Fertilizers, by Secretary; Essay—Fertilizers on the Eastern Experimental Farm, by John I. Carter, Sup't; Essay—On the Choice of Fertilizers, by Secretary; Essay—The Future of our Board of Agriculture, by Hon. Jno. P. Edge; Address—Influence of Forest on Rainfall, by Thos. Meehan; Essay—Tree Planting for Shade, Shelter and Profit, by Prof. S. B. Heiges; Essay—Forest Area of the State, by Secretary; Essay—Pleura Pneumonia, by Chas. B. Michener, V. S.

The report of the Secretary will include a draft of a proposed law regulating the manufacture and sale of commercial fertilizers in the State.

The report of the chemist will embrace an analysis of each of the principal fertilizers used in the State.

Essays and addresses are expected on other important subjects.

The meetings are public and all are invited to participate in the discussions.—*Thos. J. Edge, Secretary.*

CORRESPONDENCE.

A Voice from the South.

To those who are in the habit of *reading*—and we regret to say there are many yet who have not formed this habit—we have no fears that the LANCASTER FARMER will not be ultimately appreciated; and that, like our correspondent below, they will turn their attention to our journal as a matter of choice:

SALISBURY, NORTH CAROLINA, April 27th, 1877.

LANCASTER FARMER:—You are always a welcome visitor to our domicile—perhaps we should have more properly said, to the place where we *stay* at—for truly speaking, we have no permanent home on this earth, seem this as it may to others. But to the point. We regard the FARMER as one amongst the best Agricultural papers in our whole country, and have little fear of contradiction, if any. In saying that, to our apprehension, you are the best household journal, and if we believe, express, feel and take an interest in your welfare, living at so remote a distance—we cannot see why your own people, the citizens of Lancaster county, the best cultivated county in America (so far as we have seen and are able to judge), do not stand by you *en masse*, and help to build you up, and keep you as a shining light before the Agricultural community, as well as to other matters relating to domestic economy.

We last visited your great county in 1876; took special notice of your lands, productions, manufactories, live stock, poultry, &c.; examined your markets, and concluded you ought to be the most independent, happiest, and according to your opportunities, the most intelligent people on this continent.

Here, we in a measure tread in the steps our fathers trod—that is to say, when we go to mill, we put the corn into one end of the bag and a stone in the other to make it balance on the horse's back. Old habits and old associations are hard to get rid of, but we are trying to surmount them.

Thus far, this year, the season has been rather backward. Much rainfall and unfavorable weather has kept good housewives and farmers from planting garden and field crops; much of neither of which has so far yet been done this spring. The season being backward for this latitude, however, does not seem to have an injurious effect upon wheat, oats and grass, all of which make a fine appearance, as far as we have seen and heard. Judging from present prospects, there will be a bountiful crop of grain, grass, fruits, &c.

For forty, or more, years past we have traveled in different States; read different papers—home and transatlantic—tried to be a close observer of men and things—mineral, vegetable and animal—but nowhere have we seen as good a *natural* country as this is. Nature has done much for it, man but little.

With all good wishes for your prosperity, and a long and happy life, we are truly yours and the FARMER's friend.—*M. R.*

[We thank our correspondent, not so much for the high compliment he pays to our paper as for that which he pays to our county, and which, if we are right in our conjecturers, is the old home of him or his ancestors. We hope our people may eventually realize that our county can produce as good an Agricultural paper, as it can produce good crops of corn, wheat, tobacco and fruit, as well as stock and implements.]

Lime and Oyster Shell Bark Louse.

LITIZ, March 31, 1877.

SIMON P. EBY, ESQ.—*Dear Friend.*—I cannot refrain (even in these few last busy hour's of scrivening) to call your attention to a few articles that appeared in the *American Agriculturist*, of April number. The first on page 123, on the bottom of the middle column, headed "Manuring Old Trees." The second on page 143, middle column, headed the "Oyster Shell Bark Louse." I have practiced what those articles suggest, for years past, with much success; the only difference, in article first, I do not turn the manure under. If you recollect, we had a talk about manuring orchards and whitewashing trees some time ago. For over eight years I have been guided principally by my own judgment and experience, and often found that much to the contrary of my own practice was said, but I was not discouraged, because I found that I was right, and now the same results are seen by some of our chief fruit growers, with similar applications. Please look up the articles and see more fully what they contain. Yours in haste.—*Israel G. Erb.*

"Manuring old trees, or those that have come into bearing, should have been cared for last month, or earlier. If they need manure, give it at once. Nearly all the "running out," bitter rot, and other troubles not due to insects, are merely cries for manure. Stable manure rarely comes amiss; this may be applied over the whole surface, except close to the trees, and turned under with a furrow so shallow as not to cut the roots. On orchards already fully manured in previous years, or

naturally rich in vegetable matter, a dressing of lime will often produce gratifying results, and wood ashes scarcely ever come amiss on any soils."

[The foregoing is the first article alluded to by Mr. E.'s correspondent, and no doubt will be generally acquiesced in, although we are aware that some very good orchardists are opposed to cultivating around trees. As to *manure*, there are other kinds than stable manure that have a good effect upon tree culture, one of which is right at hand, if attention is given to its collection in time, and which returns to the soil again what the tree had drawn from it. Two years ago a scientific commission was appointed in the city of London, to report on the causes of the depletion of the trees in *Hyde* and other *Parks* of that great city, whilst they were healthy elsewhere. They made microscopic and chemical analyses of the leaves, and discovered that they contained large quantities of fertilizing salts, and they came to the conclusion that the trees were depleted through the constant sweeping up and removal of the leaves, instead of mulching them into the soil. Look at our great oaks—look at the gigantic trees of California that have stood thousands of years, perhaps, without ever having had any manure, save what yearly fell from their branches.]

Oyster Shell Bark Louse.

"CRUDE PETROLEUM.—'D. L. B.,' Proctor's Creek, Va., was six years ago living in the oil regions of Pennsylvania, and went on a visit to his father in Central New York, taking with him a can of crude petroleum, fresh from the well. His father had two young apple trees in the garden, which, in spite of all that could be done for them, were going to decay, and he requested the son to cut them down. Mr. B. suggested that he would first kill the trees, so that there should be no trouble from sprouts, and to do this he, in February, took a broom and completely washed the trunks and larger limbs with the crude petroleum, noticing at the same time that they were thickly covered with bark lice. In the following spring, to the astonishment of all, the trees started out with renewed vigor, made a greater growth than they ever did before, 'and the bark was as smooth and as healthy as that of a one year old seedling.' Since then the trees have flourished and borne abundantly. Mr. B. suggests that the application should be made before the buds swell at all, as petroleum will kill the foliage. We would add to those disposed to experiment in that direction, that neither kerosene nor any other preparation from petrolum should be used as a substitute for the crude article, just as it is drawn from the wells."

[We should hesitate to recommend petroleum in any of its forms; but instead of it, oil, or grease of almost any kind, has been endorsed by the highest authority, and we *know* it to be effectual, for we have tried it on various occasions.]

LIME OR WHITEWASH.—"W. E.," of North Haven, Conn., takes the best fresh-burned stone-lime, slakes it with hot water, and thins with cold water to the proper consistency to apply readily, and with a common broom—a round one preferable—paints over the trunks and large branches. Thinking that we had somewhere seen the statement that lime had been tried by others without effect, we wrote to Mr. E. to make sure that it was the Oyster-Shell louse that he had in mind, and he replied that it was, and finds lime perfectly efficacious. Though not now troubled by the insect, he would apply lime whenever he discovered it. Mr. E. regards a coating of lime-wash as highly useful in other respects, and wonders why its use is opposed by some. Upon young trees, in which the bark is still active, we prefer not to clog it with a coat of lime, but if any wash is needed, use a more soluble one of lye or soap; in older trees, when the outer bark is dead and begins to scale off, it makes no difference, except as a question of looks. In treating this bark louse, as well as in all contests with insects, success will depend largely upon prompt action, and attacking the enemy as soon as possible after it is discovered. Young trees especially should be watched, for it is an easy matter to treat a tree, all parts of which are within reach, compared with another two or three times the size. We have no idea that washing the trunk, merely, of a tree, with whitewash, petroleum, or other application, will rid it of the Oyster-Shell bark louse. These are situated upon the newer growth and small limbs, and any application that fails to reach these, can be of little or any service, so far as this particular insect is concerned. It is very important to avoid introducing this pest, and every new tree from a nursery and elsewhere should be examined for bark lice, before planting."

[Really, it seems that the question involving the utility of whitewashing trees, is never to be definitely settled. When we were a boy and worked upon a farm, fifty years ago, it was rather a common thing to whitewash trees, especially those that were growing in the yard or the garden. This process usually followed the whitewashing of fences and outhouses, and was done with the same material, and with no particular reference to the bark-louse, or any other insect, if anything had ever been known or heard of then. It somehow was thought to produce thrift in the growth of the trees, or perhaps more likely was a mere matter of taste. In after years, according to the experience of some persons, whose opinions were entitled to respect, it was alleged that whitewashing was absolutely injurious to the trees. Now, how could equally intelligent people differ so much in the results of their individual experiences? We apprehend that the difference is just in this wise. The difference in the kind and the quality of the lime and the wash, and the difference in the ages and conditions of the trees. The opposers of whitewashing, said it closed up the pores and arrested respiration, a function as important to the healthy development of the tree, as "insensible perspiration" is to the human body. In order to increase the adhesiveness of whitewash, people are in the habit of putting a greater or lesser quantity of alum, salt, sugar or glue into it; and if these ingredients increase its adhesiveness when applied to fences and frame buildings, it would adhere too closely to trees to allow free respiration and thus injure them, and especially young, smooth-barked trees. If the lime was too acrid, hot, or strong, it would have the same effect. The whitewashing of large, old, and rough-barked trees, does not afford a proper test of the utility of the operation, and especially when it is done to kill bark-lice; because, as "W. E." above, truly says, there is not the place where these insects locate themselves. And secondly, because the surface of a rough-barked tree cannot be covered as completely and as imperviously as a smooth one can, and there will always be fissures in the bark that have not been reached by the brush, and through which respiration is carried on, and could only be effected there, whether the tree was whitewashed or not. Some years ago a neighbor of ours had two young pear trees badly infested with bark lice, and on the recommendation of a friend, he used strong fish brine, applied with a hand-scrub on the one, and sharp lime wash on the other, but they both eventually died. We had the same kind of a tree, similarly infested, and we used lard oil with entire success; and in every instance where we have recommended it, it has been effectual. The late Mr. Walsh, State Entomologist of Illinois, experimented with everything, and finally recorded his testimony in favor of oil.]

The Sener Apple.

BY M. J. STAYMAN, Leavenworth, Kansas. —*Dear Sir.*— Yours of September 20th was received yesterday on my return here, also the apple, although it was entirely rotten, but in fair shape, so that I could take a cut and inside outline of the fruit. I am sorry I did not get it in time to give a more satisfactory outline and description. The scions were entirely dried up, past recovery, which I very much regret, as I wished to graft them at my homeplace, Leavenworth, Kansas. The business at the Centennial continued to increase in number of varieties so that I found it impossible to leave until it was over, and with what I had on hand, and some other business, detained me until the 5th of this month (Dec.) before I left the city. I send with this the outline and description. The color and quality I had to judge from memory and what you wrote, which may both be incorrect. If so, please state in what respect, and also add about the vigor and any other part omitted. I am very thankful for your kindness in sending the specimens and your interesting letter, and am very sorry that I have been unable to answer sooner.

I took, while at the Centennial, seven hundred and eighty (780) cuts and descriptions of fruit I had not taken before, making my entire collection over 1,700; in every respect complete and taken by myself, embracing many new and valuable varieties.

I would be much obliged, if it is not too much trouble, to send me a few more scions fit to graft, and direct them to Leavenworth, Kansas. Two or three grafts will be sufficient to test the variety, as I expect to be there in ten days and remain there, from where I should like to hear from you when convenient.

I think the Sener a valuable variety, and worth being more generally cultivated. Fruit large; form oblate, slightly conic; color light yellow; dots small, distinct, scattered, grey; stem medium, rather thick; cavity wide, deep green, or russeted; calyx very large, open; segments large, reflexed; basin rather wide, deep, abrupt, slightly furrowed; core large, wide, closed; carpels medium, hollow; seeds rather large, ovate, angular, light chestnut brown; flesh white, tender, juicy, sprightly, pleasant sub-acid; quality good, excellent for kitchen; tree, rather drooping, a regular and generous bearer. Brought from Germantown some fifty years ago. Grown by Mr. Sener, Lancaster, Pa. Specimen received from Mr. S. S. Rathvon, Lancaster, Pa.

[This apple having originated about Germantown, Mr. Stayman's paper has been very kindly placed at our disposal by Prof. Rathvon, instead of using it in his own LANCASTER FARMER—a courtesy we highly appreciate. We may take occasion to say that the LANCASTER FARMER, though *unfortunately* with the local name of "Lancaster" appended to it, is not a merely *local* paper, but is at least equal in general value to any Agricultural paper that comes to our table.—*Ed. Gardener's Monthly.*]

Some time in March last we sent by mail to Mr. Stayman a number of scions of the apple above referred to, and also to Messrs. Casper Hiller and H. M. Engle. From what we know practically of the quality of the fruit, we feel justified in recommending it, and hope more of our fruit growers will make application to Mr. Sener for scions, who kindly offers them with no other motive than its perpetuation, as the tree is growing old. In addition to all of the foregoing we refer our readers to an article on the subject, on page 145 Vol. VIII. of the *Farmer*, where the history of the apple, and our own experience is more particularly detailed.

We cannot conclude without thanking the editor of the G. M. for his complimentary notice of our journal, even including what he seems to think an "unfortunate appendage." We know what he says is not intended to be disrespectful, but merely suggestive, and assure him that he is not alone in this sentiment, for such a view was entertained when the present name of the paper was adopted, and still exists among some of its most intelligent patrons, on the ground that a more general title might elicit more general contributions to its columns, and a more general patronage from abroad. We however feel reluctant to change the title now, especially as it was never intended to circumscribe, or limit its scope; but should it be deemed advisable to do so at a future time, we will give the matter a respectful consideration, if our connection with it still continues.—*Ed.*

COLUMBIA, May 1, 1877.

FROF. S. S. RATHVON.—*Dear Sir.*—Enclosed in box please find a "Shitepoke" with a bass in its mouth. The two struggled for supremacy upon the dam in the river for a mile, and both died in battle. I sent a description to the *Era.—S. E.*

The box containing the bird and fish came safely to hand, for which we tender thanks to the thoughtful Squire. The fish was wedged so tightly in the bird's mouth and throat, that we did not wish to disturb them; so, instead of skinning and mounting the former, with the probability of destroying the interesting *tableau*, we cut off the head as it was, and also the feet, and "embalmed" them in alcohol, with a view of preserving their *statu quo*. Of course, our readers are well acquainted with this bird (*Butorides virescens*) which, in addition to the common name given above, is also known under the popular names of "Green Heron," and "Fly-up-the-creek." However correct birds may be in their general instincts, this subject made a woful mistake in its calculation, for it attempted to swallow a fish beyond its swallowing capacity, and died in that bootless attempt. It is all well enough to exhibit "grit," energy, or determination, in accomplishing individual ends; but it is the sheerest folly to overmeasure our ability and then be brought to disastrous "grief." *This is our moral*, aside from violating the fish-laws.—*Ed.*

MOUNT HOLLY SPRINGS, April 20th, 1877.

MR. EDITOR:—I saw a copy of the LANCASTER FARMER and was very much pleased with the reading matter which it contained, so much so that I have come to the conclusion to subscribe for it for one year. I consider the paper is good enough to be in any family. Please send me the back numbers, starting with the January number, 1877. Send me a receipt for the same. I can perhaps get you a small club in my neighborhood. Address, Enos Stauffer, Mount Holly Springs, Cumberland county, Pennsylvania.

OFFICE OF WESTERN FARMER, DIXON, ILL., April 30, 1877.

Dear Sir: Please place us again on your "Ex" list. The LANCASTER FARMER used to be one of our most valued exchanges, and we are glad to be able to notice its revival.

Yours truly, W. M. KENNEDY.

We cheerfully comply; and feel specially complimented in being solicited to do so; and also reciprocate the sentiment pervading the above.—*Ed.*

LANCASTER COUNTY PEACHES—"SENER'S FAVORITE."

INTERNATIONAL EXHIBITION, Philadelphia, 1877.

The United States Centennial Commission has examined the report of the Judges, and accepted the following reasons, and decreed an award in conformity therewith:

PHILADELPHIA, February 27, 1876.

REPORT ON AWARDS—*Product, Peaches:* Name and address of exhibitor, J. Frederick Sener, Lancaster, Pennsylvania.

The undersigned, having examined the product herein described, respectfully recommends the same to the United States Centennial Commission for award, for the following reasons, viz.: Two plates of yellow peaches called "Sener's Favorite," freestone, very large, 10 inches in circumference; rich, sweet, and delicious.

WM. PARRY, *Judge.*

APPROVAL OF GROUP JUDGES.

W. L. SCHAEFFER,	FRANCIS MEEHAN,
T. T. LYON,	SUEL FOSTER,
JOSIAH HOOPES,	PARKER EARLE,
E. SATTERTHWAIT,	F. W. HARRISON.

A true copy of the Record.

FRANCIS L. WALKER, *Chief of the Bureau of Awards.*

Given by authority of the Centennial Commission.

[Seal.]	A. T. GOSHORN, *Director-General.*
J. L. CAMPBELL, *Secretary.*	J. R. HAWLEY, *President.*

INTERNATIONAL EXHIBITION—1876.

U. S. CENTENNIAL COMMISSION, Philadelphia, March 26, '77.

MR. J. F. SENER, Lancaster, Pa.—*Sir:* The enclosed is a copy of the Report of the Judges as accepted by the United States Centennial Commission, and in conformity with which an award was decreed to you. You will be notified when the Diploma and Medal will be ready for delivery. Please acknowledge the receipt of this report.

Yours Respectfully,
A. T. GOSHORN,
Director-General.

[We feel a local pride in the foregoing handsome and authoritative recognition of the "Sener Favorite Peach," because it was through the columns of the LANCASTER FARMER (Vol. 3, pages 189 and 190) that it was first brought to the notice of the public; and for the delectation of peach growers, we reprint what we wrote upon the subject in 1871; and, in view of the many inferior varieties of this species of fruit which have annually been put upon our market, since that time, we feel that we cannot too strongly recommend its extended propagation, especially since it costs no more labor or risk to cultivate a *good* variety than it does for a *bad* one; and the former is always sure of a market, and ample compensation.]

The Sener Peaches.

The credit of originating these luscious peaches, we are of opinion, belongs to Mr. Gotlieb Sener, of Lancaster city, and their history, characteristics, and qualities are worthy of record in the archives of horticulture, and especially of our local horticulture. These peaches have been in Mr. Sener's family, and have maintained their integrity, through three generations of the fruit, covering a period of 33 *years*. In 1838 Mr. S. obtained two seeds—from whence unknown—and planted them in his garden in Lancaster city, and from these seeds grew two trees, which in three years produced fruit, slightly different in size, in flavor, and in appearance, one of which was known in the family as the "Landis peach," and the other as the "favorite;" the last named being rather the largest and most symmetrically formed. The first name originated something in this manner. Thirty years ago a Mr. Landis was on a business visit to Mr. Sener, in the third year of the young tree, and when it had three ripe peaches on it, which Mr. S. had himself not yet tasted. On passing the tree, the fruit of which looked so exceedingly fine, Mr. L., could not resist the temptation to pluck one of the peaches and eat it. It proved so luscious and generous to the taste, that on repassing the tree, Mr. L., plucked another; Mr. S., all the while burning with anxiety lest he should not get an opportunity of tasting a fruit he had been so carefully cultivating, and the quality of which he desired to *know*, and yet too modest to inform Mr. L. of the state of the case, he, (Mr. L.), of course, being altogether unconscious of the anxiety he had caused. Through this circumstance, this peach, in the family, received the name of the "Landis peach," and to distinguish the other from it, it was called the "Favorite," although not the best fruit. Our descriptions will therefore refer specifically to the first named, or Landis variety, and only incidentally to the Favorite; for although both varieties were on exhibition at the late fair of the Horticultural Society, yet the latter were disposed of before we had an opportunity of testing them. The first named has retained all its qualities through three successive propagations from seeds, perfectly intact, but the other, in some instances, has undergone some slight change.

The dimensions of an average specimen were as follows: *Fruit;* lateral circumference, eight inches and three-quarters; transverse circumference, eight inches and five-eighths; weight, five ounces; form almost spherical, and very perfect; skin tender, thin and velvety; color, a yellowish tinge, with a deep red cheek; the lateral suture, which so distinctly marks some varieties of the peach, is very slight in the one under consideration. The stem is rather short, and the indentation, or concavity where the stem is attached, is only of medium depth; flesh faintly tinged with yellow, and a deep pink around the seed; taste sweet with a slight pleasant tartish after-taste, juicy and melting. *Seed;* very free, clean, moderately flat, and small in proportion to the size of the fruit. Lateral circumference, three inches and a quarter; transverse circumference, two inches and three-quarters; indentations of the seed, very deep; internal cavity small and shallow, exhibiting a proportionately thick shell. *Kernel;* length, three-quarters of an inch, and flat in form.

We have been thus minute, because we do not think we have ever seen and tasted so fine a fruit, undistinguished by some prominent name; and the fact that it has not degenerated, nor diverged from the original stock, by being successively raised from the seed, during a period of thirty-three years, goes very far in favor of its character, as worthy of cultivation. Doubtless cultivation, by budding and grafting, would work an improvement in its quality, its size, and its general character. To facilitate this end, Mr. F. J. Sener requests us to say that he will cheerfully furnish any persons with scions who may desire them. Of course, we do not feel that we alone have authority to name these peaches specifically, but they may be provisionally regarded, for the present, as "Sener's Seedlings," Nos. 1 and 2, or may retain the names they are known by in the Sener family, until they are propagated by others, and formally baptized by a competent committee. As the trees are healthy, and constant and prolific bearers, adapted to our locality, they may prove more advantageous to the peach growers of our country, than many of the introduced crack varieties cultivated now.

These two peaches have now blended by proximity of cultivation into *one*, which has all the good qualities of both, and is known as "Sener's Favorite." The "Landis" variety was somewhat ovate in form, and the "Favorite" almost perfectly spherical—the former was the sweetest, and the latter the roundest; it therefore retains this form, and of late years but one variety with all the size, color and quality of the originals is recognized; and since the above description was written (1871) a new generation has been produced, retaining its original integrity, as demonstrated in the award of the commission.

In addition to the foregoing, within the past month we have been informed by Mr. J. F. Sener, that he has entered into an arrangement with Mr. Daniel Smeych, of Lancaster city—a very competent and successful fruit cultivator—to propagate and sell the *Sener peach stock;* and therefore all who desire them from henceforward are respectfully referred to him, as possessing exclusive control over the subject for the present. After such a complimentary recognition by such a competent committee of "Group Judges," perhaps a prophet, after all, may have some honor in his own country and among his own kin. We often think of the little kitten whirling "round and round" in pursuit of its own tail, when, if the little simpleton would only stop and look, it would find the end of its tail right at its nose. Hundreds of dollars have been thrown away by the citizens of Lancaster county within the past few years, for inferior nursery stock, brought here from remote or obscure corners of the country.

A "one-horse farmer" in Decatur co., Ga., made 400 bus. corn, 10 bales cotton, 500 bus. ground peas, 25 bbls. syrup, and 500 bus. sweet potatoes the past season. And this with 1 mule, 1 regular hand, very little extra help or manure.

THE PERMANENT EXHIBITION,

A condensed description of which we propose to publish in future numbers of the FARMER, was opened with imposing ceremonies on the 10th inst. In our present number we can only find room for the following, which we cull from a very well written article on the subject, by Mr. Charles William Foster, on the "Editorial Staff" of the *Philadelphia Press*, and which appeared in one of the April numbers of that journal, while the exhibition was still incomplete. After noticing the several different departments, the writer concludes as follows:

The general exhibits which are distributed through the aisles of the Main Building are much the same as during the Centennial, and have been classified as follows:

1. Minerals, ores, building-stones, marbles, artificial stones, metallurgical products, bar and sheet iron.
2. Glass; ceramics; terra-cotta.
3. Chemicals, pharmaceutical preparations, medicines, oils, paints, varnish, soaps, and perfumery.
4. Furniture; apparatus for lighting; fire and burglar-proof safes; wooden and basket ware.
5. Apparatus for cooking and heating; laundry, kitchen, and bath-room appliances; manufactured parts of buildings.
6. Woven goods, ropes and cordage, brushes, clothing, furs, artificial flowers, flags, and traveling equipments.
7. Leather and shoe industry; harness.
8. Gold and silverware, plated ware, bronzes, jewelry, gold pens and pencils, gold and silver foil, fancy articles.
9. Stationery, pens, pencils, paper, wall and felted paper.
10. Firearms and ammunition; sporting implements.
11. Philosophical, scientific, chronometrical, electrical, and optical instruments; weights and scales.
12. Surgical and dental instruments and appliances.
13. Hardware, cutlery, hand tools, ornamental castings, plumbers' materials, galvanized iron and zinc work.
14. Carriages, vehicles, and accessories.
15. Musical instruments.
16. Educational systems and appliances, publications, historical and archæological collections.
17. Engineering and architecture, models, plans, &c.
18. Sculpture and paintings.
19. Engravings, lithographs, photographs, heliographs.
20. Art applied to industry—Mosaics, stained glass, models, decorations.
21. Machines, tools, and appliances of mining, chemistry and extractive arts, machines for manufacturing vegetable or animal products for food.
22. Machines and tools for working metal, wood and stone.
23. Machines and implements used in sewing, spinning, weaving, and felting; washing machines.
24. Machines and apparatus for type-making, printing, lithographing, book and paper making.
25. Motors and apparatus for the generation and transmission of power (water, steam, air, gas, electro-magnetic, &c.)
26. Railway plans, rolling stock and appurtenances; ærial, pneumatic, and water transportation.
27. Agricultural and animal products.
28. Land and marine animal culture, and apparatus for same; living and preserved specimens.
29. Agricultural machines, implements, and processes.
30. Horticulture.

It will be seen that these thirty groups include nearly all the displays made at the Centennial Exhibition, and as the very finest examples of each group have been secured for the Permanent Exhibition, and as the whole, with the exception of the fine arts, can be seen under one roof, the general effect will be infinitely more interesting and delightful than when the vast quantities of each kind wearied the eye before the sense was gratified.

For The Lancaster Farmer.

SEED WHEAT.

There is nothing on record worthy of unqualified belief, that wheat has ever changed into any other plant through neglect in cleaning or in culture, although some people have alleged that it has been known to have changed into chess, or cheat; and therefore, all the world over, wheat is recognized *as* wheat, in the fullest sense of the term. It is the great vegetable staple from which flour is made, and bread, in its various forms elaborated; which is the "staff of life" to the human family.

That a good variety of wheat cannot degenerate into a bad one, nor a bad variety be improved into a good one, I think, will be generally admitted; and also, that it cannot be so mixed up as to be sensibly deteriorated. Unfavorable circumstances may diminish its quantity and impair its quality, but such contingencies will alike affect both good and bad. Out of the fifteen or twenty varieties of wheat that have become the subjects of cultivation, we look upon six or eight for our main supply; but these I will not undertake to name, as people will differ in their choice, and localities have much to do in the matter. We have winter and summer wheat, red and white wheat, smooth and bearded wheat, which would make six varieties already, and these have their sub-varieties.

There has been wheat found in houses in the "old country," built many long years ago, which has been planted and has germinated and grown; also, it is said, wheat that has been found in the hands of embalmed Egytian mummies in catacombs, erected hundreds—perhaps thousands of years ago, which, on being planted, grew and produced seed, and I presume wheat as similar to ours as can be conjectured.

Wheat may be changed to *early* and *late*, and perhaps somewhat also in color; but you cannot change it from smooth to bearded, or from white to red—at least not within a single year. It may be changed to ripen earlier by sowing it on rich, loose soil, and always selecting for seed the earliest ripened ears; and by reversing this rule, a later sub-variety may be produced; and by a similar process, somewhat of a change may be effected in its color.

As to the bulk, or the size of wheat grains, I will only say, that sown thickly or densely on the ground, wheat produces smaller grains than when sown sparsely or scattering, all other things being equal. An average grain of perfect wheat measures $\frac{1}{4}$ to $\frac{5}{8}$ of an inch in length, $\frac{1}{16}$ of an inch in diameter, and it takes about 636,000 grains to make a bushel, which weighs, or ought to weigh, sixty pounds.

Whether that wheat sown by the farmer—spoken of by our Saviour—some of which fell by the wayside, and some on good ground, yielding thirty and sixty fold, was similar to, or the same as ours at the present time, is a question that, I at least, am not able to answer. *Was it white or red? bearded or smooth? But, to come back to the main subject. Select the best field, or the best portion of your wheat field, before harvest, for your seed. Clean out all the rye, cockle, cheat, or any other kinds of inferior seeds it may contain; keep it separate from any other kind, and clean it as thoroughly as you possibly can; then blow all the smutty and light grains out of it, as you will then be able to calculate more correctly the quantity to sow on an acre.

Following out these suggestions and inductions of good farming, in connection with a proper preparation of the soil, it will always "pay" the farmer to be particular.

PETER S. REIST.

*It is not at all germain to the subject that you should be able to answer. The Saviour was speaking in *parables*, and used a correspondential figure of speech. "A sower went forth to sow;" and the record does not say what kind of seed he sowed—whether wheat or cheat or rye or any other kind. The parable is intended to illustrate rather the kind of *soil* upon which the seed was sown, than what kind of *seed* was sown, although, inferentially, we may suppose be meant good seed. *He* is now sowing, still sowing seede; and if we read the whole chapter we cannot fail to have some appreciation of the meaning of the parable. It is not essential to the moral effect of his teaching by parable, that a sower should really have gone "forth to sow" at all, any more than that there should be real sheep and goats to "separate one from another," at his second coming. "It is like" so and so—drawing spiritual instruction from natural imagery, which is only the shell or husk, that incloses the moral and spiritual substance within it.—*Ed.*

For The Lancaster Farmer.

HOW SHALL WE KNOW HOW TO PLANT FRUIT TREES?

Some places are not favorable for certain kinds of fruit. There is a vast difference in locality and soil, and it would be well for some persons to have something to guide them, so that they may know what kinds of fruit to plant, and where to plant it. When I first got possession of a home and a few acres of land, I wanted fruit (for there was none on it) and I planted a great many trees of different kinds, but many of them proved a failure in after years; such need not have been the case if I had known where to plant each kind. It is now twenty years or more since I commenced to plant trees where I now live, and yet I never could get a crop of sweet cherries. Out of dozens of cherry trees that I planted, only one tree bears a crop, the others are nearly all dead. I can grow the trees as thick as a leg or stovepipe, but they always die, or winter kill on the southwest side first. The tree that bears fruit is a sweet cherry, grafted on a red sour cherry seedling stem. I have now several of them coming on. I think they are more hardy and will stand the winter better than the sweet cherry stem. But I notice a few miles south of Lime Valley they thrive and bear fruit well on the barren ridges of land. The sweet cherry trees won't do well here on limestone land.

I have lost hundreds of peach trees by planting them too near the creek, or down in low land—I don't mean at the edge of the water. I had them from fifty to two hundred yards from the creek, and from five to fifty feet above its level. The land that lies the highest will do for peaches—I think it is about one hundred and fifty feet higher than the level of the creek. But, from seventy-five feet on down to the water's edge, scarcely any blossoms are to be seen; there seems a mist that gathers in the valley and draws frost to a certain height, which kills the blossom buds.

There might be a great deal said on the subject of location and soil best adapted to our different kinds of fruit, &c., but I will leave it for some one that is better posted in the matter. If I were to plant trees and vines again, or berry bushes and plants, on the same property, I think I could raise more fruit with less than half the plants and trees that I formerly had been planting. It may seem strange to some persons that on a tract of seven acres of land, more than the half of it won't do for peaches, sweet cherries, nor blackberries, &c. So, we learn by experience, but it costs us too much to learn always by experience of our own; we may gain much sometimes by the experience of others, and I trust that some one will "say on," for the benefit of those that are anxious to learn. And we would also wish to know how to save our plums from the *curculio*. —*John B. Erb, Lime Valley.*

The experience of our contributor is no doubt the experience of many others who are equally unable to divine the causes of failure, and we hope some of our horticultural and meteorological experts will essay a response through the June number of the *Farmer*, for our own personal experience is too insignificant to attempt it. In regard to "mist gathings in valleys," however, as well as their facilitating frosts—we may say this much: that while we resided on the Susquehanna, we well remember several instances when all the peaches along the valley were frozen, and yet, those on the very tops of the hills that bound the York county line, bore abundant crops of peaches, as well as cherries and apples. There cannot be a doubt, that hu-

midity in connection with cold, is more injurious to fruit—as we *know* it is to the vitality of most insects—than even a colder but drier atmosphere, whether on a hill or in a valley.

As to the *Curculio*, so much has been said and written upon the subject, that we have no heart to say anything more, at this time, but—"catch 'em, choke 'em, and throw poison down their throats."—*Ed.*

For The Lancaster Farmer.

BOOK-KEEPING BY FARMERS.

It has often been urged upon farmers to keep accounts with their crops and farming operations, and I have no doubt a great many more would have begun to do so than did, but for the dread that it required more education than they possessed. On this head, they who would like to keep such accounts need have no fears, as keeping accounts is really simple, if started in the right manner, and then kept up punctually as there are entries to be made.

For this purpose two books are needed, a ledger and memorandum book. In the former are entered the regular accounts, the heading of which should be in a large hand and put into the index as soon as such heading is made; the latter is intended to jot down items as they occur, and are then transferred to the ledger at certain times, and which should be at least once a week.

There are a few terms which must be made clear. In all common ledgers there are two sets of columns for dollars and cents. Above the one is written the letters *Dr.*, which stand for *debtor*, and in this column must be put all amounts that *cost an outlay* for that particular account; and the entry is commenced with the word *To*. Above the other set is written the letters *Cr.* (*for creditor*), and in such column must be put all amounts that result as income from that account, and the entry is commenced with the word *By*.

Ledgers are of two forms, one is ruled and kept as in Fig. A, viz.:

CORN.

1876		Dr.	1876		Cr.
May 12	To 1-2 day plow'g, @ 1	50	Oct. 30	By 25 bus. Corn, a50c	$12 50

The above style is mostly used by merchants and I think is not quite so suitable as the second form given in Fig. B, viz.:

1876.		CORN.	Dr.		Cr.	
May	12	To ½ day's plowing	1	50		
Oct.	30	By 25 bus. Corn, @ 50c.			12	50

I do not advocate this form because I think it more simple, but it shows the operations in a more continuous form than the first would, as each entry, whether "Dr." or "Cr." comes in the regular order in which the operation occurred.

We will now give an account in detail at Fig. C.

1876.		CORN.	Dr.		Cr.	
March	12	To 60 loads Manure at ½ of $2.00	60	00		
"	12	To hauling and spreading same	13	50		
"	29	To plowing 10 acres, @ $2.25	22	50		
May	10	To preparing 10 acres, @ 50c	5	00		
"	11	To drilling 10 acres, @ 40c	4	00		
"	11	To seed corn		75		
"	25	To harrow'g with smoothing har.	2	50		
June	7	To harrow'g with smoothing har.	2	50		
"	24	To plowing corn	6	00		
July	15	To pulling suckers	2	00		
Sept.	30	To cutting off corn	12	50		
Nov.	2	To husking and cribbing	35	00		
"	8	To hauling in corn fodder	8	00		
"	10	By 1750 bun's corn fodder, @ 8c.			140	00
"	10	By 500 bus. corn, @ 50c			250	00
"	10	To interest and taxes on 10 acres.	90	00		
"	10	To profit	125	75		
			390	00	390	00

It is not to be presumed that the above is a real bona fide account, or that it is in any degree a correct representation of the operations as they occurred, or the cost of the labor, &c., but it is merely to show the manner in which all accounts should be kept.

The item of "interest and taxes" is disputed by some, as to whether it should be charged *against the crop* or to farming operations in general, but I think each crop should be charged with the interest and the taxes for the time such crop takes up the land, which is generally a year; for though a crop may be only occupying the land for five or six months, yet but one crop is usually all that can be taken off in a single year.

The charging of only one-half the value of the manure also requires an explanation. It is the custom, I believe, in keeping this kind of accounts, to suppose that only one half of the strength of barn yard manure is taken up by the first crop, and therefore one-half of the manure is charged to the first crop and the remainder to the succeeding crop. In commercial fertilizers the whole amount is charged to the crop which receives the application, as but very little effect is produced by them on the succeeding crops. Lime, however, is not all charged to the first crop, but should probably be charged to at least three successive crops, one third of the cost each time.

The question may be asked:

How shall I charge my own labor? Charge it at the same rate as you would be charged by another person to do the same work for you; or what you would charge another person for doing that work.

How many, and what accounts should be kept? Start by keeping an account with each crop; and as you get more familiar with the details, commence with the cows, pigs, teams, &c. Also after awhile your farming operations, under which you insert profits and losses, repairs, wear and tear of tools and implements, &c.

And last, but not least, keep a strict account with your workmen, not that they intend to cheat you, but for the satisfaction of knowing at all times how you stand with your men, and it is often the means of preventing quarrels and ill feeling.

Keep their accounts in as orderly a manner as for the crops, &c. A few years ago I saw an account against a laborer by one of our farmers, and as it was a jumbled up affair, I will here give the style:

Jonathan Pineknot, March 12. Spread lime one-half day, 50 cents. March 14, set 10 panels pos fens at 14 cents, $1 and 40 cents. March 18, plowd 3 quarters of a day, one dollar and 12 cents. March 20, he got 3 bushels corn, 2 dollars and 25 cents. April 2, plowed one half a day, 75 cents. April 3, paid him one dollar and fifty-two cents full.

Then there was a big cross marked on to show that it was "put out." I have no objection to the spelling, for the man had not as much education as our farmers' boys now receive, but the man might have done some better as at Fig. D.

1874.		JONATHAN PINEKNOT.	Dr.		Cr.	
March	12	To ½ day spreading lime		50		
"	14	To setting 10 panels fence, @ 14c.	1	40		
"	18	To ¾ day plowing, @ $1 50	1	12		
"	20	By 3 bushels corn, @ 75c			2	25
April	2	To plowing ½ day		75		
"	3	By cash in full			1	52
			3	37	3	37

It would not have taken any more education to keep the above account in the form given, than to keep it in the way it was done.

I think that keeping of accounts should be taught in all ungraded schools, both to boys and to girls; for girls when they grow up often have as much need of keeping accounts as the men, and I have known instances where the younger girls of a family kept the accounts for the father, whose eyes had become somewhat dim.

Things to remember in keeping accounts:

Be punctual in making memoranda and then to transfer them to the ledger at short intervals.

What costs an outlay put in the "Dr" column.

What represents an income put in the "Cr" column.

Put the date to each entry.—*A. B. K.*

The *Country Gentleman* says: "An easy way to destroy Canada thistles is to plow them completely under, first before blossoming, as afterwards as soon as the first green point appears at the surface. We have completely killed large tracts in this way at a cost of six or seven dollars per acre.

For The Lancaster Farmer.

DOES THE WATER STRIKE THROUGH.

Many brick walls are so poorly built that when a heavy rain storm occurs the water strikes through them, and many a family, after going to the labor and expense of building themselves a new brick house, have found that it was in no wise the perfect shelter that they had a right to expect. After the first equinoctial and sometimes before, yellow streaks are on the walls inside, and great patches of the same color disfigure the whole surface, and though the careful housekeeper makes haste to cover them with her never-failing whitewash, yet every dashing rain that follows, brings with it a repetition of the same experience, and no wonder if the sorely tried inmates in despair exclaim, "better an old house than such a new one."

But there is a remedy for every ill if we but search for it, and to those who do not wish to go to the expense of putting on a coat of paint or plastering, or as some even have done, put on a weather-boarding, making the house look as if it were a frame one, we would suggest a trial of Uncle Sam's Coating, as used by the Government for painting light houses, and which is said to effectually prevent moisture from striking through. It is made of fresh Rosendale cement three parts, clean fine sand one part; mix with fresh water thoroughly. This gives a gray or granite color, dark or light, according to the color of the cement. If brick color is desired, add enough venetian red to the mixture to produce the color. If a very light color is desired, lime may be used with the cement and sand. Care must be taken to have all the ingredients well mixed together.

In applying the wash, the wall must be wet with clean, fresh water; then follow immediately with the cement wash. This prevents the bricks from absorbing the water from the wash too rapidly, and gives the cement time to set. The wash must be stirred during the application. The mixture is to be made as thick as can be applied conveniently with a whitewash brush. This wash can also be applied to fences, etc., but cannot be used to advantage over paint or whitewash.—*Æ.*

For The Lancaster Farmer.

SOUTHWEST MISSOURI.

Editor Farmer: Having examined most of the many great farming, grazing and fruit-growing regions of the Great West, I do not hesitate to pronounce Southwest Missouri superior to any other portion for its vast agricultural, mineral and timber resources, stock-raising, bee-keeping, fruit-growing, manufacturing and railway facilities, mildness and healthfulness of climate and entire absence of grasshoppers.

Agricultural Resources.

To insure luxuriant vegetation three things are necessary, viz.: rich soil, sufficient moisture and plenty of sunshine; all of which exist in Southwest Missouri. Every variety of soil is found here that can be needed in farming, fruit-growing or stock-raising, as is shown by the large crops of all kinds of grain, grasses, vegetables and fruits produced. Apples, peaches, pears, plums, cherries, grapes and all kinds of berries flourish and never entirely fail. The wild grapes are almost equal in size and quality to some cultivated varieties in the Eastern States.

Blue grass, timothy and clover do well; and old bee-keepers say that wherever clover grows bees will succeed; and if this is correct, Southwest Missouri will soon be a great honey country.

Water—Winter—Timber.

Water is of the best quality and abundant. It is found in clear, sparkling springs and rapid streams innumerable. The average annual rainfall is about forty-two inches, most of which falls during the growing season.

The winters are mild and short, the ground never frozen more than two or three weeks,

and the light snows remaining only a few days. The altitude is about two thousand feet above the sea, ensuring delightfully cool summers and warmer winters than in the same latitude, either east or west; and as the general slope of the country is south and east, there are no high winds as in the northwest.

The rapid descent of the numerous large streams affords excellent water-power for manufacturing the vast forests of walnut, oak, ash, hickory, maple, pine, etc., into lumber, cars, carriages, wagons, furniture and agricultural implements, and for driving the machinery of the flouring, cotton and woolen mills, which must hereafter largely increase in number, as the grain, cotton and wool are all produced in the vicinity.

The Healthfulness

of this region is remarkable, owing to the abundance of bright and genial sunshine, pure water, excellent bread and beef, few sudden atmospheric changes, and no swamp lands within hundred of miles. Ague is unknown, and there are no grasshoppers.

The St. Louis and San Francisco Railway extending entirely across the State, and the rich coal, iron, lead, zinc and other mines, and to the great plains region west, insure a ready market and good prices for all farm, garden, orchard and dairy products for all time to come.

By settling in colonies here, good society, schools, churches, daily mails, telegraph, mills and other advantages may be secured from the beginning, and land bought at from two to six dollars per acre, of the Railway Company, on long credit.—*Examiner, St. Louis, March* 28, 1877.

For The Lancaster Farmer.

INCIDENTAL SUGGESTION.

Mr. Editor.—I congratulate the Farmers of our county on the re-appearance, or continuance, of your valuable journal. It would do no credit to the intelligence of this grand agricultural garden if it could not sustain one periodical devoted to its greatest interest.

I have often noted your requests to your readers to furnish memoranda of their experience in farming, and observations on modes of culture—items of every kind likely to be of interest, or to awaken inquiry among neighboring farmers. And I have blamed myself that I have not asked questions through your journal, even if it would not furnish answers worth occupying your pages.

My excuse for my own remissness is, that though I am much interested in agriculture and the farm, I have other occupations and interests than the farm: (which I do not personally cultivate) and that my experiments can hardly be called experiences or examples to copy. A plausible hint I may have eagerly adopted and pursued to apparent or promised success, without watching closely final results. The spirit of Girard, "if I thought I should die to-morrow, I would plant a tree to-day." I have carried out, however—every year for thirty years—planting trees, vines, something with each returning spring. Reading agricultural papers, I could select the choicest kinds of fruit from the catalogues of the nurseryman and have bought and planted fruit trees every year.

Plum trees in the garden—"Golden Drop" to tumble like little leaden bullets, and yellow gages that fell while they were green, and so with others—all sacrificed to the Curculio, except one fine German Prune, which matured fruit, owing I think to this treatment: round the trunk of the tree I wrapped a piece of strong iron mongers' paper a foot or more wide—the lower edge resting in the earth, the paper tied with twine to the tree, and coated with a thick coat of coal tar—a few strips of lath, and some corn cobs saturated in this black paint were suspended from twigs of the tree—this before the buds began to swell. It happened that this tree was near an open window from which as soon as the first blossoms appeared the whole top could be dusted with fine slaked lime, which was plentifully showered over it every day or two while the blossoms lasted—the fruit did not fall. Peach trees have had short lives with me, in spite of trials of lime, at the roots, hot water, lie, oil &c., &c., in addition to examinations, spring and fall, for worms in the roots—eating them hollow or gridling them. Observing the fresh, green appearance of trees in the garden of a friend, near to his house, full of fruit, while the neighborhood was a failure, I learned that the slop from the chambers were distributed at the roots of three dozen trees, daily thus they were fertilized and something offensive enough to drive the worms from the roots supplied—this should be done where it could be followed on a small scale near the house; and the chemist would assist the fruit grower greatly who would furnish a recipie that would be a substitute for this Uric acid, that could be applied wholesale to the orchard. J.

MILLIONS FOR MIDDLEMEN PENNIES FOR PRODUCERS.

By request of the Committee on Agriculture of the House of Representatives, at a hearing to consider the absurd insufficiency of appropriation for statistical investigation and compilation, and the preparation of material for "reports," the following communication was made:

Department of Agriculture,
Washington, Feb. 1, 1877.

Sir: In response to the request of your committee for a showing of the inadequacy of the proposed appropriation for the statistical division of this Department, allow me to present the following considerations:

The appropriation is for the entire expenses, including clerical service of this division, the current work of which includes—

1. Statistical investigation in more than twenty-five hundred counties of the United States.

2. The crop-reporting system now including our organized corps of correspondents in seventeen hundred of the principal counties.

3. Investigations for furnishing advanced and practical original material for the annual volume.

4. Record and tabulation of such statistics, with current data from official statistics of States, boards of agriculture and of trade.

5. Translation and compilation of foreign, official and other statistics of agriculture.

6. Writing and editing fifteen hundred printed pages, annually, of regular and special reports, and preparing an equivalent of one thousand pages more for industrial, commercial and other organizations; in all an annual average of seventy-five hundred manuscript pages.

For this work, at its initiation thirteen years ago, $20,000 was appropriated in addition to the salary of the statistician. With the decrease of appropriations a few years later, as the war-begotten labors of other branches of the civil service declined, the *pro rata* system of reduction was applied to this new work, when its importance and usefulness demanded increase, and the appropriation was cut down to $15,000. Last year it was reduced to $10,000 for all these purposes, when the salaries of the regular force of clerks employed in tabulating and recording amounted to $10,600, leaving nothing for collecting statistics, statistical investigations, or the preparation of material for the annual volume or other work. This staggering blow might have been regarded as a vote of censure but for the fact that on the day before an appropriation of $130,000 was voted for the printing for congressional distribution of 300,000 copies of the annual, for which no *future* provision was apparently desired. But it was evidently an accident of the conference committee, as it was less than provision made in the House bill, which was enlarged by a Senate amendment.

The appropriation proposed in the present bill, $5,000, if all applied to the collection of statistics, will not give twenty cents for each monthly county return, or pay the postage between our county correspondents. If applied to the routine office work exclusively, it would not pay $2 each per day for the smallest force for its possible accomplishment. If used for investigations and writing for the annual, all other work being discarded, it could not produce a volume worthy an edition of 200,000 copies, or even 10,000. In fact, it would be far better to blot out the $5,000 and the division and its work together, and with it the Department, rather than to degrade and dwarf to utter inefficiency a branch of the service which has possibilities of eminent usefulness and needed protection to both producers and consumers, who have already been saved the plunder of millions by heartless speculators through its instrumentality.

You know well the history of agricultural appropriations; that a hundred dollars has been given in the aid of commerce to every dollar appropriated for the promotion or protection of agriculture. There is no lack of provision for investigation in aid of other industries. One of the geological explorations of the Rocky Mountains in 1876 obtained $75,000; another $10,000; a third $25,000, and $40,000 more were given for illustrations of two of them. In the same year the appropriation for the observation and report of storms was $470,000, for the benefit of commerce. There was appropriated for clerical service in compiling commercial statistics, during the same year, $59,440, and an additional fund of $20,000 for special investigation. There was also as large a sum appropriated for the preparation of a single annual of mining statistics, in the same year, as was given for all the operations of the statistical division. And yet there is no government publication for which the popular demand is so imperative, and public appreciation so marked as for the reports of agriculture.

We have at least the value of $150,000 per annum in gratuitous service of public-spirited citizens. We need $50,000 per annum to supplement this work and render it truly efficient. But for the present year $20,000 is as small a sum as should be given for present purposes.

I am, very respectfully, your obedient servant,

J. R. DODGE,
Statistician Department of Agriculture.

Hon. John H. Caldwell,
Chairman Committee on Agriculture.

Brief Notes of Debate in the House.

On the motion of the Chairman of the Committee on Agriculture, Mr. Caldwell of Alabama, the amendment to increase the appropriation to $15,000 was agreed to.

During the discussion, Mr. Townsend of New York said he was prepared to vote for $20,000, regretting that "every interest in this country can obtain appropriations more readily than the agricultural interest."

Mr. Townsend, of Pennsylvania, said the increase would be repaid "ten times over, probably a hundred times over, to the people of the country in the information brought before them."

Mr. Harris, of Georgia, said "the trouble is we are appropriating too much to commerce, and too little to agriculture." "There are thousand of reports of the Agricultural Department called for annually by our constituents, to one single copy called for of the reports of the Treasury Department."

Mr. Wilson, of Iowa, thought "the small amount asked for by the Chairman of the Agricultural Committee ought to be given, and that we ought either to do something with this Department of Agriculture, and not hamper it in its operation, or else abolish it altogether. No country in the world does so little to spread agricultural information as ours."

Mr. Davis, of North Carolina, said, "the amount of information collected by this Department cannot be procured from any other source at a cost of ten times as much as is asked for by the Committee on Agriculture."

The Chairman of the Committee on Agriculture, in moving an amendment increasing the salary of the Statistician $200, under instruction from the Committee, said:

"In support of this amendment I desire to say that there is no officer connected with the Department of Agriculture who renders more efficient service than the statistician. All the statistics in the agricultural reports connected with the agricultural interests of this country are compiled by this officer or under his immediate supervision; and I venture the assertion that there is not an officer having the same qualifications to be found in any employment, either private or public, who is so poorly compensated as the statistician in the Agricultural Department. The salary attached to this office was originally $2,500; and in the anxiety of the Committee on Appropriations to make reductions, I think they have made a serious mistake in reducing the salary of this officer to $1,800. I therefore offer the amendment, and I trust it will be adopted. The question being taken, the amendment was adopted.

COMMERCE VS. AGRICULTURE.

It may not be known to agriculturists that while the Agricultural Division of Statistics, involving the preparation of two series of reports issued in larger numbers than all other official reports combined, has for the present year appropriations amounting to only $11,800, the Treasury Bureau of Statistics of Commerce has $47,353, besides $12,978 for work of experts for Senator Windom's Transportation Committee Report relative to inland commerce; and this is little more than half the appropriation for commercial statistics in previous years. Not that this provision is too large; but the former is utterly inadequate.

Yet this is but a drop in the ocean of appropriations in aid of commerce. In the present year of pinching economy, there was appropriated for Rivers and Harbors $5,015,000; and for the Light-house establishment $2,375,800. For Custom Houses and other public works appropriations have averaged $12,000,000 annually for the past five years.

The amount appropriated to the Treasury Department for *postage* in 1877, exceeds the expenditures of the Department of Agriculture in six months of the present year.

The mere "continuation" of the building of the custom house in Evansville, Indiana, (acknowledged to be of greater importance than that of Hull, Massachusetts) receives four times as much as Agricultural Statistics and the Reports of Agriculture for the current year.

The amount appropriated for fuel, lights and water for the buildings under the control of the Treasury Department, is nearly double that of the present appropriation for the Department of Agriculture.

Half the legal interest on the amount annually appropriated for Commerce would suffice for the customary annual dole to Agriculture.

Even the interest on the cost of supplies to Indians for fulfillment of treaties would more than equal the current appropriations for the current year.

For this state of things there is a remedy; it is suggested by the fact that the rural classes of the United States hold in their hands FOUR MILLIONS OF VOTES.—*From the Congressional Record.*

LANDSCAPE GARDENING FOR FARMERS.*

It is such an easy thing to talk of beauty and beautiful things, in a sort of general way, without giving any real genuine instruction, that I hesitate at the very outset, for the sake of making a resolution that my aim in this short address shall not be to say pretty words about pretty possibilities, but the rather to suggest and point out a popular want among the farmers of Michigan, and state some practical methods of answering it.

The popular opinion too often would sneer at placing in so intimate a relationship the two extremes of my title—for the term Landscape Gardening brings up a picture of some grand old place upon which the income of a fortune has been expended, or a beautiful park like those in our large cities, supported by a general tax which private means can ill afford to expend. While on the other hand farmers are men of muscle, who follow the plow and handle the spade from early morn till dark, to raise the grain and vegetables for the world to live upon, whose ideal of beauty is supposed to culminate in a clover blossom or a straight row of corn. I trust that these ideas may be modified in time so that the close relationship of the two will not only be considered compatible, but will be a fact of existence.

The Landscape Gardening that I wish to talk about is not a grand or expensive affair, involving the necessity of a professional man to conduct, or a large bank account to support it. Far from this. It is a matter of very little outlay; it is a miserably cheap affair. But water is cheap, and so is sunshine. What among the most costly things you have would you exchange for these!

Then the landscape gardening of which we shall talk, has to do with such yearly, monthly, yes, daily modifications of our present country premises as shall transform them into beautiful and attractive homes, render them more valuable as property, and while we do this, hint at the general principles of landscape art, upon which these details are founded.

WHY SHALL WE BEAUTIFY?

The first question that arises, the answer to which is our incentive to the adornment of our homes, is, why shall we beautify? And I answer first, for the beauty itself, and secondly for the influence that beauty has in completing a rounded manhood and womanhood. Accompanying the development of a tasty home, beautiful grounds, attractive shrubbery, or delicate flower borders, is another growth on the inside of the person devising these embellishments, that is more lasting and valuable than the outside modifications that seem so beautifully transformed. This is the growth of refinement; something that we can not measure by dollars and cents, any more than we can measure faith and love. But it has far more to do with the progress of civilization than the opening of the richest silver lead, or the discovery of the largest diamond field. These go up and down with the supply, but the more refinement we have the greater premium there is on its acquirement. We all see the necessity for more of it among our farming people; from their isolation, there comes a tendency to neglect the schooling of the heart, in the channel of refinement, and there is nothing that can so perfectly take the place of society, and knowledge of its best moulds, as close companionship with nature's beautiful life forms, and the profuse employment of them in the adornment of a home. There may be just as good a heart in the man who in answer to a favor says: "That's a good 'un, old fellow; if you want a lift call around," as in the breast of another who says: "Thank you kindly. I trust I can return the favor some time." But while we admire the generous impulse of the one, we are doubly pleased with the impulse and its delicate expression in the other. We can not come in contact with refined people without unconsciously following in their wake, and smoothing down the rough corners of our own habits. So it is in the development of beautiful grounds and attractive surroundings; every new creation has its effect for good upon the one that devised and moulded it. This in itself is a great reason for the adornment of our homes. Need I give others? I will suggest them. Secondly then, I shall name *satisfaction of possession.* This I admit is of much less consequence than the other, still we are so constituted that the satisfaction of having things is a stimulus to get them. Of course the value of the acquisition has much to do with the weight of this incentive. The man who has a beautiful wife, aside from all the pleasures she may bring to his home, takes a great deal of comfort in the thought that she is his own. (This instance is for my bachelor auditors). The woman who grows a beautiful house plant, and by her skill succeeds in making it a model of symmetry and floral wealth, has a little pleasure in the fact of possession. The value of this pleasure does not usually depend upon what the acquisition will bring in the market, but rather in our interest and effort in the getting of it.

Again, there is the greatest good comes to us through the development of all our faculties, and if the germs are given us, why not give them opportunity to grow, and thus fit us for a wider field of work and appreciation of what is created? In the work of landscaping the farmer brings into use a new set of faculties, and he is given opportunity to make himself a broader man. A few years ago, while land prospecting with a friend, in Kent county, after passing across the fields for some distance we came into a tangled woodland undergrowth. We pushed our way through this for some distance, and to make a bad matter worse, we were obliged to cross a long stretch of mire and sphagnum, which tested our powers of endurance to the utmost. Just before we emerged from our difficulties we ascended in more open woodland, quite an elevation, and at its summit came upon the most beautiful landscape I had then ever seen. In the distance hill overtopped hill, until the wavy outlines of blue only indicated the character of the country. Nearer to us, in a quiet valley, lay the Grand river, pursuing a winding course, and reflecting to us the sun's rays in such a manner as to convey the impression of a river of silver. Here and there in the valley and on the hillside new farmhouses, and the alternations of woodland and cleared fields gave a beautiful variety to the distant view. But best of all, at the foot of the hill upon which we stood, snuggled into a quiet retreat, almost surrounded by natural groves of oaks, silver maples, and aspens, lay a calm little sheet of water. It was the embodiment of quiet, modest beauty. I had but just taken in the outline of these beautiful views when the rough salutation of a Teuton brought me to a realization of the ground upon which I stood. I was unconsciously treading out a few heads of clover seed in my endeavor to grasp the grandeur of the scene before me. He unceremoniously reminded me of the fact, and to mollify him I spoke of the favored position he occupied in commanding such a view. "Yaas, it was purty nice, but I can show you somedings dat is better as all dat, right by mine house." Glad that he was turned from the cloverseed matter, I followed him to find, first, that his house, which was very cleverly built, and indicated a thrifty farmer, was so placed as to have the barn between it and all this loveliness I had admired, and imagine my disgust when I found "his ting dat vas so nice," was nothing more than a pen full of fat pigs, evidently the pride of the farm and the joy of the household. The front porch where my new friend sat and smoked, looked out upon this yard of swine, and his ultimatum of the beautiful lay in their fat sides. What this man lacked I would have every farmer cultivate, and it is for the development of the faculty which enables us to appreciate the finer beauties of the world, that I submit this answer to the question—why shall we beautify?

Simply as a matter of benevolence we should beautify our premises. I would not have you think that I mean by this that we should make our places tasty and attractive for the sake of showing off to other people our ability in this direction, but for the same reason we would assist our neighbor in taking off his wagon box. He is not able to do it alone, and we can help him. There are hundreds who pass your doors that can not fix up a home and yard because they have none, but who can keenly appreciate the neatness and attractiveness of yours.

Only a few days ago a man said to me, "I passed your mother's yard a great many times last summer, and never once without stopping to admire a magnificent bunch of Magenta

*Read before the Michigan State Pomological Society, at Pontiac, by Prof. C. W. Garfield, of Michigan Agricultural College.

phlox, and I have seen dozens of people doing the same thing." This is a simple instance of how much pleasure we can grant others by the adornment of our premises. The people did not know that the beauty of this phlox was largely due to a principle in landscape art that was there exhibited, viz.: contrast of color, for a dark green stood near that heightened the effect.

Lastly, there is money value in the making of a beautiful home that will pay a large interest upon the outlay, if the labor be reckoned at its highest value. You may not want to sell, but if you are a thrifty farmer, a business farmer, you wish to know at the end of each year what are the profits of your business, and if you find there is not a very large bank account, there is great satisfaction in knowing that your place has been enhanced in selling value through the exhibition of tact and taste in making the premises attractive. If the worst comes, and it is found necessary or desirable to change location, the enhanced value, through the exhibition of taste in adornment, pays in the cash receipts. Beautiful situations are always more marketable at advanced rates than poorly-kept farms are at a discount. It pays, then, liberally to make a home beautiful.

In the outset of fixing up a place, one thing must be borne in mind conspicuously—that utility and beauty are not antagonistic elements. The path that leads to places of work would not be beautiful if it were not direct, while the one that leads to the flower beds or the grove may be filled with delicate curves, and we follow admiringly, appreciating the nicety of the turns, because when we go there we are walking for pleasure, not business, and a little matter of added distance takes nothing from the charm of the promenade.

Anything loses or acquires beauty through association, and we should care for this scrupulously. The weeping branches of the elm in the hollow make it a beautiful object in the landscape, and when we observe the tops of the weeping limbs almost or quite sweeping the surface of the brook beneath, we enjoy the delusion that it droops to bathe its branches in cool water. But were that elm placed midway between our house and barn, when upon every occasion of passing we must make a detour to avoid the limbs, or by passing under have our hat knocked off and hair pulled every time, the beauty of the weeping branches is lost, and we dub it a nuisance. Another point to be considered is that unceasing care and attention is necessary to the development of beauty. If by the cultivation of taste this becomes a delight, the care is only an added enchantment to the pleasure of development.

In the arrangement of ground there must be unity of action on the part of the whole family in order to accomplish what is most desirable, viz.: congruity of parts. To illustrate: A place I have in mind, and no imaginary one, either, has a delightful frontage; the lawn is smooth and green; the evergreens tastily grouped; climbers are delicately turned about the veranda posts, and flower beds just at one side neatly kept, give an air of loveliness to the whole yard. But every day as I pass the place, when just beyond the yard fence, I can not help but catch a view of the lane that leads to the barns. It is filled with an aggregation of indescribable odds and ends, such as could accumulate nowhere but on a farm in a generation of time. At best it is muddy, filthy, slovenly, ill-kept alley. We lose all the effect of the beautiful yard in that lane, and its loathsomeness, rather than the preceding beauty, haunts us. The story is told when we say that the mother and children have charge of the first part of the home, while the head of the family believes in having everything handy in the lane. But unity of action must move in the right direction, for I know another farm where the whole family are actuated by the desire to have everything handy, and everything upon the place bears the impress of a total lack of taste or order. They spend enough money in trees, plants, trellises and ornaments, but somehow each new one adds another to a most unfortunate combination.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The regular stated meeting of the Lancaster County Agricultural and Horticultural Society, was held in their rooms in the City Hall on Monday afternoon, May 7. The following named members were present:

Simon P. Eby, Jonas Buckwalter, Jacob B. Gerber, M. D. Kendig, Henry G. Herr, Levi W. Groff, Casper Hiller, John Hoover, Johnson Miller, Levi Pownall, Henry M. Engle, Levi S. Reist, Jacob Garber, Chr. F. Hunsecker, Walter L. Hershey, Eli Hershey, Jacob Herr, Reuben Weaver, David Wolf, John C. Linville, B. Frank Landis, P. S. Reist, Jacob S. Witmer, Jacob Bollinger, John Miller, Henry Kurtz, Jacob Royer, Simon Hostetter, S. S. Rathvon, Geo. S. Geiger.

In the absence of the President, Vice President Henry M. Engle was called to the chair.

On motion, the reading of the minutes was dispensed with.

Crop reports being called for, Mr. Engle, of Marietta, said the wheat in Donegal has greatly improved and the prospect of a good crop is now very flattering. The peach trees look well and a good yield may be expected. The grass has also improved, the cold weather we have had being favorable for both grass and grain.

Mr. Linville, of Salisbury, reported the wheat as about average—the clover very poor and the timothy rather better—apples in his section will be a failure—oats is well started—cherries look well.

Mr. Kendig said the wheat looked well in his neighborhood; the grass very thin—apples presented a pretty fair show of blossoms—pears and peaches very good.

Mr. W. L. Hershey, of Hempfield, said much of the wheat looked very poor—except in gravel land—fruit trees are backward in blooming. About one-half the corn crop has been planted.

Johnson Miller said wheat would probably be a short crop; he sowed last fall 1½ and 2 bushels per acre; some of the new varieties look well; about one-half the corn crop has been planted. The fruit and grain prospect is encouraging. Grasses in many places will be a failure.

Mr. Hiller being called on to report on the fruit prospect in Conestoga, said he never took much account of the blossoms; he can tell better what the crop will be about the time the fruit begins to ripen.

Levi S. Reist read an essay on wheat, which he regarded as one of the most valuable of agricultural productions. It follows in the course of civilization in all parts of the world. Although its origin is unknown, it has been used from the earliest historic era. It is spoken of in the Bible, where the patriarch Jacob in a dream saw Joseph's sheaf standing, surrounded by his brothers' sheafs, which made obeisance to it. Of over 300 varieties of wheat which had been introduced, Mr. Reist thought the old red Mediterranean best stood the test of cultivation. He believed that in this section our own native wheat would do the best, and he recommended farmers to examine their fields and search out new varieties. He thought it would be well for the society to offer a reward for the best varieties of native wheat thus discovered. Mr. Reist next referred to the diseases to which wheat is subject. Rust in the straw and an imperfect filling of the grain was caused by excessively low temperature. The greatest destroyer was the Hessian fly, which made its appearance in this country in 1776, and is supposed to have been introduced among the straw imported by the Hessian soldiers during the revolution. Since that time it has spead throughout the country and has destroyed an immense amount of grain. In 1830 all wheat planted from August to the middle of October was destroyed. The seed sown after the 20th of October turned out well. The wheat that was sown early last year also turned out poorly—that which was sown later looks well, and will yield from 20 to 30 bushels per acre. Mr. Reist added that on the 5th of September last a neighbor of his sowed 12 acres of wheat, and on the 11th he sowed 6 acres more. Early in the season that sowed first looked very well, but has been almost entirely destroyed by the fly; while that sown on the 11th has almost entirely escaped, and now looks very thrifty and will yield a good crop.

Mr W. L. Hershey mentioned a case in which two fields of wheat were sown on the same day, and one of them was entirely destroyed by the fly and the other escaped.

Mr. Linville said it was a maxim of agricultural writers to "cultivate, cultivate, cultivate." The maxim was a good one in many respects, but his own experience had been that wheat should not be too highly cultivated; but doubtless the quality of the soil and the condition of the season has much to do with the production.

Mr. Kendig suggested that the fly breeds more rapidly and creates greater havoc where the ground has been early plowed.

Mr. Engle said there was no rule that would hold good in all cases. There are startling exceptions to all theories; the only thing the farmer can do is to observe results from year to year closely and intelligently and be governed accordingly.

Levi W. Groff said that early last fall he sowed five acres of wheat on ground that was last year in tobacco; at the same time he sowed five acres more in ground that had been in corn. That which was sown on the corn ground was almost entirely destroyed by the fly, while that on the tobacco land was untouched. He thought that about two-thirds of the tobacco crop of West Earl is better than it has been for five years.

Mr. Engle said we are apt to treat tobacco to a more liberal supply of manure than we give to corn, and this perhaps made the wheat on Mr. Groff's tobacco land more thrifty and better able to withstand the fly than that on the corn land.

Mr. Groff replied that his corn land was as highly manured as his tobacco land.

Mr. Levi Reist said his essay on wheat was written with a view to inducing farmers to search through their own fields for new varieties of wheat. He believed that they would succeed better than in selecting varieties from the agricultural department or elsewhere, most of which he had found to be almost worthless. His favorite was the old Mediterranean.

Mr. Groff reported very favorable results from the Clauson wheat.

The question proposed at last meeting for discussion, namely, "Is the growth of Hungarian grass for hay a desirable crop for farmers to engage in?" was answered by Mr. Pownall, who said that if it were proposed to make it take the place of clover, timothy or other grasses it would be unprofitable; but if it were sown to supplement these crops when they partly failed, it would be found profitable. When cut young it makes a good hay.

Mr. Hershey, of Manor, regarded it as worthless; his horses and cattle would not eat it.

Johnson Miller, of Warwick, had quite a different experience. His cattle ate it with avidity. He had fed his milch cows on it since last November, and they had never produced more butter or of a better quality.

Mr. Linville, of Salisbury, had once planted 11 acres of Hungarian grass. His cattle ate it readily and thrived on it, but it was hard on the soil and he had concluded to plant no more of it; but as his timothy and clover had almost entirely failed, he would this year try it again. It is best to cut it early, and not let it get wet, as rain hurts the quality of hay.

Mr Engle coincided with Mr. Linville's views.

Mr. Groff sowed ten acres, and in sixty days thereafter had the hay in his barn. It was a good crop and made good feed, especially to supplement other kinds of hay.

Mr. Witmer, of Manor, had never had any difficulty in getting his cattle to eat Hungarian grass. He cut it before it bloomed. Did not think it exhausted the soil. He planted wheat after it and the crop was as good as when he planted after corn. It was no harder on the soil than oats.

Casper Hiller said a neighbor of his had sown 5 or 6 acres of Hungarian grass to plow down as green manure. He would like to hear what members thought about it.

Mr. Linville answered that a neighbor of his had sown oats and Hungarian grass for hay, but having enough hay from other grasses he plowed down the oats and Hungarian grass and sowed the ground in wheat. He manured the ground on which the oats had been plowed down, and not that on which the Hungarian grass was plowed down, and yet the wheat was as good on the one as on the other. In conclusion Mr. Linville asked what crop was the best to be plowed down for green manure.

Mr. Engle said "buckwheat."

Mr. Groff said "clover."

Mr. Engle said clover was the best, but it could not be grown in a single season, and buckwheat could.

Mr. P. S. Reist was in favor of cutting off the clover for hay and plowing down the sod.

Mr. Engle said that clover certainly extracted from the soil and absorbed from the air certain ingredients that enriched the ground when the clover was plowed down.

Mr. Groff said it was his intention to sow corn and Hungarian grass together and plow them both down as a green manure.

"How can the fertility and productiveness of our farms be maintained under our present system of cropping?" was next discussed.

Mr. Kendig said to accomplish the desired result, he would stand by stable manure and lime. He did not have much faith in manufactured fertilizers. To secure the full benefit of stable manure it was necessary to prevent the cattle from running at large. He would keep them housed and well fed, and not keep too many during the summer. After they have fed in the pasture field tie them up during the rest of the day; it will protect them from flies and save the manure. The manure should be drawn at least three times a year—in the spring, after harvest and in the fall. He thought that a farm of 100 acres might safely grow ten acres of tobacco without deteriorating the soil.

Mr. Engle agreed with Mr. Kendig as to the management of the stock, but was not so sure about the tobacco, which leaves no straw for manure to

supply the strength it has taken from the soil. Heavy manuring makes the straw heavy but not strong. We should try and get something to strengthen the straw and prevent it from lodging.

Mr. Hershey suggested an increase of silica to strengthen the straw.

Mr. Groff believed that farms in his neighborhood were going down for want of manure. He advised the growing of less wheat and less tobacco and more rye. He favored tying up cattle, as the manure could be better secured by so doing and the cattle thrived better. He instanced a case in which the straw of very heavy wheat (40 bushels to the acre) grown on new ground stood straight up, while the crop on old and heavily manured ground was not nearly so large and yet the straw lodged and fell down.

Mr. Linville thought that most of our farms needed potash. He noticed that wheat grew better on ground that had been burned over, the ashes supplying the potash. A friend of his argued that farmers should keep more cattle and let them run at large in the pasturage. The farmer is thus saved the trouble of spreading the manure. He had himself noticed that a good crop of corn always follows in ground on which sheep have been pastured.

Mr. P. S. Reist thought it good policy to keep only a few cows in the summer and buy stock cattle for winter from the west, where they can be kept during summer at much less cost. Fatten the stock cattle and put the manure on the farm, and its fertility will be kept up.

Mr. Henry Kurtz, of Mount Joy, said he believed in the plan advanced by Mr. Kendig: to keep only a few cows through the summer, feed stock during the winter, and keep the cattle tied up. He had one season fed three hundred head of cattle and had lost money on them, but had in the end been well paid by the value of the manure. He spreads the manure on corn stubbles, and plows it up for tobacco. The tobacco crop he follows with wheat. He manures to the extent of six wagon loads per acre, adding the ashes made under the boiler in his tannery. By this alternation of crops ten acres out of a hundred may be each year planted in tobacco without impoverishing the land. He thought farmers paid too much for their cattle and might get them for less if they refused to pay the high prices demanded.

Johnson Miller said that Mr. Kendig had stated the true theory—keep only six or eight head of cattle during the summer to every thirty or forty during the winter.

Mr. Engle said from the remarks made it was evident that there were many varieties of soil, and that they require different modes of cultivation. There can be no uniform rule for soiling; Mr. Groff's ground being too rich, contains too much vegetable matter. This is probably the reason his wheat lodges. Farms may become too rich, though many more no doubt are too poor. A fertilizer that is suitable for one may do the other no good. We must endeavor to find out just what our land requires and then apply it. He had not much faith in commercial fertilizers, but they will in time become a necessity. The manufacturers should be compelled by law to state what chemical ingredients their fertilizers contain. Then we could buy the one that contained the ingredients our land needed for the crop we proposed to grow. It will not do to take a fertilizer simply because our neighbor had good results from it. He favored the soiling system for small farms, but believed there may be found a better system of keeping up the fertility of our farms than any now in use.

The question was further discussed by Messrs. Groff, Engle, Kurtz and Reist, during which Mr. Groff said it was his intention to sow rye and plow it down green for tobacco; and Mr. P. S. Reist replied that a neighbor of his had done the same thing and had a perfect failure. In alluding to concentrated manures he stated that one farmer had said to another that the time would come when he could carry in his coat pocket enough manure to supply a five acre field; to which the other replied that when that time arrived he could carry home the crop from the field in his vest pocket. Mr. Reist maintained that the manure that comes from animals, birds, &c., is the only true manure. In using still-house manure he had found that it left the land hard and compact, and it required stable manure to loosen it up again. The use of guano has the same bad effect, and probably is one cause of wheat lodging. He advised that only three or four good cows should be kept in summer instead of eight or ten.

Mr. Kurtz thought farmers sow too much seed per acre, and that this makes the straw weak and the heads small because there is not room for it to grow.

Mr. Hunsecker spoke of the good results that followed the use of plaster on poor land, and the question was further discussed at some length by Messrs. Groff, Engle and Eby.

Mr. Engle distributed to members circulars issued by the State Board of Agriculture, relative to their meeting on the 22d inst., the substance of which paper will be found on page 66.

The following questions were proposed for discussion at next meeting:

By P. S. Reist—"Will sub-soiling pay?"

By Mr. Engle—"Are county fairs beneficial to farmers and fruit growers?"

Several packages of seed received from the Agricultural Department, were distributed among members, and the society adjourned.

Proceedings of the Tobacco Growers' Association.

A meeting of the Tobacco Growers' Association was held in the Athenæum room, Monday afternoon, April 16, at 2½ o'clock. The following members were present: M. D. Kendig, I. L. Landis, Peter S. Reist, Jacob Frantz, W. L. Hershey, J. W. Johnson, A. L. Landis, Andrew Lane, E. Hoover, H. Mayer.

Visitors: A. Bard, John Stauffer, N. Hostetter, Christian Hunsecker, Messrs. Shiffner and Kennedy.

Reading of the minutes of the previous meeting was dispensed with.

The following persons made reports on the crops:

Crop Reports.

Mr. Frantz said that so far as his neighborhood was concerned there was no tobacco on hand; the preparations for the coming crop are extensive. There is an unusual area of ground prepared for plants, some of which are up; upon the whole, we have reason to believe the crop will be put out on an improved basis; cultivators have learned to plant in the right kind of ground, and this was owing partly to the experience obtained by attending the meetings of the association. A few lots of tobacco, he said, had been sold lately in his section at an advanced price. This was of an inferior quality.

Mr. Reist said that he did not know that there would be more planted than usual. A great number of those who are raising plants with whom he has spoken say they are up. The price in his section for tobacco has varied from 8 to 10, and from 20 to 25 cents. Nearly all are trying to improve on the quality. He then spoke of the good the association is doing for tobacco culture.

Mr. Shiffner then spoke of some of the mistakes made in preparing tobacco. One was that too much is topped too high; it is length the buyers want. When stripping you ought to have a standard length. In his section (Upper Leacock) prices have been better, and a quantity is not sold.

Mr. Kennedy, of Salisbury, said about one-fourth of the crop is on hand. Tobacco plants are coming up very well. There will be at least one-half more planted than heretofore. He believed it was important to plant early.

Israel L. Landis said there may be a few lots to sell in his section, otherwise he agreed with the former speaker.

Mr. Stauffer, of Salunga, said there were a few lots to sell yet in his section.

Mr. Kendig said in regard to Manor township that the same amount would be planted as heretofore; the object is to raise the standard of the quality; there is still some on hand. In regard to plants, he said, fair weather will bring plants in good condition.

Mr. Hershey, of Rapho, said that prices vary from 8 to 20 cents; there is a feeling to raise better tobacco; not more than half is sold.

Mr. Lane, of Neffsville, said the tobacco is pretty well sold in that section; there is still some on hand, but it is of an inferior quality. There is an effort to raise better tobacco.

Mr. Hershey, of East Hempfield, said there is some on hand yet. The same spirit prevails to raise better tobacco. Preparations are made to begin to plant. Some are using ashes as a fertilizer.

Mr. Hunsicker, of Hempfield, said that fine tobacco is raised in his section, and that preparations are being made to plant.

Essay by Mr. Landis.

Mr. Israel L. Landis then read an essay substantially as follows:

He commenced with a statement of the magnitude of the tobacco crop of Lancaster county, (being valued at $2,500,000,) and the great wealth this adds to the community at large. He spoke of the magnificent warehouses built, and being built, in the city and county, and feared the growers did not realize or appreciate the opportunities they have of raising their crops and handling them, preparatory for market, as the dealers do in searching suitable warehouses and shipping facilities. He advised that great care should be exercised in the selection of seeds and in propagating plants, and recommended early planting—say from the 25th of May to the 10th of June—as they have a better chance of escaping the worms. Mr. Landis next referred to the artificial fertilizers, and warned growers to be careful and use nothing that would have a tendency to impair the fertility of the soil. He pointed to Connecticut, which some years ago stood first in growing fine leaf, but now stood second, this result being brought about by over-production. It is to be feared, too, that our grain crops may suffer by supplying the tobacco fields too heavily with the manure essential to its growth. Mr. Landis continued as follows:

The inducements for sub-dividing large farms were never greater in our county than now. The plan is usually to secure a good tract of land and erect buildings for a home. On a tract of say ten acres, which may cost from $200 to $300 per acre, according to location and quality, there may be raised from $200 to $600 worth of tobacco per acre, good crop and season; so that one crop from an acre clears the land, sometimes doubles it, and in a few years the purchaser has his land paid with the crops that it produces. There are no less than half a dozen such properties now bordering on the Lancaster and Petersburg pike running north of Lancaster, of tracts varying in size from six to thirty acres, and within three miles of the city. There is in all directions building going on. There will be many a new tobacco barn erected this summer that is now in contemplation, and the discussion of this subject of building tobacco barns to-day, it is hoped, will throw out some valuable hints and suggestions for the benefit of those persons interested; so that with each succeeding season we may improve all that pertains to raising and caring for the crops and securing the best rewards for the honest labor and toil that produce them.

There seems to be a considerable portion of the present crop of 1876 in the county unsold, the offers of buyers not suiting the views of holders. There is some left over of nearly every crop each year till next year following. The quality of this year's crop is admitted to be fully as good if not superior to any raised for years, and it would not seem much of a risk to put such crops into cases and take the chances of the market with them. This might be the true course to pursue for the farmers with their tobacco; for when they sell their crop it is not ready for market. It must go through the process of fermentation, or sweating. The best sweating and coloring is secured by casing, and it only becomes ready for the cigar maker after this process. While at the Centennial Exposition at Philadelphia last summer, Bucks county farmers called and saw my exhibit of Lancaster county tobacco at my place in Agricultural Hall and stated that they received from 37 to 43 cents per pound for their crop of 1875, average no better than mine. When asked how they managed to sell it so high they said they cased and sweated it, and that plan is generally pursued there. They have a warehouse among themselves.

Different packers have stated that some of the best selections of our crops may and will bring from 50 cents to 75 cents per pound. It would hardly be considered good farming for the farmer to send his corn green to the merchant from the fields or to the mill green by large quantity. He would not get full price, for his crop would not be in a merchantable condition, and so, too, with tobacco; it is not fit for market until it is sweated and cured. In conclusion, it may not be out of place to throw out a suggestion in regard to our superior tobacco crops. The amount of annual sales aggregate millions of dollars of the crop in a raw unmanufactured state. The peculiar flavor and good quality is established beyond a question. In evidence we offer the fact that dealers come from great tobacco States to purchase our crop—from California, the South and Southwest, the Eastern and Northern States; all come to buy our crop. They raise it in Wisconsin for three cents and yet come and pay us thirty. They raise it in Maryland, Kentucky, Ohio and other States, for from 3 to 12 cents, and yet they come to purchase our crops at high rates. And why? Because of its superior quality; it makes money and is good. Now if these undisputed facts stare us in the face, why cannot some of our enterprising capitalists establish a cigar factory on a large scale, on the plan of Kerbs & Spiess, of New York, and employ hundreds of idle hands here, instead of sending away our good raw material to make profit and market elsewhere with what we should manufacture here and give employment to home labor and industry? It would be an easy matter probably to establish as good a market for the Lancaster cigar as its leaf tobacco now enjoys. In Lancaster there are now some unused buildings that could in all probability be secured that are well adapted for the purpose. Lancaster would not be now what it is if the able and skillful management at the head of our cotton mills had not had business tact and foresight enough to keep them running and give employment to such large numbers of people. If it is a good thing to import cotton from the far South to give employment to our worthy and willing labor, why is it not good to let them have a chance at our own productions from our own farms, and manufacture a good Lancaster cigar? Let us have a cigar factory and manufacture at least some of our vast crops that go to enrich other sections.

Mr. Hunsecker remarked that the gentleman said tobacco brought a great deal of money into the county, which is true; farmers will cultivate that which brings in the most money; the question is whether we cultivate the best tobacco? Should middlemen come in and reap the benefits? He argued that we should keep the benefit derived from its culture in our midst. The culture of tobacco would be more profitable by having manufacturers in our midst.

Mr. Frantz said the difficulty was in getting the proper quantity of manure. He had purchased two tons of Pacific soluble guano, and was ordered to

use half a ton to the acre. In answer to questions he said that the cultivation of tobacco had not in his observation exhausted the soil; he took good care to keep the ground in good condition by applying the proper fertilizers.

MR. KENDIG said that in regard to the guano, it gives a good healthy start to tobacco, but at the time of cutting saw no difference. We must learn to case tobacco; we better learn to cultivate it, however, before we undertake to case it. A man should not case it unless he has a pretty good quantity. It is not worth while to begin with a few cases.

MR. SHIFFNER said that in the use of Peruvian guano he had not observed any difference from the use of manure.

Tobacco Houses.

The question of the construction of tobacco houses was then discussed.

MR. HOOVER said it was a very important thing to think about. All tobacco houses, he thought, should have a good cellar under the whole house. A great mistake is often made in stripping and preparing tobacco for market. Tobacco of a certain grade should be classed by itself. This was not exactly on the subject, but he would throw out this hint anyway. You might construct houses in a profitable way by constructing them for grain houses as well as for tobacco houses. He would not use it for these two purposes at the same time. It could be constructed in such a way that all the timbers could be removed, with few exceptions. You could use your cellar for storing turnips, potatoes, &c.

MR. KENDIG would prefer for the site of a tobacco house a southern slope. He would partition off the stripping and storing room convenient to each other. He would avoid as much as possible all cross beams, so that you can walk without stooping. There is an advantage in having the doors horizontal instead of vertical.

MR. MAYER said he had cellar under only part of his house; experience taught him to have a cellar under the entire building. A cellar should be no less than 9 feet deep. If we want a building for tobacco we must construct it for that purpose alone. If you keep the tobacco in the dark, it will cure dark. Splitting the stock in drying, he thought, should be avoided.

Referred Questions.

The following questions were then referred:

"What are the best methods for destroying cut worms?"

"What are the best methods for setting out tobacco plants?"

The former was referred to Harry Mayer, and the latter to Jacob Frantz.

Proceedings of the Bee Keepers' Association.

The regular meeting of the Lancaster County Bee Keepers' Society was held at 2 o'clock on Saturday, May 5th—Peter S. Reist, President, in the chair.

The minutes of last meeting were read by the Secretary, H. H. Myers, and adopted.

The following reports were then delivered:

MR. A. H. SCHOCH made a statement that he had very poor success in wintering his swarms, having lost six out of eighteen. They were, however, the weakest hives.

J. T. HERSHEY reported that although he gave his hives all the attention possible, he lost fifty out of one hundred swarms. He attributed the trouble to living in a low situation on the Conestoga, but perhaps the cold weather was to blame principally for the great loss. His bees are well wintered, covered and sheltered.

E. HERSHEY reported a better state of things. Out of thirty-four he lost but one swarm. Kept them on a summer stand. Had plenty of honey, and are all strong now.

L. FLECKENSTEIN lost four out of sixteen. Were kept on summer stand, without unusual shelter, on the north side of the house.

H. HUBER started into the winter with seven hives, and still has them all. They are strong, and were so in the fall. Keeps them on a summer stand. They are now busy laying up their usual store.

D. KRIDER has five stands—the same number he had in the fall. They are strong, but he has fed them all winter. A swarm that came late in the fall eat 20 pounds of sugar.

MR. G. E. MENTZER related that he has one hundred and twenty swarms in Fulton county, which have all stood the winter remarkably well. In August he transferred ten swarms and lost them all. He is not in the habit of sheltering his hives in winter. Being bloodless he does not believe bees freeze so soon as is generally supposed. This gentleman had a patent hive for exhibition, which was carefully examined by the members present.

A discussion followed this gentleman's remarks on bees freezing. It was held by several members that it was common for bees to become so numb by exposure, that although the hives were full of honey they virtually starved from not being able to reach their food. Some held that bees were easily frozen to death, while others believed the contrary.

JOHN DICKEL reported his single hive as having wintered well in the garret.

MR. H. H. MYERS, the Secretary, reported his hives as having done reasonably well, as he lost two out of twelve. He fed them abundantly during the cold weather.

MR. REIST, the President, said he had fifty swarms in the fall, but lost ten swarms, which he attributed more to neglect than anything else. His bees were flying about on nearly every fair day during the cold season.

W. B. DETWEILER'S success was not very good—he having lost about 40 per cent. of his swarms, but he hopes to build them up if the year is favorable.

Referred questions were called up. The first was: "What are the advantages of the movable comb hive over the box hive?"

MR. HUBER gave a number of reasons why the former were superior. The Secretary had both kinds; he had one box hive, and the swarm that lives in it is the very best he owns.

The next question was, "What is the advantage of the Italian over the Black bees?"

MR. FLECKENSTEIN could not see much difference between the two, except that the former are more peaceable.

MR. MYERS was entirely in favor of the Italians—was in favor of getting rid of the black ones by banishment.

MR. E. HERSHEY thought the only advantage of the Italians was their ability to extract honey from red clover blossoms.

MR. J. F. HERSHEY said mistakes were often made in confounding pure and hybrid queens. Italians stored honey faster than the others—often the former gathered a large surplus while the others could not gather enough to sustain themselves. The Italians were, besides, cleaner than the blacks and could whip them.

The third question was, "Can bees hear?"

On this point Mr. Hershey gave an affirmative opinion, founded on certain noises made by the queen at certain times. If the queen is laid apart from the hive the peculiar humming made by her is at once noticed, and they seek her.

MR. MYERS also believed bees hear; if a bee is taken up in the hand and held, (its wings being allowed to vibrate,) it at once attracts the attention of the rest.

MR. FLECKENSTEIN was also of this opinion, which he supported by various arguments.

The fourth question was, "Which is the quickest and best way to hive a natural swarm of bees?"

MR. FLECKENSTEIN and others participated in the discussion.

MR. HUBER was of the opinion that the bees should be emptied in front of the hive and allowed to go into it themselves. If put into the hive they often come out again.

MR. J. F. HERSHEY described several modes of securing natural swarms.

MR. MENTZER thought natural swarming was a humbug. He believed in the artificial process; you can in this way produce artificial swarming or prevent swarming altogether.

MR. HERSHEY wished to know whether, if a hive swarmed naturally, we were to let them go? Sometimes a hive will swarm while it has ample room and ventilation.

MR. FLECKENSTEIN also believed there was no way to prevent swarming.

The President interrupted the regular course of business by calling upon Mr. Mentzer to give his views on the question of bees attacking fruit. The latter gentleman related how he had watched bees in their visits to vineyards and graperies, but found that they invariably went to fruit which had already been attacked, but never did any damage to perfect fruit.

MR. J. F. HERSHEY confirmed Mr. Mentzer's view. Never knew bees to attack sound fruit—they always go to such as is already injured.

MR. HUBER agreed with the above; his experience was similar.

MR. FLECKENSTEIN has grapes all around his bees, but the bees have never injured them; the bunches hang all around the hives.

E. HERSHEY also spoke in favor of the bees; in fact, the opinion of the members was unanimous in rejecting the the theory of bees attacking sound fruit.

The 5th question was, "Which is the best way to introduce a strange queen into a colony of bees?"

MR. J. F. Hershey gave his experience on this interesting question at length. His plan is to put the stranger queen into a wire cage and hang it into the hive for several days until she acquires the scent common to the bees in the hive, when she may be liberated. If honey is plenty the danger to the queen is not so great; but if it is scarce this is not the case, and the queen is likely to be stung.

Question 6th and last was, "Which is the best way to transfer from box to movable frame hives?"

MR. J. F. HERSHEY gave an elaborate description of his method, which was very interesting, but too technical for any reporter to follow or to attempt to report correctly.

MR. FLECKENSTEIN also related his experience, which agreed in most particulars with that of the last speaker.

The question whether brood can be successfully produced in March was also taken up. J. F. Hershey's opinion was that occasionally it could be done, but success was exceptional.

A special question was taken up.

"How near the ground ought a hive to be placed during the summer?"

MR. HERSHEY thought the hives ought to be elevated very little above the ground; in this way the bees are removed from the higher currents of air, and reach their hives more easily.

MR. MYERS thought they should be nearly if not quite on the ground. He means so to place his hives next spring. When too near the ground the bees furnish toads with many hearty meals.

The President suggested to the members that they observe the comparative effects of natural and artificial swarming, to find out which process gives the best results.

There being no other business before the society, it adjourned until the second Monday in October.

The Linnæan Society.

The Linnæan Society held their stated meeting on Saturday, April 28, 1877. President, Rev. J. S. Stahr, in the chair, and nine members present. The preliminary business being attended to, the few donations to the museum were found to consist of a fine mounted specimen of the coot or mud-hen (*Fulica Americana*,) shot on the 21st inst., by Mr. H. H. Rohrer, near Paradise, in this county, who left it in the care of S. S. Rathvon. Mr. R. fearing it might spoil if longer kept, had it skinned and mounted at a cost of $2.50, without consulting Mr. Rohrer, supposing it was intended for the society, and so paid for it. A specimen of oxide of iron found by Mr. Julius Shuman, near the borough of Washington, who talks of sinking a shaft, that possibly an out-crop of the Chestnut Hill ore bank might be unearthed in that place. A charred "bracket," rescued from the fire that consumed the Market street bridge, of Philadelphia, a short time ago, per Mr. Andrew Meixel. This bracket a hundred years hence of the renowned structure called the "permanent bridge" may become valuable as a historical relic. To the historical section were added, also, two envelopes containing 27 clippings from papers per S. S. Rathvon. Our library was improved by having 39 volumes bound of various works received in numbers. Through the kindness of Mr. Stone, librarian of the Pennsylvania Historical Society, we received 14 numbers, a series of reports of the regents of the New York university of natural history. Also, from Mr. Wm. Saunders, editor of the *Canadian Entomologist*, No. 12, of the volume for 1876, containing an illustrated list and description of the *Cantharidæ*. On motion a vote of thanks was given to both gentlemen for their donations. Catalogues of publishing houses and book notices were also received, and the April number of THE LANCASTER FARMER.

Papers were then read from corresponding members. No. 564, on the albinism found in various species and genera of birds that came under the notice of W. J. Hoffman, M. D., of Reading, who describes the abnormal appearance in plumage such as white or partially white blackbirds, crows, robins, &c., both interesting and curious to the naturalist. No. 565, written by Mr. A. F. Birlin, of Reading, was a highly interesting document on archæological research and discoveries made. The members present express their thanks to their worthy correspondents of Reading, and assure them that their communications were gratefully received. This being chiefly a business meeting, the secretary reported that in compliance with the request of the society at the meetings previous, he had 100 circulars printed and filled out, enclosed in envelopes, addressed to delinquent members and queried as to getting them distributed. When the following resolutions were offered and adopted:

Resolved, That the secretary be authorized to send them to the parties addressed by mail, at the expense of the society, and that those who receive them will please call and pay the same to the treasurer of the society, S. S. Rathvon, 101 North Queen street, who is authorized to receive the same.

Resolved, That as the funds of the treasury are more than exhausted, in the necessity of meeting bills due, for binding many valuable volumes, as ordered by the society to improve their library, it is hoped that the members will feel it a pleasure, as well as their duty, to respond promptly and make payment.

Mrs. Zell laid on the table the early saxifrage and tooth wart, culled in the vicinity. The *Saxifraga virginiensis*, so named by Micheaux, is common on exposed rocks. The other is the *Dentaria*, first found and described by our fellow-citizen of botanic fame, Dr. Muhlenberg, as the *D. laciniata*, grows in rich soil. Under scientific gossip, various topics were discussed. Mr. A. F. Hostetter suggested the propriety of getting the address of Mr. Bear on the Pennsylvania Germans, and a sketch lately published in reference to Ephrata, to file away among our historical archives. After some pleasant interchange of thought and opinions, the bills for binding books $25.14, for printing blanks $1.15, and postage 30 cents, were presented and ordered to be paid. A motion to adjourn, and make room for the bound books, was then made, and a lock and key ordered to be provided, when the society adjourned to meet on Saturday, the 26th day of May, 1877.

THE TOBACCO TRADE.

How Lancaster County Forced to the Front.

For many, many years past the State of Connecticut possessed a reputation as the best tobacco raising State of the Union. Its tobacco was celebrated all over the world for quality and texture; Hartford became the Mekka of tobacco dealers; from thence they spread over the adjacent country in winter and in early spring, in breathless chase after the luxurious weed; rapidly it left the farmers' possession in exchange for large sums of money, and prosperity, joy and satisfaction reigned supreme. Up to the year 1870 this ever-returning spectacle continued. The Connecticut tobacco crop of that year was blighted by some atmospheric influence or other unknown cause, and enormous losses to the purchasers of the tobacco, when yet in a green state, were not the only consequence, but the reputation of Connecticut tobaccos received a severe and lasting shock. The years intervening 1870 and 1874 produced tobacco crops in that State which somewhat restored the shattered reputation. But 1874 tore up the almost healed wound and the Connecticut tobacco crop of that year was like a curse upon the dealers, and the growers of that State. Timidly the buyers invested in the following year (1875) Connecticut tobacco crop. They could not forget the soil that once yielded up such rich and munificent treasures. The crop contained a goodly portion of the swarthy, sound and lively ingredients, combined with silky, spongy texture, that which once brought golden fruits to the raisers and dealers in Connecticut tobaccos—but a most powerful competition had grown up during the dark years of misfortune to Connecticut tobacco. Pennsylvania, with her vast acreage of fertile soil, has long been one of the tobacco raising states, especially in the Lancaster county district and the blows that struck down the several Connecticut tobacco crops, lifted up into notoriety those of this state. But not before the year of 1873 this notoriety assumed a formidable shape. The Pennsylvania tobacco crop of that year was a most excellent one, it developed ingredients in the leaf which make it most desirable to the manufacturer of segars and the consumer of the article. A harvest of money rewarded the investors in this crop.

The following year (1874) was not a fortunate one to the Pennsylvania tobacco crop. It turned out a heavy gummy plant, adapted only for the manufacture of low grade segars. But just this gummy substance contained in the leaf helped to raise the reputation of the Pennsylvania tobacco crops in general, and imbued buyers with tenfold confidence in future; because it permitted a successful rehandling and resweating by which losses to investors were avoided, while the thin, flimsy Connecticut tobacco of that year's growth did not permit any such procedure. When, therefore, another Pennsylvania crop (1875) made its appearance, a few shrewd operators took advantage of the general apathy among business men, and quickly secured the whole of the crop at very reasonable figures. The result of this venture is too well known to be further dwelled upon; suffice it to say, that those investors made fortunes out of their venture, and that this '75 Pennsylvania is, at this early season of the year, nearly exhausted, and the remnants are fast disappearing from the market. This last drift of the fortunes of the Pennsylvania tobacco crop has settled its reputation in the trade. Another unexpected accessory to its growing popularity has been the overwhelming demand for very dark tobaccos, a color Connecticut tobacco unfortunately is almost destitute of, and which to a great extent, at least, has been found in the other tobacco in question.

The Harrisburg *Patriot*, of the 7th ult., contains the following comments about the "weed," which will be of interest to many of our readers who have had more or less experience:

"Considerable tobacco is produced in this county, but Lancaster lays over any county in the State in the quantity of the article raised. In Lancaster city alone there are nineteen tobacco warehouses. The whole number in the county reaches about forty. The city is the headquarters of the trade, and from it the bulk of the tobacco is shipped. The tobacco firms who buy in Lancaster county spend annually there from $1,000,000 to $2,000,000. The buyers or packers run all the risk of purchasing the tobacco, and either make large or moderate profits or sustain great losses. The consumers or raisers run no risk at all, except it may be in the failure of the crop or the gathering of a poor one, which seldom occurs. They receive their pay as soon as the tobacco is delivered and weighed in the warehouse, whereas the buyers or packers pay all insurance, the expense of storage and shipment, and must sustain the loss by shrinkage which is occasioned by the process of fermentation or sweating. The buyers or packers are also required to keep a record of the names of the farmers or raisers from whom the tobacco is purchased, together with the number of pounds bought, for the use of the internal revenue officers of the government.

"There are conflicting opinions as to the effect of tobacco planting on the soil. Some farmers contend that it will work injury to the ground, whilst others just as strenuously assert that it will not. The former say that as the tobacco requires the greatest quantity of richness, it will eventually impoverish the land, while the latter hold that a crop of tobacco does not do as much injury as a crop of corn; that the latter has a dry root and hollow stock and leaves nothing behind, whilst the tobacco has a solid stalk and leaves a glutinous pulp which sinks deeper and deeper in the soil, and is therefore constantly enriching it. A man living on the Columbia turnpike, a short distance from Lancaster, for nine successive years has raised superior crops of tobacco on one tract, and his land is in as good, if not better condition now, than when he first planted the seed. Some persons even grow a crop of potatoes and one of tobacco on the same piece of land during the same season. The potatoes are of the early rose variety, and when they are taken out of the ground in the month of June, then the tobacco is planted."

THE following is from the pen of a correspondent from Lancaster, published in the *Tobacco Leaf*:

Notwithstanding the cry that the cream of the 1876 crop of tobacco was long ago bought, it is still answered by sales of leaf, showing conclusively by the prices paid that there are some very fine crops remaining unsold, for instance: Messrs. E. Springarn & Co., of New York city, bought last week in East Hempfield township a lot of leaf at 27 cents, and another farmer of the same township sold at 23 cents through. I might enumerate others the same as above. At the same time a large amount is sold at prices from 12@18 and 20c. for wrappers and 5@8c. for seconds, and 3@5c. for fillers. I have been through the "Donegal" townships and a large amount of tobacco remains unsold, but the greater portion of it is very poor, and no doubt could be bought from 8@15c for wrappers and 3@5 for seconds and fillers. This township is perfectly scoured of good tobacco and on the whole but few lots remain unsold. Old tobacco remnants of 1874, are eagerly bought at fair prices. One sale was recently effected which brought, through, $13.65 per hundred, for which was bid last December 9c. through, the above being a small lot of 47 cases. The 1875 crop is inquired after; but few lots remain in hands of local dealers. Inquiries are made by large dealers in leaf from those packing on a small scale, say from 100 to 300 cases, at what prices the tobacco is held, etc., showing that there is a market for all tobaccos if not held above current quotations.

The New York Tobacco Trade.

The current number of the *U. S. Tobacco Journal* sums up the New York seed leaf tobacco sales for the week ending April 29, at 872 cases, of which New England furnished 250 and Pennsylvania 290 cases, of the crop of 1875. The balance of the transactions comprise small lots of Ohio, Wisconsin and New York leaf. The *Journal* continues:

In 1876 Pennsylvania, the reign of jobbing trade seems to have already fairly opened; outside of some transactions in the country previously reported, we now hear of a sale in Lancaster of 400 cases (an entire packing) to one of our large segar manufacturing firms. With the approach of the close of the packing season in Pennsylvania, the tide of buyers takes its course towards Connecticut and Massachusetts, where farmers at last evince decided desire to sell, and thereby lowering their figures to such an extent as to make investments by packers prospectively profitable. In Ohio things remain dull, while Wisconsin is doing a brisk trade in disposing of 1876 stock at, if not excellent, but at least paying figures. The Havana market can be called fairly active. Sales during the week may be summed up to 750 bales, of which one-fourth were of the fine grades of the '76 crop.

Exports of Tobacco From New York From April 1 to 30, Inclusive.

Great Britain	334 hhds.
France	434 hhds.
North of Europe	712 hhds.
North of Europe, Stems	388 hhds.
South of Europe	480 hhds.
West Indies, South America and Mexico	95 hhds
Other Foreign Ports	360 hhds.
Total	2,803 hhds.

From the circular of Mr. Fred. Fischer we collate the following synopsis of exports from New York and New Orleans, from January 1 to date.

	1875. Hhds.	1876. Hhds.	1877. Hhds
Great Britain	1,633	3,794	1,249
France	5	2,773	3,174
Bremen and Hamburg	1,061	3,468	4,629
Antwerp and Holland	596	2,081	922
Spain and Portugal	2,708	3,124	2,948
Mediterranean	140	617	361
Italy and Austria	4,325	3,416	4,343
Sundry Exports	657	969	1,547
Totals	11,125	20,242	19,173
Consumption, and on ships not cleared	5,737	9,079	7,440
Disap'd from N. York and N. Orleans	16,862	29,321	26,613

AGRICULTURAL.

Pennsylvania Wheat Crop.

The April statement of the condition of crops has been completed at the Agricultural Department. The following is that portion referring to the wheat crop in the different counties of this State:

Lehigh.—Wheat looks pale in some localities; badly winter killed. Rye appears remarkably well.

Cameron.—Winter wheat and rye in good condition.

Delaware.—Wheat and rye present an unusually healthful appearance.

Indiana.—Wheat and rye promise unusually well. The most trying time on our winter grain is from the 20th of March to the 20th of April.

Perry.—Plenty of wheat on the ground, but short. We are having weather now that may make a short crop.

Wyoming.—Wheat and rye wintered good.

Clearfield.—Wheat and rye looking well, as far as the snow will let us judge.

Clinton.—Early, some fine; late wheat and rye, some backward and much injured by the winter.

Union.—Wheat and rye, about two-thirds of a crop.

Cambria.—Winter wheat 25 per cent. better than last year.

Bradford.—Wheat and rye in promising condition.

Cumberland.—Comparative condition of wheat and rye good.

Westmorland.—Winter wheat and rye look good; blades brown, but roots appear uninjured.

Adams.—Wheat is short, though healthy; some late.

Berks.—Early, some winter grain suffered from Hessian fly; late, some healthy and promising.

Snyder.—Great deal of winter wheat destroyed by the fly; what remains looks well. Rye about average.

Fulton.—Wheat and rye stand well, and with favorable spring may have good crops, although some late.

Sullivan.—Wheat and rye never better.

Chester.—Wheat and rye in average condition.

York.—Wheat and rye good with fine prospects.

Tioga.—Wheat and rye looking first-rate.

Somerset.—Wheat and rye in good condition.

Luzerne.—Good, five per cent. above average.

Montgomery.—The comparative condition of both good.

Monroe.—Wheat and rye never looked better.

Juniata.—Condition of wheat, 90.

Wayne.—Not looking as well as last year.

Mifflin.—Early, some wheat in good condition; late, does not look so well, but with favorable weather may make a good crop.

McKean.—Injured by freezing.

Forest.—Winter wheat and rye in excellent condition.

Dauphin.—Winter grain in fair average condition.

Butler.—Everything is backward; winter grain, however, looks encouraging.

Blair.—In about average condition.

Armstrong.—Looks well; above average.

Columbia.—Wheat looking good; rye same.

Warren.—Very good.

Mercer.—Good; much above the average.

Northumberland.—Winter grain looks remarkably good.

Erie.—Wheat and rye came out of the snow very fine.

Beaver.—Never had a better appearance than this spring.

Montour.—Wheat and rye a full average.

Lancaster.—Looks well over the whole county.

Crawford.—Wheat and rye in the very best condition.

Is Wheat Culture Declining?

One of the questions which presents itself to millers, and others interested in wheat, is whether there is a decline in the wheat crops of the past few years as compared with the crops of the earlier periods in the history of our agriculture. Many have asserted, on what apparently seem good grounds, that while the aggregate amount of wheat is greater now than formerly, the relative quantity, or number of bushels *per capita*, is decreasing, and will soon be adquate to supply only the home demand. The method by which these conclusions have been reached is fallacious in the extreme, and consists in taking the best crops of former years and comparing them with the poorer ones, or the "failures" of later times. Of course the only correct way is to take the average of two series of years, and compare each average with the number of inhabitants. On such a basis of calculation it is easily demonstrated that our wheat production is constantly and steadily increasing. In 1849 the whole crop amounted to 100,000,000 bushels; in 1859 it reached 173,000,000 bushels; and in 1869 it was 287,000,000 bushels. According to the population, 4.3 bushels were produced *per capita* in 1849, 5.5 in 1859, and 7.46 in 1869. This last crop was an exceptional one. Since then the average has been about 260,000,000 bushels a year, or nearly 7 bushels *per capita*. Our exports furnish another means of arriving at the same general conclusion that our supply of wheat is increasing. For the past fifty years

our exports in grain and flour have been equivalent to 1,062,000,000 bushels. Of this immense quantity only 178,000,000 bushels were exported up to the year 1850, while in the year 1874 alone 91,000,000 bushels were shipped to foreign countries. In whatever way we view the question we see the same result—a large absolute, as well as relative increase in our supply of breadstuffs. When we take into consideration the fact that population increases in the United States more rapidly than elsewhere, and find that nevertheless more wheat is raised for each person now than formerly, we can well say that this is the most convincing argument yet adduced to prove the correctness of Henry C. Carey's theory, that sustenance increases faster than population.—*American Miller.*

Culture of Broom Corn.

The *Journal of Agriculture* describes the culture of broom corn in this wise: "Broom corn requires rich soil; bottom land is the best, and it should be as free from grass as possible. The reason for choosing clean land will appear plain to a man who has raised a crop. The ground should be well ploughed and made perfectly fine with the harrow, then marked out with shallow marks as if to be planted by hand, so as not to get the seed too deep in the ground; but the best plan is to plant with a drill. The stalks must be as close as five or six inches, to prevent the straw from becoming too heavy. Of course it cannot be drilled with much regularity, but must be cut out with the hoe to the right distance when small. It is like sorghum, grows slow when small, and on most land it is positively necessary to hoe the grass out, which gives a good opportunity for cutting out to the right distance. After this is done the cultivation is similar to that of corn. When the seed begins to fill, the straw will bend over from the weight, and to prevent this the full force of the hands must be put to break the stalks over, say ten or twelve inches from where the straw grows out, or more properly the head. The weight of the seed will then, by hanging down, keep the straw straight. Now comes the busy season and the time when labor and care will add much to the value of the crop. The green straw being altogether the most valuable, it is important that it should be cut before it turns red, and dried in the shade. To do this a shed is necessary, with shelves on which to lay it, say six inches deep; and enough hands must be employed to cut the crop before any or much of it turns red. The seed is stripped by means of a machine made for the purpose, with two cylinders between which the corn is held in handfuls. The process is very rapid, only an instant being necessary to knock the seed all off. The corn is baled before being sent to market. The price is very fluctuating, running from $60 to $350 per ton."

A Farm that Ruined the Owner and made his Fortune Afterwards.

Years ago, says one of our New York exchanges—papers that, like Washington, never tell a lie—a New Yorker took into his head that he would try farming on Long Island, and set out to find a desirable farm. He went on a tour carrying a shovel with which he dug up ground and had it analyzed. However, not finding aught to his taste on Long Island, he determinded to go to Rhode Island, and there purchased a farm for $20,000 on which he expended $20,000 more, and then apparently tired of it, rented the ground for a few hundred a year, with the small remnant of his fortune went to California; there he made a lucky hit, and not long since returned to the East to make the agreeable discovery that during his absence the city of Providence had providentially for him been speedily advancing towards his farm, which had become immensely valuable. Presently he sold off $80,000 worth, then arriving at the conclusion that he let it go too cheap, he had the rest surveyed and laid out in streets and lots. He has now sold $900,000 worth.

Measuring Corn in Bulk.

Multiply the length, width and height together by inches, and divide that product by 3,888. This will give the number of bushels in the crib or wagon box. For example, the crib that is twenty feet long, four feet wide, and eight feet high, holds 284 4-9 bushels. And such a crib is 240 inches long, 48 inches wide, and 96 inches high, containing 1,105,920 inches. Divide that by 3,888, and it will give 284 4-9 bushels. Again, if your wagon bed is 11 feet long, 2 feet wide, and 17 inches deep, multiply 132 inches long, 36 inches wide, 36 inches deep, together, and it will make 80,784 inches. Divide by 3,888, and the bed will hold 20 7-9 bushels.

Haying.

Clover, as well as grass, should be cut before the bloom is past. Some of Professor Atwater's articles have clearly shown the extra feeding value of early cut hay. Prepare everything for haying, that there may be no delay when the work commences. In the Northern States orchard grass and clover must be cut near the end of the month, and timothy soon after. Hay, for sale, may be cut somewhat later, as it will be heavier, though coarser, than that cut early.

Farm Profits in America.

Under this head "A Western Farmer," whose location is not given, writes to the London *Field*:

Before leaving England, some ten years ago, I held for a length of time a farm under one of the greatest of English landlords; but what with high rent, dear and bad labor, bad seasons, and disease among cattle, I found at the end of that time that I was £600 poorer than when I commenced; so I cleared out and came West, where I have been farming nine years, and where, with less capital than I commenced with in England, I have made some $20,000, entirely from farming. A man who understands his business and possesses some capital, must do well in the West—there is every element of success naturally.

The Time to Spread Manure.

For some years we have spread manure during the winter upon meadows, clover, sod to be plowed for corn, and ground plowed for spring crops. The practice is economical of labor, and convenient, and we have no reason to believe that the manure loses any valuable constituent. The ammonia of fresh manure is in a nascent or inactive condition, and is not wasted during the cold weather. Those who may find it convenient to use manure in this manner, can do no harm by making the experiment. Dairy farmers cannot do better than spread manure upon their meadows and pastures as fast as it is made.

Manure on Frozen Ground.

The *American Agriculturist* says: We are asked what advantage there is in spreading manure on frozen ground. If it is covered with grass, either a pasture or meadow, there is a great advantage in more than one respect. The surface is protected from sudden changes during winter, and the first thaw carries the manure to the roots, where it causes a vigorous growth early in the spring. If the ground is ploughed for a spring crop, it is also benefited by having the manure ready to be absorbed by the soil whenever the ground thaws; the seed, as soon as it sprouts, finds what it needs close at hand.

Profit in a Good Soil.

The *Prairie Farmer* says on this point: "The idea that the number of acres in crops indicates the farmer's income must be abandoned, and the number of bushels per acre must be looked for instead. There is certainly less profit in ploughing fifty acres to raise one thousand bushels of grain than in ploughing but twenty-five two grow the same amount, and trusting to good seasons for fair crops will not be thought of by the improved farmer. A rich and well-cultivated soil will usually make fair returns in what we call bad or unfavorable seasons. What the farmer on a poor soil would call a good season seldom comes."

Wheat and Chess.

J. J. Bassart, of Kansas, asked some time ago whether wheat pastured in fall and winter would produce chess? A. Falconer answers as follows: "I have been raising wheat for 50 years and my experience is that it will. You may run a fence through a wheat field, uniformly good, and pasture one side, not disturbing the other, and the part pastured will have the most chess. The main root is disturbed or broken off and chess is the result. I am aware that this is opposed to scientific explanations, but that does not alter the facts. I never had rye injured and have pastured till April."

Oats and Peas.

Oats and peas sown together produce a very nutritious fodder. The two crops together, upon one acre of good soil, will yield nearly if not quiet, as much fodder as would an acre of each sown separately. We have sown two bushels of oats and six pecks of peas to the acre. If sown early, the fodder may be cut for soiling cows or horses in May or June, and a succession for continuous use may be sown every two weeks until early in May. Roll the ground after sowing, so that the crop may be cut with a mower, which may easily be done, as the oats support the peas and prevent lodging.

Clean Out the Weeds.

It is in every way desirable to clear the weeds from the by-places, the corners of the fence and gardens, and not cast them to the rubbish pile to remain and blow about all winter; not in the compost heap in the hope that they will rot and make manure; but to a heap where they may be burned and every vestige of seed destroyed. It is a nice thing to see flocks of snow-birds in winter, but it is not a good method of indulgence to raise weed seed to induce their presence.

Liquid Manure.

The sewage system of fertilizing land or using liquid manure is scarcely known in the United States, but as the country grows older more will be done in that direction. In England town sewage has been extensively employed to increase the fertility of the farming land adjacent, and it has proved so beneficial and profitable in many instances that farmers are to some extent adopting a similar system in the use of the manure made in their stables and yards.

HORTICULTURAL.

Raising Onion Sets.

W. C. Pelham, Mayville, Ky., writes to the *American Agriculturist* of his method of raising onion sets: He selects a level and dry piece of ground. His ground is rich alluvial loam, but the character of the soil is of no special importance. Beds are formed two feet wide, with a path of one foot between. The "beds" are excavated to the depth of two inches—or, in other words, the path or alley between is two inches higher than the beds; the bottom of the beds is nicely smoothed with the back of a spade, so as to present a level surface whereon to sow the seed. The seed is sown so that from fifteen to twenty seeds will cover a square inch. If the surface of the beds was sprinkled with plaster or white sand, the seeds, which are black, could be sown more evenly. After sowing, the seeds are covered with two inches of pure clean sand, which brings the beds and paths to the same level. The whole is then rolled with a light roller, or patted down with a spade. The advantages of this plan are, that there being no seeds of weeds in the sand, the labor of weeding is entirely saved, and the sets when matured are far more easily harvested from the clean, soft sand, than from the hard-baked surface which most soils present after a season's rains and sun on a surface that cannot be stirred.

Cherries.

Those who are old enough to remember thirty-five years ago, know that the Morello and Pie cherries were at that time grown in abundance on nearly every farm. "Black Knot" has left but few of those varieties in existence in Lancaster county. The Morello was first attacked and destroyed; the Pie cherry more recently. Pomologists were not able to agree as to the primary cause of the disease; neither were they able to give a remedy to check its ravages. The disease started east of this locality, and spread in a westerly direction.

The object of this short article is to remind the farmers of this county that those old and similar varieties of cherries can again be grown. The few trees that were saved by cutting off the knots whenever noticed, during the time of the prevalence of the disease, have been clear of the knots the last four years, and the last two have borne good crops of cherries. Young trees of the Early Richmond, English Morello, and the old Pie cherries, planted two years ago, show no sign of the knot.

Cherries require but little care to grow them, and are less liable to be injured by insect enemies than any other fruit; and a few dollars invested in cherry trees to plant in vacant spaces near our farm buildings will repay the outlay.—*P., Lancaster Inquirer.*

Small Fruits in Gardens.

But few people seem to know the value of small fruits to a family when grown in their own gardens. You commence with strawberries; they continue about a month. You pick, perhaps, from six to twelve quarts a day. You have them on your table as a dessert, if you please at noon, and your tea-table is loaded with them at evening, and you want little else but your bread and butter. Your family consume in one way or another about eight quarts a day, and while they last no medicines for bodily ailments are required, as a quart of strawberries daily generally dispel all ordinary diseases not settled permanently in the system. After strawberries, raspberries come, to continue about three weeks; then we have blackberries where the climate is not too cold for the cultivated varieties; then the currants ripen, which remain till the early grapes mature; and taking the season through any family with a half acre of land in a garden can grow small fruits that makes country life delightful, and at the same time hundreds of dollars can be saved in the supply at the table.

Look to your Orchards.

Before commencing the regular spring work on the farm, the orchard should receive some attention.

The larva of the apple tree borer, from eggs laid last year, can now be found under the bark at the base of the tree. Its castings will indicate the place, and it can be dislodged with the knife without much injury to the tree.

Many of the chrysalids of the codling moth can be found under the rough bark on the trunks.

Their destruction now, followed by the capture of the next brood in hay bands tied around the trunks, will add to the quantity and quality of the next fruit crop.

The eggs of the tent caterpillar moth can also be destroyed at this time. They will be found in clusters on twigs, and are easily seen before the leaves are formed.—*Inquirer.*

Japanese Persimmon.

The Japanese persimmon tree is being introduced by the horticulturists of California. The fruit differs somewhat from the persimmon of the Southern States, as it ripens without frost, and is free from

the acrid taste when green which characterizes them. The tree is highly ornamental, a prolific bearer, hardy as the pear, and ripens its fruit early. The fruit is solid and can be shipped across the continent. The season is from October to January, when fine fruits are scarce. The fruit is of a bright yellow, orange or vermilion color, is unsurpassed for the table, being thought by some to be equal to the peach or strawberry. Its average weight is from one-half pound to over a pound. When dried it is equal to figs, and is extensively used for preserving in China. The wood of the Japanese persimmon is valuable for manufacturing, it being a species of the ebony.

The Peach Crop.

What is the matter with the peach growers? They are entirely too derelict this year in furnishing the customary information as to the failure of the coming crop. It is high time to be informed that three-fourths of the peach-buds were killed by the low temperature in January, and an unusually light crop will be the consequence. Perhaps the trees have not yet been examined, and producers have delayed this task and reserved their steam for a dreadful explosion "full of sound and fury," that will create alarm even among the canning establishments, but will in the end amount to nothing. However, we shall abide our time and "by their fruits shall ye judge them."

Potatoes.

The scarcity of potatoes, which has been growing more and more marked as the season advanced, is due not to any desire to "corner" the market, but to the fact that the crop was a light one, and the larger share of those on hand are held back for the spring planting. The potato bug first and the drought afterward played sad havoc with the crop, and the excessively cold weather of the winter has done much to injure the stock on hand. But the crop in Canada was excellent, and shipments from that place have commenced. The main trouble will be that they will be higher all the season, and until a new crop, but beyond this advance there need be no fear.

Pears in Missouri.

A writer in *Coleman's Rural World* says that more than fifty thousand pear trees are annually set out in Missouri, not one in ten of which survives the ninth year in the orchard. They grow vigorously at first, and afterwards gradually perish under a modification of the blight. Yet here and there a tree is found that has remained sound for more than half a century, yielding annually wagon loads of fruit. It would be worth a good deal of investigation to find out the reason of the difference, so as to profit by it in planting.

Profits in Almonds.

The Los Angeles (Cal.) *Republican*, speaking of the profits of almond culture in that locality, says: "Trees eight years old will produce from two hundred to three hundred pounds per annum, and they are worth in the markets of the United States from 22 to 32 cents per pound. It is absolutely safe to assert trees of that age and upward will pay an annual net profit of $30 per tree above all expenses of attending orchard, gathering and marketing produce. As two hundred trees are planted on an acre of land it would give a net income of $6,000 per acre.

Twenty-Ounce Apples.

At the discussions of the Western New York Farmers' club, it was remarked by several members that the codling moth had been much more destructive the past season than usual to the apple crop. Wm. Otis, of Rochester, said he had not seen a perfect apple this year. But the fairest fruit and the best annual bearer was the twenty-ounce apple. The fact therefore that it has proved tender in some parts of the country should not induce planters to reject it without further trial.

Large Strawberries.

A correspondent of the London *Garden* describes the manner in which he obtains fruit from strawberry beds, many of the berries measuring eight inches in circumference, and sixteen placed in a row have measured three feet—an average of two and a quarter inches in diameter. His practice is to plant often, and manure well, on an excellent soil. We sometimes have as large strawberries in this country, but the moist climate of England more particularly favors a large growth.

Fruit Prospects.

The annual prophet comes to the front with the following prediction: The prospects of the fruit season are encouraging in some regards and the opposite in others. So far as reported the apple and pear trees are all right, the frost not having affected them to any degree, although the wonderful yield of last year may not be expected this season. The peach and cherry crop does not promise so well, the frost having damaged the trees.

DOMESTIC ECONOMY.

Preserving Eggs.

A writer in the *English Mechanic* says: "In the year 1871-72, I preserved eggs so perfectly that, after a lapse of six months, they were mistaken when brought to the table for fresh-laid eggs, and I believe they would have kept equally good for twelve months. My mode of preservation was to varnish the eggs as soon after they were laid as possible with a thin copal varnish, taking care that the whole of the shell was covered with varnish. I subsequently found that by painting the eggs with fresh albumen, beaten up with a little salt, they were preserved equally well, and as for long a period. After varnishing or painting with albumen, I lay the eggs upon rough blotting paper, as I found that when allowed to rest till dry upon a plate or an the table, the albumen stuck so fast to the table or plate as to take away a chip out of the shell. This is entirely obviated by the use of the blotting paper. I pack the eggs in boxes of dry bran.

Lemonade for an Invalid.

This is too often made by simply squeezing a lemon into a tumbler, picking the pips out with a spoon, and then adding sugar and cold water. The best method of making lemonade is to peel the lemons, or otherwise the lemonade will be bitter; cut them into slices, taking away the pips, and then pouring boiling water on the slices, adding, of course, sufficient sugar to sweeten. This after being well stirred and the pulp pressed with a spoon, must be carefully strained through a piece of fine muslin, and allowed to get cold. When cold, a piece of ice is a great improvement. Cold, weak lemonade made this way, not too sweet, is one of the most refreshing drinks possible for hot weather; and in cases where there is a tendency to take fluids too often—a tendency we fear rather of the age in which we live—a large jug of lemonade made in the manner we have described, will often prove a harmless substitute for a glass of sherry, or a little drop of cold brandy-and-water, or a glass of beer, as the case may be.

Beef Extract.

Take a pound of good juicy beef, from which all the skin and fat has been cut away, chop it up like sausage-meat; mix it thoroughly with a pint of cold water, place it on the side of the stove to heat very slowly, and give an occasional stir. It may stand two or three hours before it is allowed to simmer, and will then require but fifteen minutes of gentle boiling. Salt should be added when the boiling first commences, and this, for invalids, in general, is the only seasoning required. When the extract is thus far prepared, it may be poured from the meat into a basin, and allowed to stand until any particles of fat on the surface can be skimmed off, and the sediment has subsided and left the soup quite clear, when it may be poured off gently, heated in a clean saucepan, and served. The scum should be well cleared as it accumulates.

Barn Wash.

Coleman's Rural World gives the following as a good wash for barns and out-buildings:

Procure a barrel of crude petroleum of any oil dealer or manufacturer; apply a heavy coat to the outside of the building, with a whitewash brush, which is done rapidly by any common laborer; let it dry and soak for a few weeks, and give the surface a coat of Averill paint. This paint dries more rapidly, adheres better, and makes a more durable coating than any other which we have tried, and is cheaper than white lead. We have buildings made of unplaned boards which were thus treated several years ago, having received but one coat of the paint over the oiled wood, that appear to be uninjured by time. On planed surfaces two coats of the paint would be necessary. A light brown or ash color would be suitable.

Painting Buildings.

For the first coat or priming, there appears to be nothing better than the old method of using white lead in oil; a thin mixture fills the pores of the wood better than a thick one. For a second coat, if three are used, a mixture of white lead and zinc is good. For the final coat, whether it be the second or third, we prefer the zinc paint for white; though costing more per pound it goes further, and is on the whole quite as cheap as lead, while it retains its clear, white color much better than lead, which is tarnished by sulphurous gases arising from the manure around barns and stables, and from the sink drains and other sources around the house. There is always enough of sulphureted hydrogen in the air to gradually darken any surface paint containing lead.

Cleaning Silk

The following mode of cleaning silk garments has been successfully tested. The garment must first be ripped and dusted. Have a large flat board; over it spread an old sheet. Take half a cup ox gall, half a cup ammonia, and ½a pint tepid soft water. Sponge the silk with this on both sides, especially the soiled spots. Having finished sponging, roll it on a round stick like a broom handle, being careful not to have any wrinkles. Silk thus washed, and thoroughly dried, needs no ironing, and has a lustre like new silk. Not only silk but merino, barege, or any woolen goods, may be thus treated with the best results.

Household Receipts.

SOFT SWEET BREAD.—Take one-half cake of compressed dry hop yeast, dissolve in half pint of warm water, taking care not to scald it, thicken with flour, and let stand until perfectly light; or use one-half pint of soft baker's yeast; this will be enough yeast for two loaves; when the yeast is light and ready boil two quarts of sweet milk; put in it one tablespoonful salt, one of butter, and one of white sugar; sift three quarts of flour; stir into a thick batter while the milk is hot enough to scald the flour; then let it stand to cool before the yeast is added; then beat into a sponge, and set in a warm place until perfectly light; then have sifted flour, and mold up your bread well, but not too stiff; cover warm, and let rise very light; then mold carefully, not adding any flour except what is necessary to keep it from sticking to your tray or board; place in pans, and, in half an hour bake in an oven. Place your hand in the oven and count twenty; if the heat should be too great on your hand before you get twenty counted, and you have to withdraw it, the oven is too hot, and must be regulated to an even temperature of heat. The time of baking is one hour. This receipt will make two medium-sized loaves. If sweet milk or butter cannot be had, use warm water and sweet lard.

TO TAKE grease spots out of carpets, mix a little soap in a gallon of warm, soft water, then add half an ounce of borax; wash the part well with a cloth, and the grease or dirt spot will soon disappear.

TO PREVENT the smoking of a lamp, soak the wick in strong vinegar and dry it well before using it. It will then burn both sweet and pleasant, and give much satisfaction for the trouble in preparing it.

NEW-ENGLAND BAKED BEANS.—Put a quart of good white beans in three or four quarts of soft water; let them stand where they will get hot but not boil for 12 hours at least, then drain them thoroughly and rinse through several waters; place in a deep pot, score the rind of a pound of nice fat pork deeply, and place it in the beans so that it will be all covered except the rind, and cover with water; place in hot oven and bake 10 or 12 hours at least—more is better, as the water dries away fill it up again, and some time put a teaspoonful of molasses in the water; the rind should be crisp and crackly, and the beans red-dish-brown and soft, but whole when done.—M. M.

NEW-ENGLAND BAKED BEANS.—II.—The following an old-fashioned New-England receipt from a Boston lady: One quart of beans, soak in cold water all night, pour off water in the morning and add fresh supply of water enough to cover them. Boil slowly for 15 minutes, drain off water through collender; put beans into deep iron dish with water enough to cover them, add a small piece of pork and a tablespoonful of molasses; bake slowly for five hours.

TERRAPIN.—Put the terrapin, after you cut it up, into a saucepan, with any liquor that comes from it in cutting, but not any water; rub flour and butter together according to the quantity of meat you have—a quarter of a pound of butter usually is sufficient—and add it to the meat, with one glass of Madeira wine; cover it very tightly; set it where it will simmer very slowly until tender. When just ready to serve stir in the yolks of two eggs, well beaten. Send to table very hot.—*Aunt Addie.*

MOCK TERRAPIN.—Have a calf s liver cut in half in slices; dip them in flour in which you have added salt and pepper, and fry brown in boiling lard, turning very often; when cold chop it rather fine, also, two hard-boiled eggs; season with one teaspoonful mixed mustard, a pinch of cayenne pepper, the same of cloves, a piece of butter the size of an egg, one tablespoonful of flour, and one teacupful of hot water; let simmer together five minutes; just before serving add a wine glassful of wine. Cold veal is also nice prepared in this style.—*Aunt Addie.*

PREPARING SPINACH FOR TABLE.—A lady writes as follows: Carefully examine each bunch or head and cut off all leaves that are wilted, leaving none but those that are fresh; cut off the stems so that the leaves may be separated. This will make sure of getting out all the sand. Throw them into a pail of cold water. After all the spinach is thus prepared wash it in at least four waters. Do not drain the water off, but take out the spinach and put it into another vessel with fresh water, as the sand remains at the bottom and you can thus get rid of it. When it is well washed put it in boiling water and let it boil 20 minutes, or longer, according to its tenderness; when done pour into a colander to drain. Cut it up slightly with a common table knife. Season with salt and a small tablespoonful of butter; garnish with hard-boiled eggs cut in slices.

LIVE STOCK.

Ayrshire Cows.

The report of the Ayrshire Agricultural Association gives the following points of the standing of superiority in Ayrshire cows:

Head short, forehead wide, nose fine between the muzzle and eyes, muzzle moderately large, eyes full and lively, horns wide set on, inclining upward and curving slightly upward.

Neck long and straight from the head to the top of the shoulder, free from loose skin on the under side, fine at its junction with the head, and the muscles symmetrical, enlarging toward the shoulders.

Shoulders thin at the top, brisket light, the whole forequarters thin in front, and gradually increasing in depth and width backward.

Back short and straight, spine well defined, especially at the shoulder, the short ribs arched, the body deep at the flanks, and the milk veins well developed.

Pelvis long, broad and straight, hock bones (illium) wide apart and not much overlaid with fat, thighs deep and broad, tail long and slender, and set on level with the back.

Milk vessels capacious and extending well forward, hinder part broad and firmly attached to the body, the sole or under surface nearly level, the teats from two to two and a-half inches in length, equal in thickness, and hanging perpendicularly; their distance apart at the sides should be equal to about one-third of the length of the vessel, and across to about one-half of the breadth.

Legs short, the bones fine and the joints firm.

Skin soft and elastic, and covered with soft, close, wooly hair.

The colors preferred are brown, or brown and white, the colors being distinctly defined.

Great value is attached to the above form and points by the dairy farmer, and he quickly takes them in when effecting a purchase, so that a mistake is rarely made.

Does Buckwheat Poison Sheep?

A farmer of Kent county, England, at the close of the dry, hot summer of 1870 had 378 lambs on his farm, which, in consequence of the drought and failure of the grass crop, was heavily overstocked. These lambs were at the close of the season in very poor condition, and, to bring them up again, were placed upon a field of buckwheat. They soon began to show signs of dizziness, and even intoxication, fighting and butting each other in a very unlamblike manner. Soon their faces, heads, and especially their ears, were covered with ulcers. The eyelids swelled in many cases, causing total blindness, and in others the eyes were totally destroyed by ulceration. A copious discharge of pulverent mucus from the nose, swollen lips, and cessation of appetite marked the course of the disease. The sun and the flies began to terrify the afflicted animals, and several deaths occurred. That the disease was not variola was shown by the fact that there was no eruption inside the thighs or no other harrless spots. Of 57 lambs not placed in the buckwheat field not one was affected, all were perfectly healthy. To test the contagiousness of the disease several affected rams were turned into the same inclosure with perfectly sound ewes, and though they copulated and lambs were the result, no trace of disease was found upon either the mothers or the offspring. The farmer is fully convinced that the disease was caused by the poisonous quality of the buckwheat, which had greater power in consequence of the low vitality of the animals. The ulcerations were dressed with a weak solution of carbolic acid, and small doses of ferri sulph., gentian, and spirits of terebinith were administered. The buckwheat was probably nearly ripe, or at least in full flower, at which period it is known to contain an element of an intoxicating character. It is said also to produce erysipelatous eruptions in different kinds of animals, with symptoms of cerebral congestion.

Care of Dairy Cows.

John B. Tomlinson, of Fountain Farm, near Newtown, Bucks county, writes as follows to the Doylestown *Intelligencer*: "I have seen in your paper a good deal about gilt-edged butter and cleanliness and other things about dairying, but nothing about keeping cows clean. My method is to grade the stable floor a little sloping back from the manger; put one plank lengthwise under the hind feet of the cows, one foot wide, and fill with clay up to the manger, having a drop of five inches at the plank. Then plank the remainder to the back wall, having the rear a little highest so as to throw all the wet to the drop plank. Then you have a dry walk behind the cows and the stables are easily cleaned. My cattle in the yard do not look as if they were ever stabled at all. In very cold weather I do not let them out at all, but keep them in the stable. In the mornings as soon as we can see we give all milkers and dry cows, a little meal; a little hay and sheaf of corn-fodder after breakfast; and at night hay and meal again. The milkers have four quarts of meal twice a day. When the weather is mild they pick the chaff, straw and fodder in the barn yard and go into the stables as full as ticks. "I stable all my stock and I think it pays."

Mild Diet for Cattle.

Experience, says the *American Cultivator*, teaches us that cattle thrive best on a mixed diet; all hay or all grain will produce less beef than hay and grain. The animal structure of the ox also demands bulk in food as well as richness; the feeding of concentrated food being only profitable so far as the animal assimilates it, beyond that increasing the manure heap at a cost far beyond its value. The ox has approximately eleven pounds of stomach with only two and one half pounds of intestines to each one hundred pounds of live weight; the sheep has less stomach and more intestines, giving a smaller percentage of digestive apparatus; while the pig, for every hundred pounds of his live weight, has only one and a third pounds of stomach to six pounds intestines. A steer would thrive well on a bulk of straw, with a little oil meal, that would shrink a sheep and starve a pig. Pork can be produced from clear corn meal, while mutton requires greater variety of food, and beef cattle would become cloyed and diseased with its exclusive use. A thoughtful attention to these broad facts will change much injudicious feeding into cheaper meat production.

Water Your Cattle.

Mr. Pfeiffer, of Padonia, who called Monday, informs us that he once lost seven head of cattle in one day, and accounts for the loss in the following way: He turned his cattle into a fresh-husked field of corn, they eat to excess, became torpid, refused to go and drink, fever ensued and they died. He says it will not do turn cattle into a field as soon as the corn is husked, even when there is water in it, and expect them to drink of their own accord, especially if it should turn cold, but says cattle must be driven to water; this will help to circulate the blood and the water will help to digest the food. That if allowed to drink or refuse water they will always refuse if there is a sudden change of weather, as they huddle together and become lifeless. Pfeiffer says drive your cattle to water, and allow them but two or three hours in the field each day, and you will lose no cattle. And we believe he is right.—*Brown County Herald.*

Safety from Rats and Mice.

A. J. Willard, of San Mateo county, California, gives a very simple, and, in his experience, a very effective safeguard against rats and mice. He takes two round pieces of tin, like the bottom of a fruit can, punches a hole in the center of each piece, and strings them on a strong wire, one near each end. Then he stretches the wire from side to side of a room and fastens each end firmly. Anything which is hung upon the wire between the plates of tin is safe from the rats, for if they walk ont upon the wire, every time they try to mount the circle of tin it revolves and they cannot pass over it. Mr. Willard has found the simple contrivance very useful in saving meat, grain, &c., and advises all farmers to try it.

Advice to Drivers.

When a horse falls whilst drawing a vehicle—

1. Jump down and hold the animal's head, to prevent his dashing it about to his own injury.

2. Loosen the check-rein (if you are so foolish as to use one) and the parts of the harness which fasten on the vehicle.

3. Steady and support the horse's head, and excite him with hand and voice to rise.

4. Let him stand still a short time and recover himself, and then proceed gently and with greater caution than before.

5. When you get him up, pat and encourage him, and see if he is wounded or otherwise injured.

6. Back the carriage, so as to get the shafts and traces clear.

Pay Attention to Live Stock.

Regular attention to all live stock is very important. If an animal is only half fed, it is better that it be half fed regularly, as it will suffer less injury then if attended to one day and neglected the next. But it is poor economy to stint food. "The liberal soul shall be made fat." To see one's stock contented, comfortable, and happy, is not only a happiness to a good farmer, but money in his pocket. Regular hours of feeding, regular watering, regular rations, and regular rest, are conducive to comfort. With regularity there is no haste, no waste, nothing is forgotten, and nothing done twice over. Animals then digest what they eat, and thrive.

Wm. E. Lincoln's herd of 39 grade Durham cows furnish 47 of the 400 cans of milk daily shipped from Warren to Boston. Mr. Lincoln's farm produces for fodder for his cows 400 bushels of oats and 700 bushels of corn, with which 30 tons of shorts are fed. Warm hot food is given the cows twice daily, just after drinking cold water. Each cow in the herd is carded twice daily, and two men constantly care for them. The money product from the herd in December was $111. The cows were imported from Canada.

THE POULTRY YARD.

Look to the Chicks in May.

Young birds that have been hatched in March and April need especial attention in the still chilly month of May. If we can get the early chicks safely through this period, the chances are greatly in favor of their coming up beautifully and thriftily during the summer, and making the best average fowls for fall or for the early winter exhibitions.

For marketing purposes such chickens, of any good variety, are the best; for at four to five months old they make admirable broilers, and command the highest poultry prices in the city markets, if well-kept and tended.

They should not be exposed to the cold night air now, nor should they be let out of their coops in the morning while the heavy dews are on the grass. This careless habit destroys many a good early brood. They get chilled, wet, and take cold easily, if permitted thus to roam about until the sun is well up and the cold night-dew is dried off. Especially after a rain in the night should we look out that they be not in this way exposed.

If they are eight or ten weeks old, and in good condition, you may feed them more heartily than hitherto. Boil or steam two-thirds of their food; vary it also. Give them cracked corn and broken wheat, and occasionally shorts, made into a mash with cooked potatoes and turnips. They are fond of this diet; and after a few days try a little cooked meat chopped fine; and any green stuff you can spare or provide easily is very desirable.

Keep them free from vermin. This is more than half the battle, be it remembered. Chickens will not thrive if they are infested with lice. Apply a little flour of sulphur, dry, to their necks and through the under part of their little bodies. Serve the mother similarly; but do not use too much of this, or indulge in it too often.

Once a week, if powdered sulphur and crushed charcoal is mixed with soft food for young chickens, this serves as an admirable cleanser of the stomach; it saves them from becoming "crop-bound," it aids the digestion very materially, and serves to keep away lice; for the sulphur works outwardly through the skin-pores, and very effectually in this respect.

The most important things to consider during this month, with advanced chickens, is their shelter by night and their regular feeding during the day. They will not bear to be neglected during the period now referred to, if we are desirous to have them do well by and by. A little special care when the younglings are coming forward from six weeks to three months old, tells amazingly upon their future, as all fanciers may satisfy themselves who now devote due attention to their little wants as we have herein pointed out.

If you can afford them *milk* for partial drink, they will improve wondrously upon it. No matter whether it be sweet or sour, new or old, they will drink it freely at all times, if permitted to enjoy this luxury; upon the ordinary farm, the expense of this indulgence is not felt by the proprietor among a common-sized flock and it is a grand thing for them.

For laying-hens this is excellent; but it is far more valuable, proportionably, for your young chickens. The "Imperial Egg-Food," manufactured by Allen & Sherwood, of Hartford, is a very good thing to have about the chicken-premises. We have used it this spring to very good advantage, and find it an excellent appetizer, a valuable tonic and a very desirable condiment to mix with the food given to the young stock. Up to this season we had previously used this preparation only for adult laying-fowls; but we have found it an excellent thing to mix with the soft food for younglings, and recommend it as really valuable in the rearing of chicks, when properly used.—*Poultry World, Hartford, Ct.*

To keep a Fowl House.

1. Clean out every day, and sprinkle dry earth or coal ashes over the floor and under the roosts.

2. Change the material the nests are made of once every month, and white-wash the nest-boxes with *hot* whitewash.

3. Paint the roosting-poles every week with kerosene, and whitewash the whole interior of the hennery every two months during spring and summer.

4. Provide a dusting-bin, into which throw a pint or so of Stoddard's Carbolated Powder. Persian Insect Powder is too costly for common use.—*Poultry World.*

Our readers will observe, that if they want good, healthy and thrifty poultry, they must work as they do in securing healthy and thrifty horses, cattle, sheep and swine.—*Ed.*

Chickens Fit to Eat.

Don't imagine that it makes no difference how your chickens have been brought up.—Don't suppose that they will be good anyhow. Chickens have been carefully dressed, deliciously stuffed, assiduously basted, and tenderly roasted, and yet they were not fit to eat. There was a flavor about them that no soda rinsings could cleanse, and no seasonings con-

ceal. These were chickens that had picked up their living around pig-sties and other unclean places.

A chicken may be spoiled in dressing it to cook. If killed with a full crop, and allowed to lie four hours before it is "drawn," (or relieved of its internal organs), it gets an unpleasant flavor. Fowls should be caught and shut up without food for twelve hours or more before they are beheaded. Then the crop and intestines will be empty, and the task of picking and dressing will be greatly lessened. Old fowls are not necessarily tough—only cook them long enough. They are more tender twenty-four hours after they are killed, than if eaten immediately.

Lice on Poultry.

There is nothing that will so thoroughly eradicate those parasites known as roost lice as cleanliness, and this is brought about by spreading a thick paste of lime whitewash, after the filth is removed, over the roosting poles and about the building wherever these minute insects can claim a foothold; and they will claim a foothold in every crack and crevice, where they lodge during the day, always seeking lurking places where they hide from the light in the daytime, and come forth at night to prey on the bodies of the fowls. You need never look for them on the upper sides of the roosting poles, which are worn smooth by the feet of the birds, but examine the under part where there is some roughness, and look sharp and close, or perhaps you will overlook the mites.

Cure for Chicken Cholera.

Mr. Joseph Stout, of Westminister, Maryland, who keeps from 500 to 1,000 fowls, and who sells large quantities of eggs and chickens in the Baltimore markets, gives the following remedy for chicken cholera, which he considers a perfect cure: "Take a handful of white oak bark and boil it in a quart of water to make a strong decoction. After it cools mix with the liquid corn meal to the proper consistency to make a dough for feeding, and give to the fowls. Mix a teaspoonful of Cayenne pepper to two quarts of the feed. The fowls will eat this mixture readily." His theory is that the cholera is a species of diarrhœa, and the bark and pepper acting as astringents cure the complaint.

Can fowls be assisted in the process of changing the feathers? The moulting season is really a most trying one to them.

During the moulting season the blood is drawn from the materials which compose the feathers, and this drain is often so great as to weaken the fowls; the remedy is to give as feed elements which will most quickly replace the exhausted blood. Fish, refuse ground bone and powdered oyster shells are recommended for feed; and for drink, water supplied with rusty iron; also a little milk each day is good for them. In place of rusty iron, tincture of iron can be put in their drinking water; a tablespoonful of tincture to a quart of water is the rule.

LITERARY AND PERSONAL.

The Poultry World, an elegant illustrated quarto monthly magazine "for the Fancier, Family and Market Poulterer," edited and published by H. H. Stoddard, Hartford, Conn., at $1.25 per annum. The April number of this journal is now before us, and we question whether there is another publication devoted exclusively to poultry on this continent, or perhaps the entire globe, that equals it in quantity, quality, mechanical execution and literary ability. This number contains three full paged elegant chromo-lithographic plates, illustrating, in six colored figures, male and female, "Light Brahma," "Dark Brahma," and "Black Spanish Fowls," and 18 wood cut figures, besides portraits of J. H. Dickerman and Isaac N. Baker. In reference to the former we append the editor's own graphic description from the May number for 1877.

Our New Enterprise.—The announcement made in the March number, of our purpose to supply the subscribers and patrons of *The Poultry World*, at a nominal figure, with *twelve magnificent colored plates* of modern varieties of fowls, has met, as we anticipated, with a most generous response from all quarters, and our orders for these beautiful pictures have come in "with a rush" in the last thirty days.

It is a satisfaction to us to note that our efforts in this direction are appreciated, and that our subscribers are of the class who so generally understand that we intend this to be really a good thing, in its way, and have confidence in our promise, as evinced by the pouring in of orders in advance during the past month.

With the April issue of our magazine, we sent out *the first installment*, or specimen plates. Those to come with future issues of our monthly will be of the same *excellent quality*, in artistic execution, as are those sent out that month, and we feel confident that our readers will agree with us that these fulfill all expectations. This agreeable *novelty in poultry journalism* is adding large numbers of new subscribers to our monthly, at $2 for the year—including the full set of twelve pictures we shall give with Vol. VI., 1877. No such enterprise has ever before been attempted in any country with a poultry magazine, the heavy cost of this undertaking preventing publishers from assuming the necessary expense and risk in carrying out so important a project.

But we are satisfied that we have "hit the popular taste" decidedly in this matter; which we shall carry through in a style that will reflect credit upon the artists and colorists who get up these stylish and life like specimens of the domestic feathered kingdom, whatever its first cost may be.

We have received enough congratulatory and commendatory communications from our friends to fill an entire number with fine type; and *all* agree with us that our *elegant chromo-lithographic plate* project is *the* thing, and everybody seems to be delighted with the opportunity to procure these pictures, for the trivial cost we have placed the series at.—*Poultry World, Hartford.*

Conrad Weiser. A neglected chapter in colonial history, by F. R. Diffenderffer. We have just been put in possession of 21 octavo pages, being the sixth article of the April number of the *Mercersburg Review*, giving an interesting biographical sketch of this remarkable citizen of Pennsylvania, of the colonial times, by our talented and worthy fellow townsman.

Perhaps many of our younger readers will be asking—"Who is Conrad Weiser?" and, before we read this sketch of his life—although we had often heard his name mentioned in connection with the early history of our State, and also saw it frequently referred to in books and journals—if any one had asked the above question, we could not have answered it intelligently. From about 1744 to 1761, Conrad Weiser was an active interpreter, commissioner, missionary, and peacemaker between the Indians and colonists of New York, New Jersey, Pennsylvania, Maryland and Virginia. An energetic, but at the same time, a humane diplomatist of the "William Penn school," who had the unbounded confidence of the chiefs and the people of both races, and who felt no labor too arduous, when he could thereby secure the blessings of peace and prosperity to his adopted country, and her aboriginal and foreign citizens. He was one of those sturdy palatinates who had fled their country to escape those cruel persecutions which intolerance and religious bigotry had inflicted upon his race. After suffering many hardships, impositions and frauds, he settled in Pennsylvania, and after 20 years of a transcendantly useful life, he was "gathered to his fathers," and his ashes now repose near Womelsdorf, Lebanon county, if not "unwept," at least "unhonored," and almost "unsung." Except the record left by his distinguished son-in-law, Rev. Henry Melchon Muhlenberg, perhaps nothing has since appeared illustrating more fully the sterling character of the man, than the paper of F. R. D.

The Vegetable Garden: A complete guide to the cultivation of vegetables; being one of the series of "Dick's Garden Hand-Books," published by Dick & Fitzgerald, New York. Price, 30 cents, in paper covers, and 50 cents in full cloth. We acknowledge the receipt of this handsome little 16 mo. volume of 140 pages, containing thorough instructions for the sowing, planting, and cultivating of some 70 different kinds of those popular esculents that form the ordinary stock of a kitchen, garden and truck farm, concise, plain and practical, by that prince of gardeners, James Hogg. And when you tire of the labors of the garden, and need a little light mental recreation, we suggest a look into "Dick's Recitations and Readings," being No. 4 of the series, and a volume of the same size and style of the above, a copy of which accompanied the "Gardener," containing "character sketches, dialect pieces, humorous, sentimental, serious, pathetic, eloquent and patriotic selections in poetry and prose," from the best and most popular authors.

On the 24th of April last we attained the sixty fifth year of our age, and to illustrate that there is at least a bond of filial affection that binds our "kith and kin," we were the recipient of a spacious *editorial waste-basket*, an article we much needed, but felt too poor to invest in. "Well, John, what are you doing now, and where is your house?" inquired a missionary of an exceedingly "seedy" convert, who had left his flock about a year before and gone off to preach on his own account. "Well, I'm preaching among the Seminoles in Florida for my victuals and clothes." "But, judging from your appearance, John, that seems to be poor pay." "Yes, brother," sadly responded John, "it is *poor pay*, but it is *poor preach*, too." Perhaps we are like the Indian, and are paid according to the quality of our work. Be that as it may, we are the joyful recipient of a new waste-basket, the filial birthday offering of our youngest D.

The Farm Journal, (a new paper with an old name) a spicy and remarkably well executed 8 page quarto monthly, Nos. 2 and 3 of the first volume of which have been laid upon our table. The paper is good, the typographical impress faultless, and the price is the very insignificant sum of 25 cents a year—within the financial ability of "all whom it may concern." Wilmer Atkinson, editor, publisher and proprietor, No. 726 Sansom street, Philadelphia.

Its literary quality is A. No. 1, and more than compensates the lack of quantity. We respectfully "doff our beaver," extend our editorial "paw," and hail it with a friendly greeting—welcoming it to the long rank of agricultural journalism. Finally, we wish for it a greater pecuniary success than the man who bought gingerbreads at twelve and a-half cents a dozen and sold them for a penny a piece, claiming that he was only able to sustain himself from the fact that "he sold so many." The *Journal* will be a useful ally.

We call the attention of our readers to the various advertisements in this number of the Farmer, and feel that in claiming for them the confidence of the community we only accord to them what they amply deserve. Without intending to distinguish between them invidiously, or to underestimate the qualities of the articles they advertise, still, there is at least one which we cannot admit on account of its novelty, its entire newness, its utility, but above all, its simplicity and its usefulness. We refer specifically to the novel "*Butter Carrier*," patented by Mr. E. D. Resh, of *Bird-in-Hand*, and for sale at No. 157 North Queen street, Lancaster, Pa. A want has long been felt by those who bring butter to our markets, for a cheap refrigerating process for that purpose, all of which may be realized by calling on the proprietor, as above named.

"The Galaxy"—*Sheldon & Co., New York.*—The June number of this excellent magazine has already been placed upon our editorial table—too widely and too favorably known to need any praise from us—for which we "herein and hereon" tender our acknowledgments. It is entirely too full, and we are too empty to notice its contents in detail; but, our readers can judge of its merits when we mention such names as S. F. Hopkins, Justin McCarthy, Henry James, jr., J. W. De Forest, George Dawson, Richard Grant White, J. L. M. Curry, Emma Lazarus, Clara G. Doliver, Ella Wheeler, Mary Ainge De Vere, and other writers of note, as among its literary and scientific contributors. Volume 24 begins with the July number. $4.00 a year in advance and postage paid by publishers. A volume comprises nearly 900 pages, 8 vo., of rare reading matter.

The Journal of Forestry and Estate Management, for May 1877. A royal 8 vo. magazine of 72 pages, published by J. & W. Rider, No. 14 Bartholomew Close, E. C. London, England. This is a new enterprise, being No. 1, Vol. 1, and is remarkably well gotten up—in quality, composition and execution—and will fill a vacuum in rural journalism that has been heretofore but insufficiently supplied. We cheerfully extend the hand of fellowship and place it upon our exchange list, thus commending it to the special notice of our readers.

The Colorado Springs Gazette, San Juan edition; a handsome folio, published every Saturday morning, at the Colorado Springs, by the Gazette Publishing Company," at $2.00 per annum, in advance. "The official paper of El Paso county and of the City of Colorado Springs." Devoted almost exclusively to the mining interests of the State of Colorado, its land claims, its railroads and its markets, a very essential auxiliary to those who propose to visit or locate in that far off territory.

Lloyd's Maps, and especially his "Military Map of Europe," for 1877, said to be the greatest war map of Europe ever made; free by mail to any part of the world for 30 cents, or mounted $1.00, will, no doubt, now be consulted with an interest commensurate with the occasion. A "piece" of their great railroad and shipping map of the United States, for 1877, is now before us, 40 by 50, colored and varnished, for 30 cents. Lloyd Map Co., Cincinnati, Ohio.

U. S. Land Bureau: T. W. Moore, N. Y., Agent, 169 Chatham street: A northern colony for West Virginia. Any active and responsible person wishing to engage in an enterprise of this kind, can obtain further information by applying to the above address, or the editor of this paper, 101 North Queen street, Lancaster, Pa.

Circular of The American Fence Manufacturing Company of New York, Wm. H. Mann, general agent, 417 Walnut street, Philadelphia. "Important to Farmers;" "The best Churn yet;" "The great secret discovered at last." Attention is called to *Campbell's Oscillating Monitor Churn*. Address 338 State street, Albany, N. Y.

War in Europe.—We call the attention of our readers to the advertisement of J. B. Ford & Co., New York, which will be found at the usual place in this number of our paper, in relation to the profusely illustrated biography of Bismarck, the greatest general, diplomat and statesman of Europe.

Catalogue and Price List of Streeter's Fancy Stock Farm.—Devoted to the breeding of high-class land and water fowls, Suffolk swine and Jersey cattle. Youngstown, Ohio.

Twenty-Seventh Annual Wholesale Catalogue of Nursery Stock, for Spring of 1877, for sale by Thos. Jackson, Portland, Maine, formerly 50 and 52 Vesey street, N. Y.

A Treatise on the Human Hair, with suggestions for its preservation. Published by R. P. Hall & Co., Nashua, N. H., 1877. 12 mo.

We call the special attention of our readers to our list of Good Books, in another column of this paper.

$1 a Year (To subscribers in the county.) SINGLE COPIES 10 CENTS. (To subscribers out of the county.) $1.25.

CITY LIST
Lanc Agri & Horticultural Society
jan75

Prof. S. S. RATHVON, Editor. LANCASTER, JUNE 15, 1877. LINNÆUS RATHVON, Publisher.

CONTENTS OF THIS NUMBER.

THE FARMERS HOME ORGAN.

The Lancaster Farmer;

A MONTHLY NEWSPAPER,

DEVOTED TO AGRICULTURE, HORTICULTURE, DOMESTIC ECONOMY AND MISCELLANY.

PRACTICAL ENTOMOLOGY

Made a prominent feature, with special reference to the wants of the Farmer, the Gardener and Fruit-Grower.

Founded under the auspices of the Lancaster County Agricultural and Horticultural Society.

Edited by Prof. S. S. RATHVON.

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To subscribers outside of Lancaster county, including postage pre-paid by the publishers:

One Copy, one year, - - - - - - - - $1.25
Five Copies, one year, - - - - - - - - 5.00

All subscriptions will commence with the January number unless otherwise ordered.

All communications intended for publication should be addressed to the Editor, and, to secure insertion, should be in his hands by the first of the month of publication.

All business letters, containing subscriptions and advertisements, should be addressed to the publisher.

LINNÆUS RATHVON,
22 South Queen Street, Lancaster, Pa.

RATES OF ADVERTISING—Ten Cents a line for each insertion. Twelve lines to the inch

The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., JUNE, 1877. Vol. IX. No. 6.

THIS PARAGRAPH!!!

Immediately after you have read *this paragraph*, please look for the little colored label pasted somewhere on this paper, with your own name printed on it; and, if you find "1877," or simply "77" on it, then dear, considerate and appreciative reader, it indicates that your subscription is only paid up to the first of January, 1877, and that, consequently, you owe us for the present year; and which *we now need so badly—would receive so gladly, and the want of which affects us so sadly.* But if, on the contrary, you find "1878," or simply "78," printed on it, you may feel assured that your subscription is paid up to January, 1878, and you will not feel at all offended at our importunity, but will experience a soothing tranquillity located under the left breast facing of your vest, such as we ardently desire all may realize in their pecuniary relations to THE FARMER. Our subsistence—yea, our very existence—is intimately bound up with such stubborn facts as printer's ink, paper, compositor's work, postage and other unavoidable incidentals, besides our own arduous and self-denying labor, and these require *cash*. Bear it in mind, dear patrons, there is a vast difference in the meanings of *desire* and *require*. We *desire* the prompt payment of the amounts due us, but our creditors *require* the amounts due them; and how shall we be able to realize and satisfy these meanings, except by your generous aid if it so be that you are under the ban of "77?" If, however, any of our subscribers should find the lable marked "1877" or "77" on their papers, and at the same time feel confident that they have paid up to 1878 to some one of our canvassers, if they inform us to whom they have paid, the correction can easily be made, and as there may possibly have been errors made in this respect, we hope no offense will be taken. Although we mean that all should pay, yet we do not mean that any one should pay twice for the same year. Owing to a want of certainty as to the continuance of THE FARMER in the early part of the present year, there may have been some errors made in the returns of our canvassing friends. PUBLISHER.

MONTHLY REMINDER—JUNE.

Early crops, such as lettuce, radishes, spinach, &c., when gathered, may be succeeded by late beets and carrots. Sow them, and also bush beans, cucumbers, endive, sweet corn, pumpkin, squash and okra. Transplant cabbage and celery for summer use; also, leeks and *cardoons; and plant common and sweet potatoes. Water cauliflowers as they begin to head. Hoe and thin out all standing crops, and keep an eye on caterpillars, cutworms, and Colorado potato beetles, for a crop might almost as well go by default as to be left a sacrifice to these *cucuias* of the field and garden.

*This plant belongs to the same genus as the "artichoke," (*cynara,*) the stems of the leaves, which are thick and crisp, being used when blanched as asparagus or celery, for soups, stews, or as a salad. It is in season in autumn and early winter. Our readers, however, will please not confound the artichoke above mentioned with the "Jerusalem artichoke," which belongs to the genus *Helianthus.*

A WONDERFUL BOOK.

Geo. P. Rowell & Co.'s *American Newspaper Directory*, containing accurate lists of all the newspapers and periodicals published in the United States, Territories, the Dominion of Canada and Newfoundland, together with a description of the towns and cities in which they are published; a Royal octavo of 1013 pages, for 1877; issued by the above-named company, and edited by Oscar G. Moses.

Perhaps some of our readers on their visits to the late Centennial Exposition, at Fairmount Park, may have wandered into the department where there were placed on exhibition specimens of over *eight thousand* newspapers and periodicals published on the continent of North America. As there were so many attractions there, it is more than likely that few availed themselves of a sight of these publications. Be that as it may, the superb volume under consideration contains lists and notices of them all, and many more, including regular advertisements of most of them, printed in fair type and on fine calendered paper, and substantially bound. To those who desire to advertise abroad, and wish to become acquainted with the facilities to effect that end, this volume is an invaluable aid; and, as the publishers are among the most extensive and reliable *advertising agencies* in the country, they are able to negotiate advertisements in any of the papers noticed in their book, at as low rates as can be obtained from the publishers themselves, and with more prompt attention. This is the 9th annual issue of this Directory, and has nearly reached perfection. It is progressive, and will ultimately attain that end.

THE HOPPER.

"It will be interesting to our readers to learn the following facts in regard to the grasshoppers, and the prospects for crops in what has been known as the grasshopper country, which *The Hawkeye* has gathered from parties who have made personal observations in Nebraska and Kansas.

"Professors Riley and Thomas, of the entomological commission, for the inquiry into this question, have visited Kansas and Nebraska, and have just issued their report, showing that we are at the end of this trouble. The egg of this insect was laid in the fall of 1876, in what may be called the Missouri region, consisting of western Iowa, northwestern Missouri, portions of Kansas, Nebraska, Minnesota and Dakota.

"This egg comes to perfection only in the sandy, arid regions of the far west. The rich, moist soil of the Missouri valley, and the snows and rains, wrought havoc amongst the eggs during the winter and spring, and the young insects which hatched out during April have been rapidly destroyed by the elements, by parasites and by birds, and these influences, with the work of the farmers themselves, have at this date brought to destruction nine-tenths of the young 'hoppers.

"The outlook in southern Nebraska may be stated thus: West of a line drawn from Crete, the eggs are all hatched and nearly all the young 'hoppers annihilated. Between Crete and the Missouri river they are all hatched out and annihilated, and as fast as they appear they are being destroyed by the various influences brought to bear upon them.

"The prospect for crops is as good as it possibly can be, and the people are jubilant over the outlook for good crops, good prices, and the fact that the grasshopper scare is now practically at an end. The condition of southern Nebraska was never better; there is a larger area of ground planted than ever before. The increase in stock has been enormous, and business generally is brisk.

"The Governor of the State has just published the result of an examination into the surplus produce shipped out of southern Nebraska during the 'grasshopper year,' 1876. It is made up from the freight department returns of the four railroads, and shows that during the 'grasshopper year,' 1876, this little region of the south Platte country not only raised enough for home consumption, but actually shipped out over 150,000,000 pounds of wheat, oats, rye, barley, corn, cattle, sheep, hogs, etc., a quantity of bread and meat sufficiently large to feed over half a million of people for a whole year.

"These are sterling facts which speak for themselves, and refute entirely the gross exaggerated statements so freely circulated in regard to southern Nebraska."

The above article, on the prospective status of the "Hopper," during the present season, we extract from the columns of a late number of the *Daily Burlington* (Iowa) *Hawkeye*, as a matter of interest to those who live in the "infested regions"—those who have friends living there—or those who have in contemplation the removal there themselves, but who have hesitated, on account of the depredations of an insect that science has failed to dignify by a respectable cognomen; but which, by common consent and common contempt has won for itself the significant name of "Rascal Grasshopper," now pretty generally designated by the slang abbreviation of "Hopper." We are in entire sympathy with the rejoicing of the people over the happy prospect, for no two men in the Union are more capable of uttering a prophecy on this subject, than those who have been referred to in the article quoted; and, moreover, it may stimulate that *confidence* which has been so long absent from our industrial and financial institutions, and without which there cannot be a return of permanent prosperity. Whatever may have been our apprehensions, under a combination of favorable circumstances, in reference to the pestilential increase of our local grasshoppers, for some years, we have entertained no fears about the Rocky Mountain species visiting Pennsylvania. Like boys, in a game of ball, who venture too far from "base," they would be apt to be overtaken by climatic disaster, even if they should happen to reach our State in time to deposit their eggs here.

Nor do we think the people of the West have had as much to fear from the broods that bred there, as from those hungry hordes that come sweeping down from British America, Montana and Dakota; and, if the same contingencies which influenced their migrations on previous occasions should exist there the present season, this proclamation of immunity from grasshoppers this year may have been premature.

THE SEVENTEEN YEAR LOCUSTS.

"Notices to the effect that the seventeen year locust has made its appearance in different sections of the country, have recently been published, and have raised the inquiry as to what is the character of the pest which travels under that name. We suppose the most of our readers who have heard the seventeen year locust spoken of have had the idea that the name was an arbitrary one, and that a locust which makes its re-appearance at regular intervals of seventeen years each was a pure fiction, but there is positive proof that such an insect does exist and that its character was so well understood by entomologists several years ago as to enable them to predict its appearance this year with the utmost confidence. In his first report, Prof.

Riley, State Entomologist of Missouri, wrote as follows:

"'In the year 1877, and at intervals of seventeen years thereafter, they will, in all probability, appear in the vicinity of Schuylerville and Fort Miller, in New York. From thence along both sides of the Hudson to its mouth, where they extend at least to New Haven, in Connecticut, and west across the north part of New Jersey and into Pennsylvania. Also, in Dearborn county, Ind.; Kalamazoo, Mich.; in Pennsylvania, North Carolina, Virginia and Maryland.'

"'This brood is recorded by Prof. Potter as having occurred at North Haven, Conn., in 1724, 1741, 1758, 1792, 1808 and 1826. It was also recorded by the same writer as having occurred in 1826 in Middlesex county, N. J., and by Dr. Fitch as having occurred in 1843 throughout the whole country mentioned above. In 1860, again, it was spoken of in the old series of the *Prairie Farmer* (Vol. 22, p. 119), as having occurred that year in New Jersey, and Dr. Smith records it throughout the whole State in 1775, 1792, 1809, 1826 and 1843. Mr. James Angus, of West Farms, Westchester county, N. Y., has himself witnessed its recurrence in the years 1843 and 1860.'

"'In Pennsylvania, Mr. Rathvon, found a few individuals in 1860, and Dr. Smith says it extends from the Susquehanna to the Delaware river, bounded by Peter's mountain on the south. In Virginia it occurred from the south part of Loudon county to the Roanoke river, and from the Blue Ridge to the Potomac in 1826, 1843 and 1860. In Maryland from Ann Arundel county to the north part of St. Mary's and from the Potomac to Chesapeake Bay, in 1809, 1826, 1843 and 1860. In Rockingham, Stokes, Guilford, Rowan, Surry and adjacent counties, North Carolina, in 1792, 1809, 1826 and 1843. In Dearborn county, Ind., in 1843 and in 1860, and in Kalamazoo, Mich., during the same years.'

"This year the locusts have put in an appearance in the exact localities predicted by Prof. Riley, and will doubtless spread into others before the season is over. We know very little about this chap, who, it seems, comes of age but once in seventeen years, as he has never troubled New England much, but we take it that he does not stop long enough to prove very destructive. He seems to be a rare and curious bird, but our farmers will be willing to have him continue to pass us by while they rely on Prof. Riley and their newspapers for information concerning him."

The above, from the columns of the *Mirror and Farmer*, New Hampshire, was sent to us "marked," and we feel an interest in it, as well as others, although perhaps, on a different ground; for, although we have a distinct recollection of having witnessed four appearances of the above-named insect, in Lancaster county, yet the consequences which followed their visits, would hardly entitle them to the name of "pests"—indeed it is on record that in some instances they have done some service to trees that were sadly in *need* of pruning. As this brood of 1877 (on account of only recent and imperfect observation, and the long intervals between their appearings) is not so well defined in its geographical limits, and its general history, as the one we witnessed in 1817, 1834, 1851 and 1868, we hope our patrons and our exchanges, in the localities where it appears, will make a careful record of its presence and its doings. This insect, under the influence of numbers, possesses the possibilities of being exceedingly injurious to the branches (and even the small trunks) of young fruit trees, but large trees are usually never very seriously affected by them, or only temporarily so. But between their appearances, a new generation of human beings spring up and occupy the places of the past one, and therefore at every recurrence the same old stories are revamped, and there is much misapprehension in reference to them that is altogether unfounded and unnecessary.

SEND in your subscriptions.

MORE ABOUT THE LOCUSTS.

"Richmond county, N. Y., swarms with locusts, the trees and shrubbery are covered with them, and the monotonous singing of the insects is heard all day long. Some of the locusts are two inches in length and have large pink eyes. The letter V is on their backs."

Of course, our readers will understand that the "letter V" alluded to in the extract above, means *Var!* What else could it mean? It cannot possibly mean *Wictory*, for Wictory begins with a W.

"Such portents met the eye
When Cæsar fell,
And cautioned him in vain;
And who can tell, whether
These artful notices of fate,
Are meant for kings or ministers of state."

We cannot but admire the penetration and the commendable industry of the paragraphic scribbler, who not only records a *fact* in natural history, but who also so succinctly indicates the *significance* of that fact.

Time was when locusts were content to display a *W* near the ends of their forewings, but now, forsooth, (as if there was not enough of terror in a *W*,) they must defiantly flaunt a "letter *V* on their backs." We wonder if ever a seventeen-year locust was born, upon whose back and wings a fertile imagination could not decipher a portentous *W* or *V*? We wonder also, whether ever a period will arrive in the history of this insect, when an ominous allusion will not be made to these cabalistic letters.

CRESS.

We have been frequently surprised to find persons whom we should have supposed, in their rural experience, would be perfectly familiar with this plant, and yet, who have confessed that they know nothing at all about it—nothing about its quality—nothing about its uses—who had never tasted it, and who could not even recognize it when then saw it—and this, too, among persons who were professionally engaged in Horticulture, Floriculture and gardening. There are, however, three or four kinds of plants that are recognized under the name of *Cress* in books on the culture of garden vegetation, and one of these, at least, we have been familiar with from our very boyhood—more familiar with it then than now—and had eaten of, as a *salad*, very frequently, although we do not know that there had been made a general use of it for that purpose, even at that time; but there were some persons who manifested a special partiality for it, and gathered it every Summer in abundance. This kind was the common "Wild Cress," perhaps better known under the name of "Wild Mustard," or "Pepper Grass." These different kinds of Cress do not belong to the same *genus* of plants, although, with the exception of the "Indian Cress," they all belong to the *Cruciferous* family of plants, to which, also, belong the different kinds of cabbages, radishes, turnips, mustard and others. "Common Cress (*Lepidium sativum*) has been a subject of garden culture in England and on the continent of Europe, for more than three hundred years. It has also been cultivated in the vicinity of New York for many years, and, we believe, also in the vicinity of Philadelphia, and we do not see why it should not be so in Lancaster county. It is far preferable to *Dandelion* as a spring salad, or to mix with lettuce salad, and adds to its flavor. Some people also claim that it is a better diuretic, and, therefore, more healthful than dandelion; and, that it is more pleasant and palatable to the taste, we think will be acknowledged by any one who makes a trial of it.

The most common species in this country is *Lepidium virginicum*, which, in some localities, is very plentiful, and, in fact, by those who do not know its use, is regarded as little better than a common weed. There is another species (*Lepidium intermedium*) more abundant farther southward, than it is in Pennsylvania; and two others, which are supposed to have been introduced from Europe.

Our native species thrives best in shaded, or moderately moist localities, but, under cultivation, the seed may be sowed on open ground in March, or the early part of April, and when once allowed to bed well, it will come up every Spring from seeds dropped the previous season. An early crop may, however, be secured by sowing the seeds in a bed, under glass, on loose, finely powdered soil, and covering them slightly, removing the panes to give them sun and air, during such days as are warm and genial. By "cropping" a supply may be had all Summer and late in the Autumn.

But, by far the best kind is the "Water Cress," (*Sisymbrium nasturtium*) of the English gardeners, of which our native species is *Sisymbrium officinale*, sometimes also called "Scurvy Grass." An ancient proverb was, "Eat cress and learn more wit," applied specially to this kind of cress. This is mildly stimulating, and its medicinal properties are said to be antiscorbutic, and a purifier of the blood; we *know* it is very perceptibly beneficial as a diuretic; and we really think it ought to be more extensively a subject of cultivation and use than it now is. There are three or four species of it in this country, but they are generally supposed to have been introduced from Europe. Of course, as its name implies, this kind of cress can only be grown successfully in fresh spring water. There are several localities near the city of Lancaster where it grows in profusion, in the flow from springs and where we have obtained it in abundance, of a most excellent quality; and also where it may may be obtained all summer, and until late in winter.

"Indian Cress" (*Tropæolum majus*) is not a cruciferous plant, but belongs to a family, or is the type of a group, between the balsam and the geranium families. It is that climbing plant, which grows easily in almost any soil, popularly known under the name of "Nasturtion," sometimes abbreviated into the vulgar name of "stertion." Although its spicy and pleasantly pungent fruit enters largely into pickles and other condiments, yet it is not so well known that its leaves and flowers make an excellent salad, or add an excellent flavor to other less pronounced salads. This plant is said to have been introduced here from South America, where it is found growing in a wild State.

There is a striking similarity in the taste of all these different kinds of cress, but there are, perhaps, none of them that is so tender, so crisp, and so edible as the "Water Cress." This grows best, as before intimated, in a clear, moderately swift stream, and loves a clean sandy or gravely bottom, where the water is from one inch and a-half to two inches deep, and the nearer the source of the stream, the better it will grow. Where the bottom is naturally muddy, it should be covered with a coat of gravel. It may also be cultivated on low ground that can be irrigated. If the seeds are thrown on the water, they will sink to the bottom, germinate, root, and grow.—*Ed.*

A NEW INSECTICIDE.

A fruit-grower in Valparaiso, South America, writes to his local paper that he has discovered a singular property in tomato leaves. It appears that, having cut down some tomato vines, he used them as a "mulch" around his peach trees. He soon discovered that the *curculio*, which had been destroying his fruit, had abandoned the trees surrounded by tomato vines. Following up this accidental discovery, he found that a free use of tomato vines proved a perfect protection, not only against the *curculio*, but against other noxious insects. He found, also, that by steeping in water some fresh leaves of the tomato, and sprinkling the infusion upon the plants, such as roses and orange trees, the innumerable insects which covered them were driven away. We commend this to our Horticultural friends."—*Midland Farmer.*

The above was sent to us, conspicuously marked, in the June number of the *Nebraska*

Farmer, and, on account of its simplicity, we republish it for what it may be worth. Whatever effect it may have on the curculio and on those "other noxious insects," we confess we have not much faith in it as a general remedy.

We certainly could not expect it to "drive off" the green tomato worm or the "Colorado potato beetle," for both these insects feed voraciously on the tomato vines. The expressed juice, or an infusion of tomato leaves, would, no doubt, repel some insects, but we don't know what effect "mulching" could have upon any insects we know of. Besides, the authority is too far away and too little known, to elicit any special confidence in it. Still we call the attention of our readers to it, and hope they will make a practical test of it during the current season. An infusion of tomato vines is exceedingly offensive to the genus *Homo*, and it may, preadventure, be so to some of the subjects of the insect realm. —Ed.

A LESSON WORTH LEARNING.

"The possibility of a great change being introduced by very slight beginnings may be illustrated by a tale which Lockman tells of a vizier, who, having offended his master, was condemned to perpetual captivity in a lofty tower. At night his wife came to weep below his window. 'Cease your grief,' said the sage; 'go home for the present, and return hither when you have procured a live black beetle, together with a little *ghee* [or buffalo's butter,] three clews, one of the finest silk, another of stout pack thread, and another of whip cord; finally, a stout coil of rope.' When she again came to the foot of the tower, provided according to her husband's demands, he directed her to touch the head of the insect with a little of the *ghee*, to tie one end of the silk thread around him and to place him on the wall of the tower. Attracted by the smell of the butter, which he conceived to be in store somewhere above him, the beetle continued to ascend till he reached the top, and thus put the vizier in possession of the end of silk thread, who drew up the pack thread by means of the silk, the small cord by means of the pack thread, and, by means of the cord, a stout rope, capable of sustaining his own weight, and so at last escaped from the place of his duress."

Many enterprises in life; many reformations in morals; many individual labors might be coaxed along gently in their incipient and progressive stages, by such a gentle, thoughtful, and hopeful procedure as is portrayed in the foregoing extract. Be careful, be gentle, or you may snap the thread and never be able to get possession of the cord that leads to the possession of the "stout rope" which leads to success, even after you have secured the beetle that conveys to you the silken fibre. In successful farming, the same gentle manipulations of the soil is necessary. When the plant is young, weak and feeble, we must guide it and nurture it by the silken floss, before we can apply the stronger culture that corresponds to the pack thread. Many a plant is destroyed in our eagerness to apply the pack thread to a hasty advance to the cord, and thence to full maturity. But before we can possibly avail ourselves of the feeble tenure of the silken fiber, it must be directed towards the desired end, by the operation of a will-power that lies back of threads, cords and ropes—an exercise of the immortal mind.

HORSE HAY FORK—PATENT INFRINGEMENTS.

In the case of A. J. Nellis vs. The Ashland Fork Manufacturing Company, in the United States Circuit Court for the Northern District of Ohio, a decree has been entered in favor of the patents, and an injunction issued against the defendants enjoining them from making and selling the Harris Double Harpoon Horse Hay Fork. We notice from the Court records that there are over one hundred suits now pending for the infringement of these patents, against parties in the State of Ohio. Evidently the owners of the patents are determined to protect their rights.

A CHOLERA CURE.

"Tincture Opii.
Tincture Capsici.
Tincture Rhei Co.
Tincture Menth pip.
Tincture Camphor.
Mix the above in equal parts, etc."

Among the many remedies published last summer for cholera, diarrhœa, bowel complaints and other similar forms of disease incident to summer season, we believe none received a more authoritative endorsement than the above, which is the "corrected formula." We have been carrying it in our pocketbook for nearly a year, and as it had gone into pieces the above was all we were able to rescue from the wreck, but that contains all the essentials of the mixture. Any intelligent druggist will be able to interpret and furnish the ingredients, and if he cannot it will be an indication that he is not the man to be trusted in the case. Every family should have a bottle of this cholera medicine in their possession, during the summer season at least. We were not able to preserve the size of the dose, for that fragment was entirely lost, but we think it was a teaspoonfull; of course this should be adapted to the age of the patient, the violence of the disease, and other things contingent thereto. The same circumstances should also govern the frequency of its repetition. It is generally conceded to be safest to apply remedies in cases of these diseases when the first symptoms become manifest. In many cases a single dose has been all-sufficient to arrest the disease.

HOW TO EASE A COUGH.

A medical work of high authority gives the following advice to invalids and others: "The best method of easing a cough is to resist it with all the force of will possible, until accumulation of phlegm becomes greater, then there is something to cough against, and it comes very much easier, and with half the coughing. A great deal of hacking and hemming and coughing in invalids is purely nervous, or the result of mere habit, as is shown by the frequency with which it occurs while the patient is thinking about it, and its comparitive rarity when he is so much engaged that there is no time to think, or when the attention is impelled in another direction."

We feel that we are able to testify, from long experience, that there is "sound wisdom and discretion" in the above. We do not presume to say that every one can oppose the power of his or her will, successfully, in resisting a cough, or that it will be successful at all times, nor yet, with all coughs even by the same individuals. Coughs generally proceed from an inflamed condition of the bronchial organs; from the inhalation of foreign irritating atoms; from inhaling cold draughts of air; and often from a violent or impulsive exercise of the vocal organs, but, perhaps, more frequently from an inflamed condition of the lungs—their decay, their laceration or their collapse; but even in these latter cases, it has been manifest that a cough may be resisted, or at least palliated. In our younger days we were intimately acquainted with an intelligent physician predisposed to consumption, who understood his own case so well, and also his feeble tenure of life, that he obstinately refused to cough, often under the most violent provocation, and he succeeded in prolonging that *tenure* for ten or fifteen years, if not longer; and, although he eventually died of that fell disease, yet he never did much coughing. There are many coughs that proceed from bronchial inflammation, and not from a diseased condition of the lungs, as is evident from their long continuance—often twenty or thirty years—and if these coughs were resisted by the power of the human will, the life of the patient, in many instances, would be prolonged; but even in these cases, injudicious or impulsive yieldings, only increase the irritation, and inflammation may finally be driven down into the lungs and end fatally. Reader, if you have any will power at all, *try it.*

PROTECTION OF USEFUL ANIMALS.

The following notice, says the *Bulletin D' Arboriculture*, is conspicuously set up in the State forests of France. It would be well to have similar notices posted in our public parks:

"Hedge Hog—Feeds on mice, small rodents, slugs and grubs. Do not kill a hedge hog.

Toad—A farmer's friend; destroys 20 to 30 insects per hour. Do not kill a toad.

"Mole—Destroys incessantly grubs, mole crickets, and insects injurious to agriculture; no trace of vegetable matter is ever found in its stomach; does more good than harm. Do not kill a mole.

"Cockchafer (hanneaton) and his grub (verblanc)—Each insect lays 70 to 100 eggs. Kill the cockchafers.

"Each department of France loses annually thousands of francs by the injuries of insects. Birds are the only enemies capable of contending with them. Children, do not rob the birds' nests."

Then follows a list of rewards offered for the destruction of cockchafers.

Without deeming it necessary to insert the "list" in this place, it is sufficient to *know* that the French Government expends large sums every year in paying bounties for the gathering and destroying of noxious insects—and especially for the *grubs* of the "cockchafers," (better known is this insect in its larva state as the "White Grub.") The *larvæ* of all the Lamellicorn Beetles are white "grub-worms," with black, brown or yellowish and glossy heads and feet, and they are usually found in the earth, or in much decayed old wood. They walk very indifferently on a plain surface, having but six feet, attached to the first three segments of the body, and the hinder parts by far the largest portion of the *grub*. Indeed, some of them move on their backs, but the larger part of them move on their sides, and they are always found bent like a crescent, and lying on their sides; and perhaps there is no kind of insect food that is more grateful to the palate of animals than these white "grub-worms." It is said that skunks are very fond of them; therefore, whatever other adverse qualities skunks may possess, we should also say—"Don't kill the skunks." The economy of nature is so elaborate in its details, in reference to the insect world, that we hardly know what wild animals we ought to spare or what to kill, lest we might be killing our friends and sparing our enemies. Perhaps, in a larger sense, all the subjects of the *animal kingdom* are necessary to each other's existence, and hence, also, antagonistic to each other; and, the legitimate results of this antagonism is the normal *equilibrium* of that kingdom, and to disturb that, is to produce a redundancy of the one or the other; and that is what civilization and the march of improvement have been interposing, in various ways, from a very early period in human history. And that is not all; for, the effects of this disturbance of the normal equilibrium is likely to continue until we can discover how to economize the *natural* means, or apply the *artificial* means, to keep the relations of the animal world intact.

We question very much whether all the artificial insecticides yet discovered possess a tithe of the saving potency that exists normally in the domain of nature itself; and even in some of our frantic efforts to circumvent the evils of redundancy we may be but facilitating its progress.

Take, for instance, by way of analogy, the construction of a clock—a clock, by way of eminence, that measures the seconds, the minutes, the hours, the days, the weeks, the months and the years of time; that indicates the risings and the settings of the sun and moon; the ebb and flow of the tides; the meteorological conditions of the weather; the temperature and the humidity of the atmosphere, and sundry other mechanical complications; and notice how all the movements necessary to the successful operation of the whole must act in universal harmony and be directed towards a legitimate end; and re-

flect that this mechanical contrivance is but an imperfect reflex of the system that exists in the operation of nature's laws; and from this we may form some idea of what we have yet to learn, and what yet to do, before we can hope for an immunity from a redundancy of pestiferous insects. If the mechanic who constructed such a clock as we alluded to was to make one wheel too large and another wheel too small; one spring too strong and another spring too weak; one lever too long and another lever to short, or one cord too tense and another cord too lax, the result would be a disturbance of the equilibrium of the whole and the destructive acceleration of some of the parts, and the damaging retardation of other parts; and general disorganization would follow, as sure as domestic and economic disorganization produces the destroying visitations of the "Rocky Mountain Locust," the "Colorado Potato-Beetle," or the "Western Chinch-Bug."

The processes of husbandry and the cultivation of the soil, in the early history of the country, were somewhat different from what they are at the present period. Our ancestors brought over from the "fatherland" the simple methods that obtained there up to the time of their departure, and on their arrival in the New World, and on manipulating the virgin soil, they found that under the operation of those rules and routines it yielded abundantly; and, as long as this result followed the waving of their industrial wands, they continued the old processes, and never dreamed of the innovations that were to follow under altered circumstances—the natural depletion, the local exhaustion, and the advent of destructive animals. It became manifest to them that wolves destroyed their flocks, foxes their poultry, and squirrels their corn, but beyond these prominent contingencies they entertained but few fears, and made but little or no provision. But now, apprehensions are looming up, involving the grave question as to whether a time is not arriving in the history of practical agriculture, when farming will have to be done scientifically, if it is done at all; when not only the composition of the various soils must be understood, but also the modes of their recuperation—the means by which the destruction of the farmer's crops may be prevented, and what auxiliaries may exist in the economy of nature itself, as helps, in the accomplishment of the desired end.

It is not sufficient to know "which and what" animals are noxious, but also those that are beneficial, in order that an intelligent discrimination may be made between them; and this question must become as familiar, as simple, and as practical, as that which involves "demand and supply."

Inasmuch as the masses of the people *will not*—or, perhaps more charitably speaking, *cannot*—give sufficient attention to natural science to make it of practical value to them, it has long been our cherished opinion that government—either National, State, district or municipal, or perhaps within their respective spheres, each of them—should create functions, and endow compensated functionaries, whose continuous duties should be to study and make provision for all such contingencies as may be involved in the increase of destructive animals. Such an establishment might be kept in permanent and successful operation at an outlay of the very smallest moiety of the many millions of dollars lost to the country every year by the ravages of destructive insects and other noxious animals.

The great help which vegetation, and hence the human family, sustains through the protection of insect-eating animals is difficult to make manifest to the common apprehension. Take, for instance, an animal that lives on insects alone—that never has been seen or known to partake of any other kind of food; and, like the swallow, that only remains in such locality as it visits so long as it abounds in insects, and when, through a change of season, these become exhausted, it migrates to a more congenial locality, and who can calculate the number of insects it destroys in its lifetime, and how many millions more are prevented from ever coming into being. Let it also be remembered that purely insect devouring animals are not spasmodic, capricious, or periodical in their pursuit of insect food, but are at it "early and often." "From early morn to dewy eve," and, when nature is enveloped in the "mantle of night," like well appointed sentinels, a night-watch sallies forth on its friendly mission and continues the benevolent work until they are driven to their accustomed haunts by the garish light of day. Artificial remedies are at best but spasmodic, transient, imperfect, and only partially effectual.

ABOUT FROGS.

"Timmy Droo-oo-oo-oo-oo,
I can make a shoe-oo-oo,
As good as you-oo-oo-oo,
And better too-oo-oo-oo."

The season is now here, when "The song of the turtle is heard in the land," and these persecuted reptiles will fall a prey to the insatiate maw of epicurean man. A humane and thoughtful cotemporary has recently been putting in an eloquent plea in behalf of the frog, ranking him with other "game," and asking from our legislators the same protection that is accorded to other "game animals;" and we think, with a good show of wisdom, as viewed from the selfish side of the question. When we are captured by a tribe of cannibals; confined in a sheltering crib, allowing us only to look upon the fair face of nature through "chinks" in the wall; kindly cared for and sumptuously fed on fattening viands; daily visited and our health and condition anxiously inquired into; punched in the ribs, caressed down the back as we would a favorite dog, and our upper and nether limbs kneaded as we would a mellowing peach or pear, to ascertain its edible condition; and finally and affectionately released from our confinement in order to be "spitted" and furnish a central dish for "grim and greedy" monsters to "wipe their jaws" upon; can we claim that the interest manifested in our behalf, is of a lower order than that proposed in behalf of the frog? How carefully, how kindly, how providentially and how sympathetically we treat our pigs, and yet the ultimate of all our tender regard culminates in "boiled ham and sausages."

Since, however, people will eat frogs, (and we can attest that they are a generously flavored and toothsome *morceau*) it is meet, perhaps, that they should be included under the protection of the game laws. They (frogs) in common with other animals, have their breeding season, during which time they should be allowed to "multiply and replenish" the ponds, and that season is just now; and this is especially the case with our common "bull-frog," (*Rana pipiens, Latr.*) whose nuptial song was many long years ago so beautifully paraphrased by frightened "Timmy Drew." Very closely related to this bull-frog is another species (*Rana horiconensis*) of the northern lakes, and the deep croaking of these two species—their "more rum" and their "blood and nouns"—may be heard, under favorable circumstances, for half a mile or more. This latter individual is the subject of a *quasi* culture and protection, in and about some of the ponds or lakelets in the State of New York, and it is said that at the proper season large numbers of them are sent to the markets of Buffalo, Albany and New York city. Their protection is exceedingly simple and consists merely in their non-destruction during the mating season. It is questionable whether it ought to be allowable to shoot or otherwise capture frogs before the 1st of July; or perhaps if the mantle of the squirrel law was extended over them it would afford all the protection they needed. But, in the protection and cultivation of frogs effectively, it requires also the cultivation of the "soul of honor" among their human captors, as well as the protection of their "polliwogs" from the carnivorous attacks of aquatic birds and the still more destructive fishes.

A smaller species than the two already named, is the "green frog" (*Rana clamitans*) conspicuously tinged with yellow about the posterior portion of the abdomen. Allied to this species, and about the same size, is the "leopard frog," (*Rana halecina*) so named from being spotted like a leopard. This last named species is a most extraordinary leaper, sometimes making ten feet at a single bound. In the absence of the larger species, these two last named animals are sought with as much eagerness as the former; for what they lack in size they more than make up in delicacy of flavor. They often come out and sit and bask in the sun a considerable distance from the margin of the pond or stream, and at the approach of danger—long before they are seen—they make a sudden spring and often reach the water at a single bound; all you hear or see is a "squeak," a "streak" and a "plunge." These are the individuals that utter that very peculiar "*fed-dem*" like noise, which sounds much like a "cracked" G violin string—something like the musical manipulations of a class of boys taking their first instructions on the violin, when requested by the master to "sound." This sound, however, is not as frequent now as it was when we were a boy. Since then frogs have been cultivating caution and are loth to let their whereabouts be known, either by "sight or sound." As an illustration of the progressive character of frogs, in relation to their self-preservation at least, we would respectfully refer the reader to the March number of THE LANCASTER FARMER, third column of page 40, (for 1877,) as an emphatic case in point.

Six frogs are enough for a person to talk about at one time, (and perhaps, also, enough for any person to appropriate at one meal,) and therefore, in order to reach that maximum, we are privileged to mention two more species that are occasionally to be found, especially in the Northern States. The first of these is the "pickerel frog," (*Rana Palustris*) pale brown, marked with dark brown above, and bright yellow mottled with black beneath, especially the thighs. Its flesh is delicate, and is used extensively as a pickerel bait, and also as a trout-bait. As its call is a singularly prolonged utterance, as it floats on the water, in this we realize the nursery lines:

"Sing and float, sing and float in my little boat."

The smallest of the six is the "wood frog," (*Rana sylvatica*) pale reddish above, and yellowish, white beneath, with a dark brown stripe on each side. This little batrachian is only about two inches in length, and, singularly enough, is found only in the woods, except in early spring, when, like the common toad, it frequents the water to lay its eggs. This little subject must, however, not be confounded with those little members of the HYLOID family, known as "tree toads," for they differ from them as much as a leopard differs from a tabby-cat.

The young of frogs are reared in ponds or streams of water, and in their immature state are sometimes called "polliwogs," to distinguish them from the young of toads, which are usually called "tadpoles." Frogs are very prolific, but most of their young fall a prey to fishes and ducks, or wading-birds, and here is where their protection primarily comes in, to make the raising of them a success and profitable.

A cotemporary thinks it would be a very nice thing to be a frog during the heated summer time. "A frog," he says, "neither toils nor spins; goes in swimming whenever he feels like it, without taking off his shirt; plunges to the bottom of a cool pond when the sun grows fierce and vindictive, and doesn't wear uncomfortable shirt collars, nor sit in a barber shop waiting for his turn." But there is another side to the picture. "A frog can't stick his head out of the water to survey the beauties of nature and listen to the band playing, without incurring the risk of having it shot off by a man with a gun and a dirty shirt; nor perch himself upon a cool stone to enjoy the sunlight and let his thoughts wander back to childhood, without running the risk of

being swallowed by a slimy snake; nor enjoy a 'hop' a few yards from shore without being captured by a 'small boy,' and 'whipt to make him cry,' if nothing worse is in store for him." Even those persons who are supposed to experience the most realizing sense of the hardships imposed upon the frog, are sometimes compelled to sacrifice him to their zeal in a collateral specialty; and to this we ourself cannot deny the "soft impeachment."

In the summer of 1841, whilst out frog-hunting, we shot a large subject, which was brought to us and laid at our feet. Although it was quite dead, yet there seemed to be something inside of it that tossed it about, "like a bear in a blanket." On opening it, we found its stomach contained a large male specimen of the "American Rhinoceros beetle," (*Xylorycles satyrus*) still alive and vigorously kicking, besides other dead and fragmentary specimens.

This was the first male subject of this species we had ever seen, although when we know when and where to look for them they are by no means rare, and of course, we secured it and took it home. It afterwards became the central nucleus of our *coleopterous* collection, and is still there, around which cluster many hundred species. If we subsequently bore down too severely on the frogs, it was more in the hope of securing rare entomological specimens than to gratify any gastronomical craving.

In conclusion, at the present prices, to enter into Rana-culture ought to be a paying business. We have seen the day when they were sold as low as ten and twelve cents a dozen, but now, when served up in a restaurant, they cost fifty cents a pair. Any person who has a piece of swampy ground that no other use can be made of, and has a constant supply of running water, could easily construct a frog pond. Here they would multiply and replenish—replenish the tables of epicures—if they were protected against carnivorous fishes, ducks and wading birds, but most especially from "crack shots," who destroy them promiscuously and out of season. Of course if they were numerous they would have to be fed, for they have been known to swallow the young of their own species, as well as young fishes and insects. This latter is suggestive, and if the pond was margined with flowering shrubbery to attract insects, it would furnish a further supply of food. "Some things can be done as well as others." Who will try?—*Polly-wog.*

TOBACCO PESTS.

"W. A. S.," of Henderson county, Kentucky, writes as follows to the *Country Gentleman*:

"Noticing the remedy for flies on tobacco plants, page 297, I will give your readers a more simple remedy, and one that is always at hand. It is common soot and ashes, or lime, applied when the plants are damp. In addition to proving a safeguard against the ravages of insects, this is a splendid fertilizer. An addition of manure from the hen-house makes it the best thing I have ever seen to push plants forward. Farmers who raise tobacco will also find it advantageous to kill the tobacco hawk-moth, *Macrosila (sphinx) Carolina*, which lays the eggs producing the worms so troublesome to this crop. The fly comes out at twilight to feed and deposit its eggs. Its food is sucked from flowers by means of its long flexible proboscis, commonly called a horn (hence its name in many sections "horn-blower.") It seems especially partial to the Jamestown weed, *Datura Stramonium*, and if cobalt be dissolved in water and a drop or two put in the flower of this weed, or any flower they feed on, it is sure death to them. Some farmers plant this weed about the field for the purpose, and every evening or two put in a supply of poison. As the moth does not roam far they can be greatly diminished if this is kept up, and consequently the worms are visibly lessened.

"Another aid to the tobacco raiser is a minute four-winged fly, known to entomologists as the *Microgaster congregata*. It has become quite numerous in tobacco growing sections. The entomologist in the agricultural department report for 1873, gives the following account of it: "The eggs of this parasite, to the number of one hundred or more, are deposited in the back and sides of the caterpillar (the worm), in small punctures made by the ovipositor of the fly. The larvæ, when hatched, feed upon the fatty substance, and when fully grown eat a hole in the skin, and each maggot spins for itself a small, white oval cocoon, one end of which is fastened to the skin of the worm. Eighty-four flies were obtained from one worm by Say, and Fitch counted one hundred and twenty-four cocoons on another worm." It can be seen that these flies multiply very fast, and must kill a great number of worms, as they soon kill every worm they infest. The same authority says that this parasite has also an enemy, the *Pteromalus tabaceum*, which deposits its eggs in the cocoon of the microgaster. If farmers will not disturb worms that are infested with the cocoons of the microgaster, they will soon prove a great and effectual help to them."

The above substantially reflects what we said in our essay, read before our local society in March last, and which will be found commencing on page 37 of the present volume of the FARMER; and we commend it to the special attention of our tobacco growing readers the present season.—*Ed.*

CORRECTION.

In "Book-keeping by Farmers," in May number of THE LANCASTER FARMER, Fig. D was incorrectly given. If it was taken as the account of a laborer against Jonathan Pineknot, farmer, then it would be right; but for a farmer's account against Jonathan Pineknot, laborer, as it was intended, it should be in as follows:

1874.	JONATHAN PINEKNOT.	Dr.		Cr.	
March 12	By ½ day spreading lime				50
" 14	By setting 10 panels fence, @ 11c.			1	10
" 18	By 1 day plowing, @ $1.50			1	12
" 20	To 3 bushels corn, @ 75c	2	25		
April 2	By ½ day plowing				75
" 3	To cash in full	1	52		
		3	77	3	77

BIRDS VS. HOPPERS.

An old pasture field upon the farm of Charles L. Stoking, bounded on the south and west by the Wahoo Creek, and which was closely fed last season, proved very acceptable to the hopper as a laying ground. Millions of eggs were deposited therein last fall, from which the warm weather of the last two weeks has evolved millions of the live young hoppers. Inspired by the instincts of a Brennus for plunder, the hardy fellows soon organized into squadrons, and marched to the attack of a timothy field on the north, and of a field of barley on the east, each of which soon exhibited decided evidence of their rapacity. But on Tuesday, the 24th inst., a change came over the spirit of their happy dreams of luxurious living, for on that day a flock of two or three thousand black birds appeared upon the scene, and instantly taking in the situation, they commenced operations upon the frisky hoppers.

We watched the scene with absorbing interest, and soon found that wherever the winged warriors made a descent, the myriads of nimble hoppers which covered the ground disappeared in a remarkably short space of time. In one instance, we saw the birds alight upon the road, at a point where, one hour previously, the ground was literally covered with young hoppers. In ten minutes we approached, when the birds retired to the trees near by. We looked for the pests which had been there, but they were not. Of the many dark and moving masses which had so recently occupied the place, scarcely a hopper was now to be found.

What stronger proof can one desire of the great value of insectivorous birds in destroying noxious insects than the above example presents? or what better evidence of the wisdom of last winter's legislature, in enacting the law for the protection of these birds from the sportsman's deadly gun? All hail to the bird law, the dog law, and the tree law of Nebraska—a trinity of measures, destined to advance her in a few years to the front rank of States—to plant her prairies with beautiful trees, to fill these with useful birds, and to clear her fields and gardens, orchards and groves, of insects, noxious to the farmer's varied crops.—*M. S., Nebraska Farmer.*

CORRESPONDENCE.

EDITOR OF "LANCASTER FARMER"—*Dear Sir:* To all interested in "Strawberry Culture" an invitation is extended to visit the grounds of E. W. Durand, in the strawberry season, about the middle of June. He has nearly three thousand varieties under cultivation, originated by himself, and mostly approved selections of his seedlings of the last twenty years. Having taken the first premium at the Centennial Exhibition, he gives the invitation that people may see for themselves what progress has been made in this direction. Respectfully,—*E. W. Durand, Irvington, Essex county, New Jersey.*

If we cannot possibly go to the "mountain," we should not at all object if the mountain were to come to us.—*Ed.*

QUERIES AND ANSWERS.

Mr. H. B., Londis Valley.—The pale, buff-colored, powdered mineral substance you sent us, appears to be a kind of *Kaolin*, or decomposed *Feldspar*, and probably might be used for making delf-ware, or common porcelain, if it occurs in sufficient quantity and purity, or, perhaps, this substance may be more properly termed a kind of "fire-clay," and might be converted into crucibles, fire-brick, vases, and many other articles of use to the human family.

Mr. G. S., Lancaster Cotton Mills.—The *bicaudated*, or "double-tailed" worm you sent us through Mr. G., is a malformed specimen of the common earthworm, angleworm or fishworm, (*Lumbricus terrestris*) and is not a normal species, but a *Lusus naturæ*, a freak of nature, or an animal monstrosity.

Mr. J. B. A., Lancaster city.—The "queer fish" you sent us, and which you say you took out of the stomach of a "black sea bass," (*Centropristes nigricans*) is a specimen of the "common squid" (*Loligo Bartramii*) of our Atlantic coast, and the bays contiguous thereto, and was in a very good state of preservation. It belongs to the order *Dibranchiata*, and is allied to the "cuttle-fish" family.

Mr. J. M. J., Lancaster, Pa.—Your insect is a "White Miller Moth," (*Arctia Virginica.*) I have said *a*, because I cannot apply the definite article *the*, because there are several species that go by the common name of "Miller Moth." The *larva* is a yellowish, or light brownish, hairy caterpillar, sometimes called the "wooly bear" or "yellow bear," and is a promiscuous feeder on all kinds of vegetation that comes conveniently to hand, but especially garden vegetation.

S. P. E., Esq., Lancaster City.—The hickory branch which you brought us some days ago, invested with a number of leaf and stem galls, of irregular forms, on examination proved to be those of a species of *Phylloxera*, generically allied to the famous *Phylloxera vastatrix* of the grape vine. There are quite a large number of species belonging to the genus *Phylloxera* in the United States, and some six or eight of them are known to infest the hickory trees. Several are found on the oaks, either on the tender branches, the leaf-stems, or the leaves. In the absence of other species of hickory phylloxera to compare with them, we cannot be positive as to the species, but it appears to be the *Phylloxera perearie*, of Sheimer. There need, however, not be any serious anxieties about them because they belong to the phylloxeras, for we have noticed these galls on the oaks and hickories from our very boyhood. In some of the cavities we also found a whitish grub, with a large brown head. This, according to Prof. Riley, is the larva of *Anthonomus caryæ* one of the large family of *Curculios*; but it is only a "tenant at will," and not necessarily confined to these galls.

For The Lancaster Farmer.

NEBRASKA NOTES.

Cheyenne, W. T., May 28, 1877.

Mr. Editor:—Between Cheyenne and Kearney Junction there are thousands of cattle, sheep and horses, and excellent pasturage for at least "six hundred thousand more." The grasses here are greater in variety and quantity, and of better quality, than along either of the more southern routes from the Missouri River to the Rocky Mountains—and this would seem to be necessary to adapt it to stock raising, as the winters are more severe, and stock require more nourishment; yet not half as many cattle, horses and sheep perished last winter in the Platte as in the Arkansas Valley; probably for two reasons: First, the superior quality of the grasses along the Platte, and second, because the Platte stock men provide both winter feed and shelter for their stock, while the average Arkansas "Cow-boy" is "Arkansas Traveler" style and provides neither feed nor shelter for winter use.

The stock all along the Platte are in good order, and very few dead cattle were seen during my recent trip from Denver to Omaha and return to my Rocky Mountain home.

At Cheyenne there are four live churches, to which have been added about one hundred members by profession of faith, during the last three months. The pastor of the Presbyterian church, Rev. Mr. Corwick, is also County Superintendent of Education, and very efficient in both positions. About half of the children attend some Sabbath school.

There are over fifty liquor stores and saloons here, and an active temperance society.

There is one business firm here composed of a Presbyterian, a Methodist, and a Congregationalist, who never sell goods on the Sabbath, and prosper.

Sidney, one hundred and fourteen miles east of Cheyenne, is a great out-fitting point for the Black Hills. It has more new buildings and business activities than any other town of its size in the Union, but religious enterprise does not keep pace with them.

North Platte, near the confluence of the North and South Plattes, is surrounded by a rich agricultural region, and from this point east to Omaha, about 300 miles, the fertility of the soil and the rain-fall increases, which, with the genial and almost constant sunshine, and general southeastern slope of the valley, constitutes it a superior farming country, in which land is being rapidly sold by the Union Pacific at from two to eight dollars per acre, on long credit, with only six per cent. interest.

From North Platte going east we pass through the comparatively new county of Dawson, which is watered by the Platte and Wood Rivers, Plum Creek and other smaller streams.

Plum Creek is the capital, and is a promising point 230 miles west of Omaha. The people of the town and county are principally from Pennsylvania and Ohio.

Dawson county has forty-two miles of U. P. Railroad, six thousand feet of bridges, thirteen good school houses, well furnished, and about as many churches—all built during the last five years.

The altitude is 2,370 feet above the level of the sea. There have been only eight deaths in the county during the last year, of those who came here well.

The crop prospects are excellent, and no grasshoppers.

During the construction of the Union Pacific road, when every train had to carry soldiers and arms for their men and passengers, near the mouth of Plum Creek a band of Indians tied some wire to a telegraph pole, about four feet from the ground, and about fifty of them stretched it across the road in front of an approaching train. The engineer put on full steam, and when the engine struck the wire the Indians all had a rough time, and especially the leader, who had the end of the wire wrapped around his hand, was terribly mutilated. So it will ever be with the poor infidels who are trying to stop the train of Christianity, which has founded and sustains all the charitable institutions for the relief of the thousands of sick, blind, deaf, dumb, insane and helpless in our own and other lands.—*Sidney A. Gaylor.*

ESSAY ON WHEAT.*

Wheat is one of the most valuable of our cereal productions, and invariably follows civilization—if it may not be regarded as the most universal *sign* of civilization. Its origin, unlike that of the origin of the Irish potato, is almost, if not entirely, unknown. Its antiquity, however, seems to be unquestionable, as by reading the Book of Genesis, we find that when the sons of Jacob were working in the harvest field, Joseph had a dream—"For behold we were binding sheaves in the field, and lo, my sheaf arose and also stood upright; and behold your sheaves stood round about, and made obeisance to my sheaf." By that we may infer that *wheat* was meant, and when the Egyptians stored up "corn" it also meant wheat.

†*Corn* is a general term which includes all kinds of grain used as breadstuffs, and when we speak of the "Corn Exchange" we mean the buying and selling of wheat, rye, barley and oats, as well as corn, or maize. So we may perceive that wheat was cultivated in Asia and Africa fully four thousand years ago, (4,000) according to Bible history. Wheat will grow in all soils in the same latitude; but even in the same latitude it will *thrive* better in some soils than in others, although it invariably does well in virgin soils. But in from fifteen to thirty years many of the Western States cease to be good wheat growing districts, and many less acres are under cultivation than in former times, in consequence of the deterioration of the crop. Instead of raising wheat, the farmers go into stock raising—such as blooded cattle, sheep, swine and Norman horses; the latter of which command from $1.50 to $200 apiece. Many varieties of wheat were cultivated in the American Colonies—afterwards the United States—at least three hundred in all. More than one hundred and fifty varieties were cultivated at different times in Ohio and other Western States. Nearly all those early varieties have been long since discarded. Very few varieties imported from Europe, ever succeed well in the United States, except the "Old Mediterranean," which originally came from the shores of the sea of that name. After the great wheat failure of 1836 and 1837—when flour brought $11 per barrel—the Hessian fly was the universal destroyer of the wheat crop in Lancaster county. The Mediterranean variety seemed to have withstood the attacks of the fly. At first its farinaceous character was somewhat similar to rye, but it improved in the course of time. Some twenty years ago, a farmer in Paradise township picked out a stalk of wheat from a field of the Old Mediterranean, which, when planted, proved a great improvement on the old, and did much better. It was afterwards known as the "Red Mediterranean," and was the principal wheat afterwards cultivated, down to the introduction of the Foltz variety. The Foltz was introduced from the valley of the Susquehanna. Many other varieties have been introduced through the National Agricultural Department at Washington, and elsewhere, and have since been nearly all abandoned. Most wheat will soon degenerate, and new varieties from our native soil will do better than others. We even can raise the best of fruit from seedlings of our native soil.

I believe that if farmers would every year search their fields, when the grain is fully ripe, that they might here and there find heads, or clusters of heads, that would produce distinct varieties of wheat which would be an improvement on the old kinds. By such a course of culture, by "natural selection," we might develop varieties that would yield from 20 to 40 bushels per acre. How few farmers ever search, or try to discover new varieties of wheat or other grains. I would suggest that the society should offer a premium of five dollars ($5), for the best variety of wheat selected from the fields of Lancaster county. The diseases and enemies of wheat are numerous, conspicuously among which are blight, mildew, rust, midges, weevils and the Hessian fly.

We have had very few good wheat harvests in this county for the last ten years. About eight or ‡ten years ago the wheat looked very promising until harvest time, when it was discovered that the heads would not fill; it was rank enough in the straw, but had not enough of weight in the grain to bend the heads over, and they stood erect and empty. It was generally thought, at the time, that it was infested by a new kind of *weevil*, but my opinion was that the cause was in the condition of the atmosphere when it was in bloom; or, not in the right temperature when the grain was maturing. It was something new then, but beyond the farmer's ken. Four or five years ago we had a cold open winter—dry, and without snow, and the thermometer sometimes 30° below zero, and this was the occasion of a failure in the wheat crop. Two years ago the southeastern part of Lancaster county, from the range of hills extending from New Berlin to Kissel Hill, or New Haven to Manheim, was overlaid with solid ice, and many farmers did not raise more than from *five* to *ten* bushels of wheat to the acre, and those failures afforded new researches, relating to their cause, among the farmers.

The Hessian fly is only an occasional visitor; and, as before indicated, seems to have been an emigrant from Europe, where it had been known and described long before it commenced its ravages in this country. According to the best authorities on the subject, its first appearance in America was noticed in 1776, and it is supposed to have been brought over from the continent of Europe in the straw-litter used by the Hessian soldiers, and from this circumstance its common name has been derived. Whether this assumption is correct or not, it is on record that it was first noticed on Long Island one hundred years ago, and traveled inland at the rate of twenty miles a year, until it is now known all over the Eastern, Middle and Western States. It exists always in certain localities, and varies its attacks of the wheat crop from the beginning to the end of September. In 1836 this fly destroyed all the wheat sown from the 5th of August to the 1st of October. A farmer in Rapho township, who was always a late sower, sowed his wheat on the 20th of October, and his wheat crop totally escaped the ravages of this insect that year, and he realized a good crop, and sold to other farmers at $3 per bushel.

In the year 1876, all the wheat sown on or before the 5th of September, will be almost an entire failure. The present prospects are that the yield will only be from *five* to *ten* bushels per acre. After the 5th of September a "wet spell" succeeded, and farmers could resume their sowing, until after the 11th or 12th, and what was sown after that period looks very promising; and if nothing like hail, mildew or midges intervene—or other contingency at present unseen and unknown occurs—we may expect a yield of from twenty to thirty bushels per acre. About one-fourth of the crop in Lancaster county was sown before the 5th of September, and about three-fourths after the 11th, and from this data, all other things being equal, we may at least *conjecture* what the crop the present season may be.

*Read before the Lancaster County Agricultural and Horticultural Society, May 7, 1877, by Levi S. Reist.

† "The Spring is waning fast,
The *corn* is in the ear."

‡When we say "*about*" ten years ago, we may mean a year more, or a year less. If Mr. R. alludes to 1866—which was about ten years ago—we would respectfully refer him to the *Lancaster Intelligencer* for June 30, of that year; to the *Daily Express* for June 20, 1867; and to the *Examiner and Herald* for July 10, of the same year, in which he will find that *we* entertained a different opinion from his, on the causes of the wheat failure of those years. We made a series of investigations, both in the closet and in the field, and came to the conclusion that the damage to the wheat crop in those years was caused by the "midge," or "wheat-fly," (*Cecidomyia tritici,*) sometimes wrongly called the "Red-Weevil." There was plenty of good strong straw, but the heads stood erect and with little or nothing in them.—*Ed.*

TOULOUSE GEESE.

These geese, of which the cut below is a faithful representation, are in stock by Benson & Burpee, of Philadelphia, and won the first and special prizes at Philadelphia in January, 1876.

The Toulouse are the largest variety of geese known to the poultry world, and have been appropriately styled "the Goose of the period." They are very hardy, produce an abundance of feathers, grow rapidly, and fatten readily at any age. In color, they are of an even shaded gray, with the posterior ventral portion of a lighter color, and short in their pedal limbs. They are just phlegmatic enough to become a savory roast by Christmas time, and yield a sufficiency of surplus "goose-grease" to alleviate the sore throats of the children of a large family for an entire year. If ancient Rome was saved by a goose, surely the salvation of our country cannot be in jeopardy as long as we cultivate, or tolerate, the presence of this magnificent specimen of the *Anatidæ* family amongst us—either by "war, pestilence or famine."

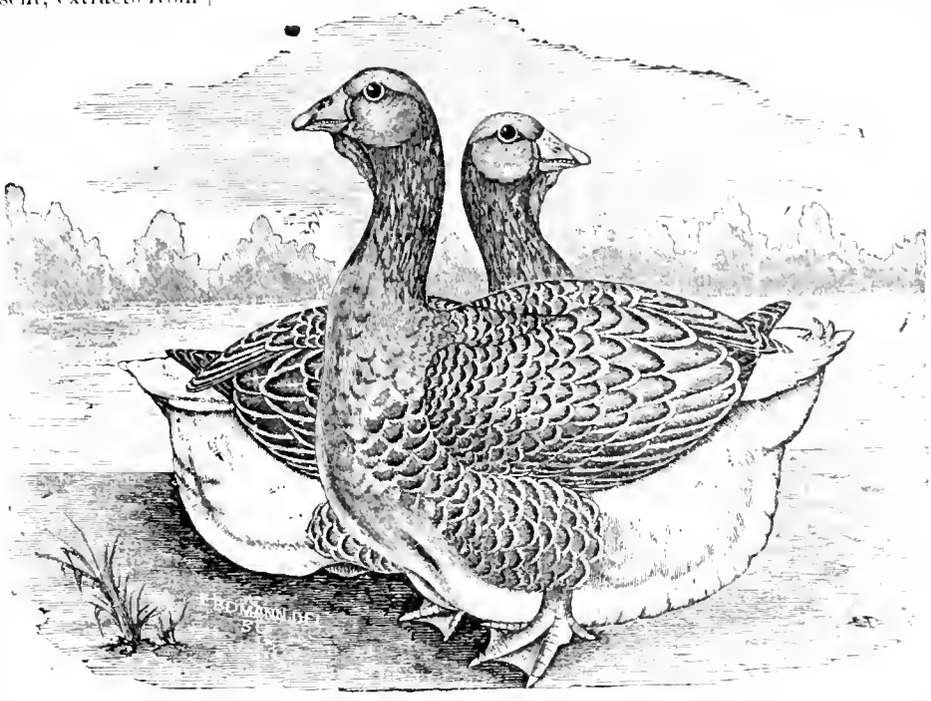
ARCHÆOLOGICAL COMMUNICATIONS—No. 565.*

I give for the edification of the members of the Linnæan Society present, extracts from interesting and valuable letters of which I was the recipient several weeks ago. The persons who were the writers have taken an intense interest in Archæological matters, and one of them is very favorably mentioned by the late Col. J. W. Foster, author of the Prehistoric Races of the United States, in this manner: "To Mr. Silas McDowell, a gentleman who has resided in this region (Franklin, Macon county, N.C.) for more than half a century, I am indebted for the subjoined information. Up to 1819, the Cherokees held possession of this region, when, in pursuance of a treaty, they vacated a portion of the lands lying in the valley of the Little Tennessee River. In 1821, Mr. McDowell commenced farming. During the first seasons the plowshare, in passing over a certain portion of a field, produced a hollow, rumbling sound, and, in exploring for the cause, the first object met with was a shallow layer of charcoal, beneath which was a slab of burnt clay, about seven feet in length and four feet broad, which, in the attempt to remove, broke into several fragments. Nothing beneath this slab was found; but, on examining its under side, to his great surprise, there was the mould of a naked human figure. Three of these burned clay sepulchres were thus raised and examined during the first year of his occupancy, since which time none have been found until recently. These fragments were so little appreciated that they were suffered to remain in the field, subject to the disintegrating agency of the elements and the tramping of the cattle. During the past season (1872), the plow brought up another fragment of one of these moulds, revealing the impress of a plump human arm."

Col. McDowell writes me thus: "In my twenty-fifth year, to wit, in 1820, I came among the Cherokee tribe of Indians, and the country was purchased and settled by the white man shortly afterward. This is the upper valley of the Tennessee River, which was then only settled or populated by Indians. On the low grounds of the river were many large Indian earth mounds, and intermixed with the soil were fragments of pottery, arrow-heads, spear-heads and axes. I became intensely interested, and whished to know the traditions of the the tribes. These traditions were all in the brain of an old Indian woman whom they had selected, and her official name was "Sensekeeper." With an interpreter I called on the old woman and propounded many questions. How many years since your tribe built these mounds? "My tribe did not build them, but found them here, when they drove out another tribe of Indians." How many years since this happened? "Don't know; we can't count back only by moons and snows, and we soon lose count." I propounded many other questions, and the answers convinced me that the Cherokee tribe was without any tradition that could be of service to the antiquarian. * * * * I infer from the different styles of pottery, cutting instruments and offensive weapons, as well as different modes of sepulture, that many different tribes, for thousands of years back, at different periods have, for the time, been the lords of these beautiful mountain valleys; but I cannot venture to guess which of them built the mounds, nor cremated their dead. But it is a strange fact that the mode of cremation was precisely that of the Greeks in the Homeric Age, and an exhumation of one of these Indian graves and a Greek grave near Ilion presents precisely the same result. First, a bed of charcoal, then a layer of clay burned like a brick, and then, in the case of the Greek, jewels, trinkets and coin; but no bones in the graves of either. * * * * Among the stone relics are found, cut out of the hardest quartz rock, the most exquisite specimens of stone work that I ever beheld; the form being two plain surfaces and then formed to a circle, and the upper plain cut into a succession of disks, one within the other, and the centre one three inches in diameter and one inch deep, in which fits a stone cut out of the same material. Until recently, the problem was, how did the Indians cut these hard implements? That problem is now solved since Col. J. N. Jenks opened the finest Corundum mines found in the United States, and as that stone is next to the diamond in hardness, and obtained where these fine quartz relics are found, there is no question but that some Indians of brain carved them out of the hard quartz rock." Col. McDowell refers to the beautiful "Discoidal stones" which I had the pleasure of describing to you in my paper read before your society.

The other interesting letter speaks in this manner: "I was acquainted with a number of the Potawatomie Indians, and traveled over a portion of the Northern part of the State (Illinois) in company with Shabona and his attendants. He was the Chief of the Potawatomies, and, in conversing with them in regard to many of the stone implements found, they believed them to have been made by some people that lived before they came the Potawatomies and evidently, they never belonged to the present race of Indians, but are true relics of the Stone Age." The writer of this communication, Dr. Boardman, an old settler of Illinois, who left for that State, from Pennsylvania, many years ago, has carefully studied the relics of an extinct race, and one which is fast disappearing.—*A. F. Berlin, Reading, Pa.*

*Read before the Linnæan Society.



TOULOUSE GEESE—Bred by Benson & Burpee, Philadelphia, Pa.

For The Lancaster Farmer.

THE BEST METHOD FOR DESTROYING CUT WORMS.*

The best method that I have found for destroying this little destructive worm to tobacco plants, was mixing some of the best "Paris Green" with gypsum, and sprinkling it over the plants with a tin box, made like a pepper box, with a wooden handle about three feet in length. Care must be exercised, however, not to have too much Paris Green, as it will be fatal to both plant and worm. Mix one pound Paris Green to three pecks gypsum. I applied hellebore to some of my plants last year, which proved a success to destroy the worm for a short time of about two days. As time and exposure deteriorates its properties, it is necessary to apply it frequently, and thereby it becomes an expensive article to use, as it cannot be obtained for less than about 60 or 70 cents per pound. Another objection I have to its use is, it contains salts, which is no benefit to the tobacco plants.

Bran is used to "concentrate" the cut-worm, with great success. They are very fond of it, and will feed upon it in preference to tobacco plants. A small portion of bran is placed aside of each plant, and when the worms are content with their fill, they will hide below the bran, where they may be readily found and destroyed.

Where poultry have no access to tobacco fields, and birds can be prevented to feed upon bran, I would recommend bran mixed with Paris Green, and a small portion placed aside of each plant, which will destroy the cut worms without doing injury to the tobacco plants.

*Read before the Tobacco Growers' Association, of Lancaster county, at the May meeting, held at the Athenæum, on the 21st ult., by H. M. Mayer.

STRAWBERRIES.†

While in the season of enjoying this luscious fruit, a little consideration in reference to its cultivation, may not be out of place. Nature seems to offer a bountiful supply for all. Our climate being adapted, and our soils having capacity to produce a sufficiency for every one, not only as a luxury, but as an article of food, at reasonable cost to the consumer, and at fairly remunerative prices to the producer. The question will here arise: Why then is this want not filled? Why continue this aching void between anxious, craving mouths, and ample resources to both gratify and satisfy them?

The answer is simple. The people are not educated up to such a standard! There are

†Read before the Lancaster County Agricultural and Horticultural Society, by H. M. Engle.

comparatively few who know the value of fruit as food, but especially the strawberry, which is the first of the season, and comes at a time when the system requires food of a more succulent and cooling nature, than that which may be partaken of with impunity during cold weather. The nutritive value of fruits as food will be made part of another essay, as the strawberry is made the topic for this paper.

It seems strange that many families in towns and cities are far better supplied with berries, in their season, than the majority of farmers' families are. Some farmers' wives will, in season, buy a few quarts from the market gardener for preserving, while at the same time a full supply for home consumption could be grown on a few rods of ground as easily, and more certain, than potatoes are grown now-a-days. If this assertion is sustained, is it not criminal neglect on the part of heads of families, who have plenty of land, and fail to supply their children with this health-giving enjoyment?

The farmer who declined purchasing strawberry plants, for the reason that the children would eat the berries anyhow, deserves not only censure, but contempt also. The law of demand and supply, as a rule, governs all trade, but in many cases the demand must be created, when the supply will be sure to follow. More has been realized per acre for strawberries than for tobacco, and yet only the few raise the former, while the best methods are employed to produce the latter in large quantities; and still the demand seems to keep pace with the supply, simply because the consumer of tobacco is a certain customer, while the consumer of berries is not; hence there is not that reliable inducement to produce the latter as there is for the former.

Were the value of berries (and fruits generally) better understood, their consumption would necessarily increase. On the other hand, if the owners of land knew how cheaply they could grow them, they would produce such a supply as would induce greater consumption. If, by the agitation of this subject, such a result can be produced, we may have the satisfaction that our community will be benefited, and that the time and labors of this society are spent to some good purpose. If he who causes two blades of grass to grow where but one grew before, is a benefactor to his race; how much more then is he who causes bushels of berries to grow where none grew before. During the heated season of summer we often hear resolves to have a supply of ice next winter, but during the cold weather this anxious desire for ice lies dormant until the warm season revives the former feelings, and so these annual spasms become habitual. We often see similar attacks of strawberry fever during their season. At this time there is generally a great demand for strawberry plants, while there are none to be had; but this demand ceases generally about the middle of June, and is only revived again about the last of May, the following year; in short, the strawberry plant fever lasts only from two to three weeks, while the ice fever lasts as many months.

The quickest way to prevent a recurrence of the plant fever, will be to procure good young plants in August or early in September, plant in well prepared ground, about one by two feet for garden culture, and further apart for field culture, especially where left to spread all they will. The former distance is sufficient for hill culture, where the runners are kept down, which will produce the finest berries, but requires more labor than the running system. Cultivate well, and as they will make few runners the same season, they should be kept off, which will allow the main stock to spread more. Mulch with straw manure or fodder, not too heavy, before hard freezing weather. This plan will generally bring a good half crop of the finest berries the next season. By planting in the spring we cannot expect a crop before next season, but which should be a full one. The fall planting will require special care, unless we have rainy weather. In order to get the best results, not too many runners should be allowed to grow, as each runner will make a bearing plant which should have ample room to become strong. The value of the coming crop will depend very much upon the vigor of stocks of the previous season. The strawberry is no doubt the most certain of all fruit crops. Who has ever heard of a total failure of this fruit? The writer has not had a total failure since his first planting, which is over twenty years, and hardly a day during this period, in strawberry season, that his family had not berries as part of their meals from one to three times.

The question has often recurred to my mind, what would be the proper method to bring about a change that would supply all, both rich and poor, with a sufficiency of strawberries in their season? Could we bring about such a state of things we might claim the honor of being benefactors to our race.

For The Lancaster Farmer.

FENCING AND SOILING.

The subject of farm fences is being discussed more and more by agricultural journals and agricultural societies, and it is indeed becoming a subject which the farmer can no longer pass by, on account of its heavy drain on the profits of the farm. This is the more severely felt in the northern and eastern States, where there are no efficient cattle laws; as here, outside as well as inside fences are required, and fencing materials very high in price.

For this part of the country the cost of a panel of good five-rail post fence varies from $1.50 to $1.90, viz: rails, 10 to 12 cents each; best locust posts, 75 to 80 cents each; setting, 15 to 18 cents per pannel; hauling, according to distance. A panel measures from 10½ to 11 feet.

The cost of fencing farms is as follows, allowing $1.50 to set a panel that measures 11 feet:

Acres	Boundaries on		Number of Fields.					Inside fences take up acres.
	Road	Farms	1	2	3	5	7	
20	1-5	4-5	305	432	514	626	723	1-8 to 2-5
30	1-5	4-5	374	530	633	779	886	1-7 to 8-15
40	1-4	3-4	450	636	750	918	1041	2-11 to 3-5
60	1-4	3-4	550	770	918	1124	1316	2-9 to 8-11
80	1-3	2-3	677	953	1102	1350	1551	3-11 to 5-6
100	2-5	3-5	797	1082	1271	1537	1772	2-7 to 20-21
120	1-2	1-2	935	1244	1434	1745	2004	1-3 to 14-21

The above calculations are for pretty level farms, lying in a square, and not fronting more on the road than indicated. Where the country is hilly, or where the farm is longer than wide, or where there is more than the above proportion of fences along the public highway, either of these will increase the amount of fences that must be made and kept up on such farms.

Now supposing that the fence lasts 20 years, and that we have the old wood as an offset against repairs, &c., we have as the cost per year the interest on money invested, 6 per cent., and wear 5 per cent., or 11 per cent. on investment in fences. As the law stands now we are required to keep up boundary fences, and we could therefore dispense with the inside fences only. These in the case of the 100 acre farm divided into 7 fields would cost about $1,000, which at 11 per cent. would amount to $110 per year—a nice little pile to deposit in bank or invest in improved machinery.

But how could we get along without inside fences? How are we to pasture our cattle? The answer is—do not pasture the cattle at all, but "soil" them.

How the term "soiling" came to be applied to feeding cattle with green food, fed in the stalls, I do not know, as it seems a very inappropriate term.

It may be urged as an objection to soiling, that it would take one hand more on the farm and that this would cost too much. As one offset against the cost of the additional hand we have $110.00 saved in fences? we have also the benefit of the ground that had before been taken up with fences—and which in the form supposed would not fall far short of one acre; we have also the extra labor that could be done, as it would not take the whole time of a man to attend to the herd of cows usually kept on a farm of the above size. In the smaller farms there is usually not work enough to keep the owner employed all the time, and in this case the soiling would just fill the gap of unemployed time.

Among the advantages claimed for soiling are: It dispenses with fences and their repairs; it saves land; more cattle can be kept; the cattle can be kept in better condition and produce more milk.

The manure is saved for the places where it is most needed, and there is more of it made.

To carry on soiling properly requires some planning to keep up the supply of green feed, from early spring till late in autumn, and a good book on the subject would be a great help. Such a book is published by Orange Judd & Co., under the title of "Soiling of Cattle," by Josiah Quincy, and it will give good hints, though the book is not quite so full of detail as it might be. A book is not necessarily improved by a mass of detail, and, in fact, sometimes is really hurt by it; what is wanted are the principles governing a thing of this kind, and the smaller items can be studied out and fitted to the wants of the person interested. Such, I believe the book mentioned to be.

Mr. Quincy, after some trials, settled on grass, oats, corn (sowed), and cabbage, as being the four best crops to raise for soiling. He tried rye, but it did not turn out very satisfactory. But why, he does not state. I think he did not commence cutting until it was too tough.

(There is one thing to be borne in mind, in soiling, and that is that manure must be used to force the crops, particularly those intended for early in the season. This can be very well done, for the man that soils properly will have plenty of manure for all purposes.)

He depended on grass from the 20th of May until the 1st of July. Had he got along with his rye, I think he could have commenced soiling on the 1st of May.

In April he sowed oats for cutting through July, though in the latter part of this month he sometimes commenced on corn-stalks. The oats he cut up to the time it began ripening until it was beyond the milky state.

Corn he sowed in latter part of April, in drill three feet apart, using from two to three bushels to the acre. He found that by cutting the corn pretty early the stubbles would sprout out and grow very fast, so that he could cut another time before frost. This he also found to be the case with oats.

Besides the early sowing, he also put out corn in the middle of May, beginning and middle of June, and even as late as the 1st of August, and thus prolonged the corn season to the middle of October. His reason for continuing corn so long was, that it produced so large an amount of fodder to the acre.

In fore part of October he sometimes cut second growth of grass cut in May and June, and second growth of oats and corn cut in July.

After the middle of October he depended on cabbage to see him out, until the time to put cattle in winter quarters. Sometimes he raised crops of roots, such as carrots, beets and turnips, and then he fed the tops of these in place of cabbage.

For late feeding, I suppose, cabbage is better than nearly anything else, because it will stand a frost that would make other things unfit to give to cattle. It can also be pulled and put under cover so that it will remain fresh and palatable to the cattle for a long time. Rye sowed very early and thick makes good fall pasture, and in rich soil I have no doubt could be cut for soiling.

Of course, the above plan would not suit in every case, but the farmer would soon see how to manage it. If there is rough land to a farm, of course, it is economy to pasture that, and a fence would have to be made to enclose such rough land; in case there is pasturing

done, it is policy to partially soil from middle of July until the 1st of September. There are often dry spells in which the pasture becomes very short, and in such a time as this sowed corn comes in very handy.

There may be other crops that would be profitable to sow for cutting, such as peas and the new "prickly comfrey." At many places they are now sowing oats and peas together, for the purpose of raising winter fodder, and it is claimed that each of these will give nearly as large a crop as either would sowed alone. Pea vines are, I believe, ranked nearly as high in milk production as red clover. I should think that peas and oats would make a splendid soiling crop.

Mr. Quincy's experience was, that the fewer crops depended on— that would keep up a continuous supply— the more simple and better he found it.

What is wanted now is, that persons who have tried soiling should give their experience and management, and if not successful, to what they attribute the failure. This would soon give an idea of what should be done and what should be avoided, and matter like this would give an additional value to agricultural journals.—*A. B. K.*

NOTE: I see the publisher of THE FARMER has commenced the sale of agricultural books, and the "Soiling of Cattle" is in the list; so that any in want of such a work, can get it in a short time; either by calling on him or sending the regular price, he will mail it free to the post office designated.

THE GARDEN OF PENNSYLVANIA.

A correspondent of the Philadelphia *Press* writes thus pleasantly of our city and its beautiful surroundings:

The rival charms of the Lancasterian and Yorkshire roses may set up a combined claim in this new world, Lancaster garden, where the landscape to-day rejoices in a wealth of blossoms both ruddy and white. Congregated spires among shade trees form no mean middle ground in a picture that boasts of such a perspective of distant blue mountains with a foreground of peach and cherry blooms bending over meadows full of violets. If 'twere not for the brown cows and consequent dairies, the plough and fallow grounds, one might dream of Eden unbroken. But look at the buttercups and think of the butter, and fancy those old kings of apple trees having their crowns shaken in September. At present, however, the bees are holding court in the branches, and the way the shining hour is being improved suggests the Lancaster farmer, who can generally boast of a *frau* who can make her kitchen quite habitable for the legendary queen to sit in, "eating bread and honey," which brings to mind among the sweets of life that the most famous mint candy in all the country is made daily in a little shop on a certain street in the town of Lancaster, and disposed of at a penny a stick, wholesale and retail. To the pure candy taste it is delicious, with a flavor as cool as impudence.

Many quaint histories lie back of homely old-fashioned walls within the town that are nearly forgotten in the supplanting of modern residences, ample and elegant, one of the latter of some years' standing having been built within nineteen hours, plastered, painted and habited in time for supper. Here and there the spring grass is creeping along the wall of some old church that holds mural tablets "in memory of" many recognizable names, and among the quiet sleepers in the cemeteries we read of Buchanan and Stevens. It is west of the city that Wheatland lies, the homestead of President Buchanan, where in the midst of trees and flowering shrubs, stands a capacious, fine old house, still fragrant with associations of hospitality; the lawn commands pleasant vistas of the mountains, nearer woodland, and rich farm lands, but it is back of the house and to the side that the heavily-laden currant bushes define the well-trimmed garden of homely shrubs and vegetables, prim flower-beds and clustered fruit trees reaching to the fine old woods beyond. The lilacs are purple and fragrant again just without the library windows, and one likes to fancy a past May day when the statesman may have paused from book or pen to take in the subtle perfumes or gather quiet from the sight of the strong-armed oaks. It is through these woods that you can see clearly, in the midst of its willows and larches, Carnarvon, the home of the great Dr. Nevin, and the awakening life outside this morning suggested the silent workings of that master-mind within, sending from the hush of his study those results of an interior life which govern so many minds of the present day.

* * * * *

Yesterday morning the horse stepped pretty briskly out East King street into the country south of the city, where among amber willows an old mill and old-fashioned house had awakened an interest some days previously that was repaid by a recital of some incidents connected with the place. It seems that here in the substantial country house, then a public one, Major Andre spent a part of his parole in 1775-1776, and it was in good Centennial spirit on the 10th of May that a grand-daughter of one of the "fayre maydens of ye olden time" sat near the willows and told me of the fascinations of that sadly fated life. Mary, the grandma, knew him well, and many were the dances and coquetteries they tilted on the May days long ago. The Major, it seems, was stylish, graceful and witty, and withal played the flute with no small grace— no wonder then that Mary's sympathies were awakened in the young prisoner, and that when he spoke she listened; "but there was a Delia in the case." "And did Miss Mary fear?" "Well, no, not precisely; you see there was the ocean between, and she well knew that only a man's fancy crosses that, when it lies between him and his sweetheart," and so she dwelt at ease and even sang with him his ditty to his Delia; and now a century afterwards, while a voice overhead started on a venturing solo, the great-grand-daughter, while wrapping willow withes about her hat began to sing a quaint, meandering sort of tune that had been transmitted through the intervening generations in connection with the ditty itself, and it was through many an appogiature that the name "Delia" struggled, in this old love song of the young English officer. Mary used to say that Major Andre never indulged in vituperation against the colonists, like his brother officers. We append fragments of this love song, which he used to sing in his captivity along the banks of the Conestoga:

Return, enrapturrd hours
When Delia's heart was mine,
And she with wreaths of flowers
My temples did entwine.

No jealously or care
Corroded in my breast;
But visions light as air
Presided o'er my rest.

Far, far from these sad plains
My lovely Delia flies,
Whilst racked with jealous pains
Her wretched lover dies.

The above, and much more, may be truthfully "said or sung" of our beautiful city and county, and in speaking of one we include also the other, for they are as inseparable as the *Siamese Twins*. Nature has done much for Lancaster county (the city is a particular friend, on the whole, of the county). What the correspondent of the *Press* says is true or otherwise, and as he has said it, it relieves us from the necessity of saying it, and also from the imputation of egotism. The allusions to Andre, to Buchanan and to Stevens are charitable, even liberal. How wonderfully time softens human asperities and permits us to talk of those that are "gone, but not forgotten," in a spirit of toleration. Andre was said to have been brave, accomplished and genial, but still a "spy" and the enemy of our country. Buchanan and Stevens never could meet on one political plane in life—they were opposite extremes in principles and in practices—yet *now* we can talk of them leniently, forgetting the evil then and remembering only the good; leaving them in the hands of Him who made them, and invoking "peace" and prosperity to them and our great old county—our Empire—our natal realm. "*Requiescat in pace.*"

PROSPECTS FOR FARMERS.

The reports of the growing wheat crop are generally favorable. A large majority declare the condition of the crop to indicate a full average, and more than half speak of a promise of above an average yield. A comparatively small number of places are threatened with a partial loss of crop; California presenting the least hopeful condition, on account of a serious drouth. So far as our own observation and information extends, we consider the promise of the crop to be very favorable, and if dry weather should not interfere, a fair harvest may be expected. At the same time, the country is bare of wheat, and the foreign demand is larger than usual. The experience of the past few years goes to show, that there will be no danger of "over production" in the future. We need not fear to raise as large crops as we can. The foreign market is large and steady, and will need all we can produce in the way of grains, meats, provision and dairy produce, to supply it. The low prices of the past few years have brought this about, and therefore have not been by any means an unmitigated evil. While we have been depressed and troubled by a reduced income from our farms, which has sorely embarrassed those who have been in debt, this has been the means of stimulating farmers generally to do better by their farms than they had formerly done. In no previous condition has stock been so much improved as during the few years just past, and we have, in consequence, found a market in England for meat, which has saved our home market from demoralization. At no time before the present, has there been so much artificial fertilizing, and never before so anxious inquiry about the possibility of enlarging the crops, and using the most effective economy in farming operations. In the mean time thousands of persons are entering into agriculture from other industries; the wave of western immigration has broken upon a shore, where the land, although valuable for pasture, is not arable, and it now flows back again upon the neglected lands of the East, which are being restored again to their former fruitfulness, by means of more skillful cultivation. There is now a closing up of scattered ranks, and the farming interest is becoming consolidated. As population may increase, during the next twenty-five years, to double its present limit, and we have a hundred million mouths to feed in our own country alone, all the resources and skill of the farmer will be taxed to meet the demand for his products. The value of farms can hardly fail to increase year by year, on these accounts, and it will be the farmer's interest to see that he neglects no means of making his more valuable property pay a higher interest than now. This can only be done by making it more productive.—*American Agriculturist.*

AT THE HEAD OF HIS CLASS.

On Saturday, June 2d, we gave an account of the tobacco sheds of James Duffy, of Marietta, one of which was 115 feet and the other 109 feet in length and 30 feet in width. It was also stated that Mr. Duffy intended planting 47 acres of tobacco. We supposed then that Mr. Duffy was at the head of his class, but he is not. Jacob L. Landis, of Manor twp., has one tobacco shed 287 feet long and 40 feet wide, and another 150 feet long, 40 feet wide and 20 feet high. This year he will plant 65 acres of tobacco. Last year he planted 53 acres, and realized prices ranging from 18 to 26 cents round. There are a number of other farmers in the same section of Manor who have set from 3 to 10 acres of plants, among them being Abraham Leonard, esq., of the Doner farm, who has 10 acres of as fine tobacco land as there is in the county.—*Examiner and Express.*

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The society met in the Athenæum at 2 o'clock Monday afternoon, June 4th, President Calvin Cooper in the chair.

The following members were present: Messrs. Calvin Cooper, Johnson Miller, Casper Hiller, Henry M. Engle, Levi W. Groff, P. S. Reist, Simon P. Eby, John Miller, W. J. Kafroth, John Eby, Henry Kurtz, Jacob Bollinger, John Huber, Abraham Summy, Jonas Buckwalter, Isaac Bushong, Joseph F. Witmer, Levi Pownall, Wm. A. Haskill, Levi S. Reist, Abraham F. Hostetter, Prof. S. S. Rathvon, Jacob B. Garber, David G. Swartz, Wm. McComsey, Henry Erb.

The Secretary read the minutes of last meeting.

The following new members were elected: John Kenagy, George Eby, Isaac Bushong, Wm. A. Haskill, Joseph Witmer.

The crop reports being called for, Mr. H. M. Engle, of Marietta, made an explanation to the effect that he did not say at last meeting as he was reported to have said, that the apple crop would be as large this year as it was last year. What he did say was the apple crop would be as large as could be expected considering the unusually large crop of last year. He now reported the prospects of the apple as fair; peaches promise a good crop; pears look well; cherries a medium crop; most kinds of small fruit abundant; few fruits have been winter killed. Wheat looks well, though the extreme heat has somewhat affected it. Grass is quite good along the river bottoms, but inland is not so well advanced. Corn looked a little yellow a week or two ago on account of the cold weather; but the recent warm weather and the rain of Sunday has given it a fresh start. More potatoes have been planted in Mr. E.'s neighborhood this year than in any other year within his recollection. Early in the season it was feared that the ravages of the potato beetle would deter farmers from planting. But whenever potatoes are high priced farmers plant heavily. He thought the beetle would have but little chance this year. Paris green was being freely applied and would prevent their ravages. Mr. Engle concluded by presenting the following meteorological report for the past three months: Rainfall during March, 5 2 16 inches; lowest temperature 6 degrees above zero, on the 18th; highest temperature 72 degrees on the 24th. Rainfall during April, 3 10-16 inches; lowest temperature 30 degrees, on the 3d; highest temperature 82 degrees, on the 24th. Rainfall during May, 1 7-16 inches; lowest temperature 40 degrees; highest 92.

Mr. Johnson Miller, of Warwick, reported the wheat crop as looking fine with a few exceptions, where the early-sown has suffered from the Hessian fly; rye is excellent, standing very high and giving promise of full heads; in some places the grass looks very well, in others it is short, owing to the drouth. Corn is fine, but the early planted is somewhat backward, that planted later being much ahead of it. Oats is short, and the crop will be a partial failure. Orchard fruits do not promise very well, but small fruits will be abundant. Potatoes are plenty and so are potato bugs. Mr. Miller uses ashes to kill them instead of Paris green, which depreciates the market price of the potatoes on which it is used.

Mr. Levi Pownall, of Salisbury, had last year raised a fine crop of potatoes without the use of Paris green. He deferred planting until the 24th of May. The first crop of potato bugs had disappeared before the potatoes came up, and the plants were in blossom before the second crop of bugs appeared. Mr. Pownall believed that a crop of potatoes could be slipped in and come to maturity between the first and second appearance of the bugs. In about a week from the present time the old bugs will cease flying, and the young ones will not appear until the potatoes are in bloom. Mr. Pownall uses the Early Rose for late planting, because it matures rapidly.

Mr. Simon P. Eby read an interesting essay on "sub-soiling," which he understood to be the process of loosing the earth beneath the cultivated soil. One plan adopted is to bring the sub-soil to the surface and mingle it with the cultivated soil. Another plan more generally in use is to loosen it with a sub-soil plow and leave it beneath the cultivated soil. The essayist believed that if the sub-soil was composed of gravel or pebbles it should not be brought to the surface, but if it was of the same nature as the surface soil much good might result from intermixing them. He instanced as an example the barren slaty ridges in various parts of the county, which by judicious sub-soiling and breaking up the hard-pan below the surface, have come to be the most fertile farm lands in the county. If the sub-soil be of clay it should not be brought to the surface, but merely stirred up and loosened. It is well known that a farm with a deep soil is better than one with a shallow soil, and sub-soiling tends to deepen the soil.

Mr. Henry Kurtz, of Mount Joy, believed in sub-soiling if properly done. In mellow ground sub-soiling is not of much account, but where ground is hard a breaking up of the hard-pan is valuable.

Mr. Levi S. Reist, said sub-soiling is a hobby of his – especially when applied to the planting of trees. It must be remembered that there is a great difference between sub-soiling and deep plowing, by the latter the sub soil is brought to the surface, but by sub-soiling, as he understood it, the surface soil was first thrown out by the ordinary plow and the sub-soil plow was run through the same furrow, loosening but not throwing out the sub-soil, which was covered by the surface soil thrown off from the next furrow made by the ordinary plow. Mr. Reist mentioned the case of a neighbor of his who cultivated a piece of ground that was regarded as worthless. He plowed deep early in the season, planted corn and continued to cultivate constantly till hay-making and was rewarded with 90 bushels of corn per acre. Mr. Reist said he did not believe in turning up to the surface a bad sub-soil for ordinary crops, but for orchards he believed the deeper the ground was plowed the better. He had planted two orchards, and kept the sub-soil plow running after the regular plow for ten years, and he thought his orchard would compare favorably with any in the county. Loosening the soil enables the roots to spread and penetrate the earth so that they are so thoroughly protected that a hurricane would scarcely blow them down.

President Cooper said he had used the sub-soil plow in his nursery. He followed the regular plow with a sub-soil plow, leaving in the furrow the dirt loosened by the latter and plowing the surface soil on top of it.

Mr. H. M. Engle believed in sub-soiling, but thought in some cases it might prove injurious. In the Jersey sands sub-soiling has been discarded, but there is no doubt of its usefulness in loam or clay lands. The deeper the soil the more easily it will drain and permit surplus moisture to pass off; and in time of drouth a loose soil will hold the moisture much longer than a close, hard soil. Sub-soiling is therefore beneficial in both wet and dry seasons. Mr. Engle said his own practice had confirmed his belief in its usefulness. He recommended those who doubted its value to give it a trial and report the result.

In reference to Johnson Miller's statement that Paris green would depreciate the market price of potatoes on which it was used, Mr. Engle thought that bugbear should be set at rest. Chemists and scientists declare that Paris green put upon potato vines cannot injure the tuber, and, as for himself, he would not hesitate to eat a potato that had been rolled in Paris green, if it were afterwards properly cleaned. He did not agree with Mr. Pownall that the potato bug would not fly after the date mentioned by him. He had found the beetle injure his late as well as his early potatoes.

Mr. P. S. Reist believed the usefulness of sub-soiling depended on the kind of crop you wished to plant. To bring the sub-soil to the surface in expectation of improving corn or wheat, would be about the same as if a man who had a half a glass of whisky and wanted more, should fill his glass up with water. Or like a man who, wanting to fatten his horse, should mix shavings with his feed. Mixing the sub-soil with a thin surface soil will weaken and not strengthen it. On the other hand, if the surface soil is too strong, sub-soiling may be advantageous. Better wheat and corn can be raised on good mellow soil without sub-soiling than with it. He did not believe in sub-soiling orchards. Trees require a hard-pan below the surface in which to fasten their roots. If the soil is mellow and becomes soaked with rain the least wind will blow them down.

President Cooper said he could not concur with Mr. Reist that mellow ground was not good for orchards. He knew from experience that sub-soiling was of great value in tree planting.

Mr. S. P. Eby asked "How deeply do wheat roots penetrate?" and Mr. Reist answered from four to six inches.

Mr. Engle said he did not believe with Mr. Reist that trees should have hard-pan to support them. They would root more firmly in mellow than in hard ground. To prove this he described the formation of the bracing and feed-roots of trees and other plants, and demonstrated that roots would penetrate, if necessary to the support of the tree, to a depth of ten feet or more. In mellow ground wheat roots will attain a length of twenty inches and perhaps two feet. He believed that sub-soiling was almost always useful and could never do any harm.

Mr. Henry Kurtz thought that if the soil was too loose and mellow wheat was apt to freeze out. He once planted wheat in very mellow soil and had no crop, except along the fences where the ground was hard.

The secretary read a note from Jacob Garber, in which he disapproved sub-soiling.

Mr. Engle, on the other hand, maintained that ground mellowed and made porous by the sub-soil plow will not freeze so easily or so deeply, or bake so badly, as hard ground.

Mr. Reist replied and gave several examples of orchards which had been greatly injured by being planted in sub-soiled ground. Lemon trees planted in small pots will fruit much earlier than if planted in large boxes. As soon as the growth of the roots is retarded they commence to fruit. So it is with corn and other crops; they mature earlier if the plowing has been shallow, preventing the roots from penetrating too deeply. The best wheat is raised on rolling land, where it is impossible to plow very deep.

Mr. Jacob Bollinger said that Mr. Reist's theory appeared to be that plants would not fruit until the roots struck hard-pan. His own experience was different. On one occasion he dug out by the roots a very large walnut tree, making a hole ten feet deep. This he filled in with new earth and planted corn, and it grew to be longer in the stalk and longer and fuller in the ear than any he had ever seen except in the West. He favored deep plowing for all kinds of farm crops and sub-soiling for trees.

Mr. H. M. Engle said that the reason that plants in pots flowered and fruited earlier was because their roots were cramped and they could not expand as nature designed they should. But such plants will not bear so much fruit nor live so long as those that have a fair chance to root. Whatever detracts from wood-growth encourages early fruiting, and whatever advances wood-growth retards fruiting. But those that have the best wood-growth will yield more abundantly and live much longer.

After some further discussion the subject was dropped.

Mr. Henry M. Engle read an essay on "Strawberries." (See page 87.)

At the conclusion of his essay Mr. Engle presented the society with several boxes of very fine berries, and the President appointed Messrs. S. P. Eby, Jacob Bollinger and Peter S. Reist, a committee to test the fruit and report to the society.

A recess was taken for social intercourse and a general testing of the fruit.

The committee, after making a careful test of the several varieties of berries before them, reported that where all were of such fine quality it is difficult to determine which is best; but that the "Boyden No. 30," and the "Jucunda," being of rather finer flavor and as large as the others, were given the preference.

Johnson Miller suggested that the executive committee be instructed to make a visit to such farms in the county as they choose to visit, as required by the constitution.

A question having arisen as to who constituted the executive committee, it was decided that under the constitution the officers of the society were said committee.

Levi S. Reist suggested that the executive committee be sub-divided into four sub-committees, each sub-committee to visit a different section of the county, and report to next meeting.

The suggestion was adopted by the society and the President subdivided the committee as follows:

Henry M. Engle and Levi S. Reist to visit farms in the west end of the county.

I. L. Landis and Johnson Miller to visit farms in the north.

President Calvin Cooper and Levi Pownall to visit farms in the east.

Casper Hiller and M. D. Kendig to visit farms in the south.

The following questions were proposed for discussion at next meeting:

By S. P. Eby—"Should not our county roads be improved?"

By Levi W. Groff—"Will or will not wheat turn into cheat and cheat into wheat?"

On motion adjourned.

Tobacco Growers' Association.

This association held its regular meeting Monday, May 28th, in the Athenæum, in the City Hall. The meeting was called to order at two o'clock, p. m., M. D. Kendig in the chair.

The following members and visitors were present: M. D. Kendig, A. Lane, I. S. Lane, J. M. Johnston, Harry Mayer, Mr. Landis, W. L. Hershey, Peter S. Reist, Jacob Graybill, Mr. Shiffner, N. Hostetter, Levi S. Reist, Mr. Eshleman, A. Weidler Mr. Herr, Peter Esbenshade, Mr. Mommert, S. Hostetter, J. H. Moore, Wm. McComsey, C. Hunsecker, A. Shenk, Jacob Herr, John Herr and Mr. Lefever. Calling of the roll was dispensed with, and the minutes of the previous meeting were read and adopted.

Unfinished Business.

The President stated that under this head the question of the construction of tobacco buildings, which was laid over from the last meeting, was in order.

Mr. Landis said that many hardware merchants had told him that hinges and other iron work used in the construction of tobacco buildings were selling fast, and from this, and from his own observations, he thought a great many buildings were being put up. He thought this was an important question.

Mr. I. L. Landis also stated that he had been informed by a Connecticut tobacco grower that the system of hanging the tobacco on lath was being abandoned in New England, and the plan of hanging the leaf on twine was being generally adopted.

Mr. Shiffner said there were a great many tobacco barns being built around his place, and all the builders seemed to think that they ought to have cellars. In regard to building he had not much to say.

M. D. Kendig said it was a point conceded that all barns ought to have cellars, and also that they ought

to have a ground floor. Now it could be arranged this way: have a cellar and have plenty of trap doors through the floor, and when you want dampness from the ground floor open all the trap doors.

HARRY MAYER said the object was to keep the moisture in tobacco as long as possible, as it helped to cure it, and he thought hanging it on twine was a good way. He used patent hooks made in Connecticut, but these were rather expensive, costing about $22 to the acre. A good way was to drive a tivepenny nail through a lath, and this was much cheaper, as a keg of nails would hang a couple of acres.

LEVI S. REIST said tobacco buyers from Connecticut thought tobacco buildings ought to have a ground floor. He thought there might be a cellar placed beside the house, thus securing both a cellar and an open ground floor in the shed.

MR. LANDIS thought buildings ought to be very close, so that in fair weather they might be closed very tight, and made dark, as dark buildings made the richest coloring in tobacco. In wet weather this should be opened.

Crop Reports.

MR. SHIFFNER said the plants were very strong in his section and seemed much stronger than usual. There was a great deal in the ground.

MR. LANDIS also said plants were strong in his township. He only knew of two lots of old tobacco that were not sold. He thought that more was planted this year than last.

MR. LANE said plants seemed to be a little back; farmers in his section planted from June 1 to 15. He would plant about that time. No old tobacco on hand.

MR. ESHLEMAN, of Paradise, said a great many plants were set out in his section but seemed very backward; some were planting now, and others would not plant until June; thus they would have a variety.

HARRY MAYER said the plants were prospering in his neighborhood. A great many plants would be set out this week. His idea was to get all the ground ready, and then set all his plants out at once, so as to be able to top it all at once and so get an even crop. There was no way of avoiding the cut worm by difference in the time of planting.

P. S. REIST, of Manheim, said that some of his neighbors have all their plants out and are cultivating them; he saw some of them hoeing. A better crop is expected this year.

The president thought this was premature.

MR. ESHLEMAN said that in his township there was an impression that by planting early they would avoid the cut worm.

W. S. HERSHEY said hog bristles were very beneficial in the raising of plants; there being about two weeks difference between those on which they were used and those on which they were not. Plants in this section are abundant, both early and late. Some large lots of old tobacco were still on hand.

M. D. KENDIG said in his township plants were very plenty, both early and late. As they did not plant until about the first of June, they have plenty of time. He thought that plants raised under glass had no advantage. They generally shot up with large stalks and small roots; they do not stand any exposure, and he was not in favor of them.

MR. MOORE said that plants had a very good prospect in his vicinty. He thought rye was good as a green manure.

Referred Questions.

The first question that came up was "What are best methods of destroying the cut worm?" Referred to Harry Mayer.

He thought the best method was to mix Paris green and gypsum together and sprinkle the mixture on the plants, always taking care not to get too much on as it would kill the plant as well as the worm. His mixture was one pound of the green to about three pecks of gypsum. He also used hellebore, but this was objectionable as it was necessary to apply it too frequently, and this was very expensive. Bran was good, placed around the roots of the plant, as the worm liked bran almost as well as the plant, and when thus got among it they could be caught. Where poultry had not access to the field it was well to apply bran and Paris green mixed, as the worm ate the mixture.

MR. LANDIS said he thought Mr. Mayer spoke from experience, but he had never used Paris green, and did not know whether it was good or not. He used bran and found it very good, as the worms filled themselves and then were easily caught.

MR. MOORE thought plaster was good for the plants, as it both killed the worm and manured the plants.

PETER REIST thought that Paris green was injurious to the plants.

MR. HERSHEY said it was reported that since farmers lined so much gypsum was not as good as it was at one time.

MR. KENDIG said that he had read an essay by a professor in some college, proving that gypsum was very beneficial to plants.

MR. SHIFFNER was in favor of gypsum. He planted about a thousand plants, putting gypsum on them all and he only lost about fifty of them. He manured tobacco about as heavily as he did corn.

MR. ESHLEMAN said it had a good effect on the plants, driving away both the worm and ants.

MR. LANDIS thought bran was injurious, as it attracted ants.

MR. HERR, speaking of the difference between lime and gypsum, said he had experimented on a field of corn; putting lime on one part, gypsum on another, and nothing at all on a third, and he saw no difference in the corn. He thought that lime was just as good as gypsum.

The second question was: "What is the best method of setting out tobacco plants?" This has been referred to Jacob Frantz, but he was not present, so they proceeded to a general discussion of the question.

MR. KENDIG thought the best way was to have the land thoroughly cultivated, and as fine as possible, not allowing any clods at all. If this is done there is no trouble. This is his plan, and his tobacco patches are in a better condition than ever before.

PETER REIST said in his neighborhood they had a half-dozen different ways. So far this season they are ridging the field. He thought the main thing was in being ready with the ground when the weather is ready. If we have the ground all prepared, whenever the weather becomes favorable we can plant. When this is done it does not matter much how you plant. When the weather is dry a hole should be made, water put in the hole, and then the plant set in.

MR. SHIFFNER thought that any small plant, no matter what it is, could be started by making a hole, filling it with water and then putting in the plant.

MR. MAYER in dry weather used a small dipper made especially for the occasion. He made a small hole, put in the plants, and then poured in the water, thus separating the fibers of the roots; then he filled the hole with mellow dirt. By following this method the ground did not bake around the plant. He thought that tobacco plants would stand a great deal more drought than any one supposed, and all that was necessary was right mellow soil.

MR. MOORE agreed with Mr. Mayer and thought his plan was a good one. He knew of instances when planters waited until after a heavy rain and then got to work and set out all their tobacco. This generally failed, as the ground was too wet.

MR. KENDIG said if there was a large, strong plant and plenty of mellow soil, it did not matter much about the weather.

The third question was: "What are the best fertilizers?" For general discussion.

MR. ESHLEMAN thought gypsum was good as a top dressing.

PETER REIST said one of his men used chicken manure, putting about a handful in each hill, and it was very beneficial. He thought there was very little difference between lime and gypsum, and that the effect was about the same.

MR. ESHLEMAN said he heard a great many farmers say gypsum was not beneficial. He thought it was possible that those who think so might not have used the pure article, but an adulteration. He knew of mills in the large cities that ground in marble chips, oyster shells, refuse of sand used in making card paper, and ocean sand.

PETER REIST said farmers were accused of differing on so many subjects. He would give one of the subjects of their differing. How is it that if a shock of grass is left stand in the field in warm weather the young grass would mature? In very warm weather when all the grass in the field is dead, that under the shock is green; in wet weather when the grass in the field is green, that under the shock is dead? There was much discussion of this question among farmers.

MR. LANDIS said this subject was a very important one; but as the afternoon was wearing away he would move that it be continued till next meeting.

MR. REIST said he wanted to say a few words about the reporters. He thought they gave excellent reports of the meetings and deserved to be thanked. His friends came to him and told him that there was no necessity for them to attend the meetings, as they could read all that was said in the papers.

MR. LANDIS was of the same opinion and thought they deserved the thanks of the society.

MR. JOHNSTON, of the *Intelligencer*, said that here he thought it was necessary to say a word. For his part he did not and could not give as full reports as he wished, as they did not have the room. He thought that persons who only read the reports in the papers missed a great deal of what was said.

MR. HUNSECKER also thought the reporters deserved thanks. As to the question in hand he thought it ought to be continued, as much was yet to be said. The proper application of manure was a very important question.

LEVI S. REIST said some years ago, when the association was first started, the press did not take much interest in it, and the people did not care what they did. Now, thanks to the reporters, the people were becoming used to reading the proceedings of the society, and took great interest in them.

On motion the question was continued until next meeting.

The following questions were presented and referred to different members:

1st. Can fertilizers be properly applied to tobacco, after the plants grow, and if so, what kinds, and how should they be applied? Referred to Peter S. Reist.

2d. What is the best method of cultivating tobacco, from the first working up to finishing? What machines and utensils are best adapted for use in the tobacco lands known? Referred to J. Frantz.

3d. Does the growing of tobacco exhaust our soils so as to affect other crops? For general discussion.

On motion, adjourned.

The Linnæan Society.

The Linnæan Society held their stated meeting on Saturday, May 26; six members were present. In the absence of the President and Vice President, on motion, Prof. T. E. Baker took the chair. After attending to the collection of dues and reading of the minutes, the following donations were found added to the museum.

Contributions to the Society.

The head and feet of a Green Heron, *Botaurus Virescens*, in alcohol, with a goodly-sized river bass sticking half-way down the gullet, which it seems this feeder on fish could neither swallow nor eject again, on account of the dorsal spines in the anterior fin common to the perch family, and in the scuffle the bird was drowned and fell a victim to its greediness. Sent by S. Evans, esq., of Columbia, who was an eye witness to the contest.

A singular sport in the common earthworm, having the lower half separated into two equal branches. Sent by Mr. George Simmons, engineer at cotton mills, per Mr. Gill.

In alcohol, a specimen of the common squid, "*Loligo Bartramii*" taken from the stomach of a common bass (black bass or sea bass, we suppose) usually sold on market. From Mr. John B. Albright. This is, indeed, a miniature representation of the Octopus, so called from having eight arms, each of which is six times the length of its body, and furnished with 120 pairs of suckers, a formidable monster (when fully grown) of great power. This has long arms and suckers much like it in character, and belongs to that class of Cephalopods, and is quite a curiosity.

MRS. GIBBONS had a few of the elm beetle and a wire worm.

MR. RATHVON sent in a butterfly caught on the wing in November last, the *Danaus Archipus*, out too late or too early—and caged and preserved on that account. Mr. Rathvon also put on special deposit a cloth made out of the pulp of bark by the natives of the Sandwich Islands, of a uniform, close texture, about 9½ yards square, called Tapa, or Kapa, which he received about ten years ago from the late L. Zublin, a correspondent of this society.

A stalactite and stalactical concretions from a small cave recently discovered near Maytown, in this county. By Mr. Samuel Book. It may be stated here, that a cave near Bainbridge, this county, was explored lately by Dr. Bean, of the Smithsonian Institution, and Indian relics consisting of stone implements, pottery, darts, arrow heads, etc., obtained.

A box containing very fine kaolin like, decomposed feldspar. From Mr. Henry Brackbill, of Landis Valley, which crops out on a hillside, and was turned out by the plow, of the uniform quality shown in the sample. It is like kaolin to the touch and in fineness, only it has an ochrous, yellow tinge. It might be valuable for manufacturing purposes in delf or porcelain ware. To the library and historical section was added a copy of No. 47, volume 7, of *The Inter-Ocean*, issued May 18, 1877, at Chicago, Ill. This number contains 201 pages, and has 196 pages devoted to the delinquent tax advertisements. The compositors' work cost more than $3,000.

THE LANCASTER FARMER for May.

Two envelopes of sundry scraps, of historical bearing.

Circulars from publishing houses in the United States and Europe, addressed to the Linnæan Society.

Blanchard's Historical Map of the United States, with a small descriptive pamphlet of it. Price 8s.

Catalogue of Bohn's Libraries, etc.

Papers Read.

An illustrated paper, No. 566, was read by Prof. J. Stauffer, on a singular gall formation on the hickory, presented by S. P. Eby, esq., of this city. The insect is similar to the Phylloxera, first considered a root insect only, but now found to be of the same genus first described by Asa Fitch, in 1856, as the *Pemphigus Vitifolia*, if not identical with that found so destructive to the grape vine roots in France, and named by Prof. Planchon, *Phylloxera Vastatrix*. A parasite was also found in some of the cells, feasting upon the larvæ and pupa crowded in each, all accurately figured and colored.

Mr. S. S. Rathvon read a descriptive paper on the deposits to the museum. No. 567.

Notes and observations by Mrs. P. E. Gibbons, on the elm tree beetle, found scattered within the dwelling, &c., No. 568.

A letter from Mr. Wm. L. Gill was read. On motion it was moved and agreed that the error of society be corrected, and his name placed among the

correspondents. We shall esteem him as a valuable contributor.

Miscellaneous Business.

A resolution to allow the Treasurer to purchase alcohol, and a committee of three to be appointed to replenish the specimens at an early day, was adopted, and the chair appointed S. S. Rathvon, J. Stauffer and S. M. Sener, said committee to perform the work.

A recess was taken, and Prof. T. R. Baker exhibited the duration and power of a simple and highly improved galvanic apparatus. This consists, as in other cases, of a porous cup, in which the carbon slab is put, and packed with black oxide of manganese; this is set into a vessel made of zinc, having a tightly-fitting lid, with a screw connection for a copper wire, while the other is on the carbon and passed through the lid, which lid has a gum elastic band to seal it; in this condition an efficient, inexpensive and durable current can be generated that needs no renewing with aqua ammonia for months, as proved on trial and used daily at the Normal School to ring the bell or call by telegraphic contact. It is similar to a French invention, only more simple, by the use of the gum band, and less liable to evaporate and become weaker when set aside; this keeps its power for an indefinite period. No further business offering, the Society adjourned to meet on Saturday, June 30, 1877.

STATE BOARD OF AGRICULTURE.

Their Session in the Capital.

The State Board of Agriculture met in the Senate Chamber on Tuesday, May 22, and the members were called to order at about two o'clock, p. m., by the president thereof, His Excellency Governor John F. Hartranft.

The roll of members was then called, when the following gentlemen answered to their names:

Members ex-officio—His Excellency Governor John F. Hartranft; Rev. James Calder, president Pennsylvania State College.

Members appointed by the Governor—Jno. P. Edge, Chester; Jno. L. George, Allegheny.

Elected by County Agricultural Societies—W. G. Moore, Berks; Thaddeus Banks, Blair; M. C. Beebe, Venango; Prof. J. Hamilton, Centre; Thomas J. Edge, Chester; C. A. Mullen, Cumberland; H. M. Engle, Lancaster; G. W. Hood, Indiana; John B. Smith, Luzerne; A. Robinson, Mercer; W. A. Yeakle, Montgomery; J. M'Farland, Northumberland; J. S. Keller, Schuylkill; J. W. Shriner, Union; W. S. Roland, York.

A committee on credentials was appointed by the president, as follows: Messrs. Beebe, Venango, Engle, Lancaster, and Keller, of Schuylkill.

The committees on credentials made report that the following gentlemen be elected members of the State Board of Agriculture, they having presented the proper credentials:

J. P. Barnes, Lehigh; Capt. C. Gilbert, Franklin; L. J. Culver, Bradford; David Wilson, Juniata; J. C. Morris, Susquehanna; Eastburn Reeder, Bucks; C. L. Weitzel, Northampton; D. H. Foresman, Lycoming.

The report of the committee was adopted and the committee discharged.

The minutes of the previous meeting were read and approved.

The new members of the board were vouched for as representing county agricultural societies that have received or are entitled to bounty.

By instruction of the executive committee the following gentlemen were recommended for honorary membership, as well as to occupy the positions designated:

Professor of Vegetable Physiology and Botanist—Thomas Meehan, of Philadelphia.

Professor of Horticultural Science and Pomologist—Josiah Hoopes, of Chester county.

Chemist and Mineralogist—Dr. F. A. Genth, Professor of Chemistry and Mineralogist University of Pennsylvania.

Entomologist—Prof. W. A. Buckhout, Pennsylvania State College.

Veterinary Surgeon—Chas. B. Michener, V. S., of Bucks county.

Microscopist—Dr. Henry Leffman, of Philadelphia.

Geologist—Prof. J. P. Lesley, State Geologist.

On motion the foregoing named gentlemen were elected by acclamation to fill the positions designated, and that their term of service shall be one year.

Mr. E. G. Fahnestock, of Adams, having entered, his credentials were presented and he elected a member of the board.

Upon drawing by lot, Messrs. Barnes, Reeder and Weitzel were made members for one year; Messrs. Wilson (Juniata), Foresman and Fahnestock for two years, and Messrs. Barnes, Gilbert and Culver for three years.

On motion of Mr. Engle, Prof. Heiges, of York, was called upon and read an essay, "Tree Planting for Shade, Shelter and Profit."

On motion of Mr. Keller, a vote of thanks was accorded to Prof. Heiges for his interesting essay. The subject matter of the essay was discussed by Messrs. Edge, Beebe, Heiges, Engle, Hamilton and Wilson.

On motion of M. C. Bebee, the credentials of S. F. Wilson, of Tioga county, were submitted to the secretary for approval.

Mr. S. F. Wilson drew for the intermediate term of two years.

By invitation, Hon. J. S. Haldeman read an essay on "Tree Planting, Fencing and Lime."

On motion of Mr. Keller a vote of thanks was tendered Mr. Haldeman for his essay.

Mr. M. C. Beebe offered the following resolution: "That this association recommend that the Legislature take such action as may be necessary to encourage tree planting."

After a discussion by Messrs. Beebe, Edge, Wickersham, Roland, Keller and Governor Hartranft, the resolution was laid on the table, subject to be called up at any future time.

EVENING SESSION.

The board met at 8 P. M., Governor Hartranft in the chair.

The report of the Secretary was read, and on motion of Mr. Barnes referred to a committee appointed by the chair, consisting of Messrs. Barnes, Fahnestock and Wilson, with instructions to report at the next meeting of the board.

The report of the chemist was read and accepted.

A vote of thanks was unanimously tendered the chemist for his able report.

On motion of Dr. Edge, John S. Carter, Superintendent of the Eastern Experimental Farm, was requested to read his essay relative to teaching at the Experimental Farm.

On motion of Dr. Edge the Secretary was instructed to prepare a synopsis of the proceedings of this board for publication in the agricultural papers of the State.

On motion of the chair, a committee of three gentlemen, consisting of Prof. Wickersham, Hon. J. B. Smith and W. S. Roland, was appointed to confer with the proper authorities of the State Agricultural Society with reference to the publication of their condensed report of this board in the twelfth volume of the proceedings of the State society.

On motion of Mr. Keller, Dr. Edge was instructed to read an essay upon "The Future of our Board of Agriculture."

On motion a vote of thanks was tendered Mr. John J. Carter and Dr. Edge for able and interesting essays.

The question of the "Future of the State Board of Agriculture," was discussed by Gov. Hartranft, Dr. Edge, and Messrs. Keller, Beebe, Hamilton and Forseman.

Adjourned until Wednesday morning at 9 o'clock.

MORNING SESSION—WEDNESDAY.

The State Board of Agriculture met in the Senate Chamber this morning, Governor Hartranft presiding.

Prof. Wickersham reported from the Committee on Publication that the secretary of State Agricultural Society had cheerfully extended to the board the use of one hundred pages of space in its regular annual volume, which will be published about the 1st of January next. The thanks of the board were returned.

An elaborate programme for the next meeting was presented by the committee on the subject, and adopted.

Another meeting this year was agreed upon, time and place left to the executive committee.

Mr. Thomas Meehan, editor of the *Gardener's Monthly*, delivered a very interesting and able address on the influence of forests on rainfall, taking the ground that the presence or absence of trees had no appreciable effect upon the fall of rain.

The address was discussed by Messrs. Smith, Calder, Thomas J. Edge, Forseman, Mahon, Wilson, (Juniata), Wickersham, Beebe, Hamilton and Gov. Hartranft.

Charles B. Michener, veterinary surgeon, read a very able paper on pleuro-pneumonia, which was discussed at length.

The matter of a law regulating the sale of fertilizers referred to the executive committee with instructions to report the draft of a law at the next meeting of the board.

Adjourned to meet at the call of the executive committee.

Questions and Answers.

When land has been reduced by cropping, which is the best means of restoring its fertility?

Clover furnishes a popular means. Fertility grows by covering this kind of land with a thick soil and filling the soil with roots.

What are the leading characteristics of the box elder?

It is easily grown, of quick growth, is hard, indigenous, and is equally good for wind breaks and for timber.

Can refused hair from tanneries be utilized with profit on a farm?

Yes; it is a valuable fertilizer. The hair is usually mixed with lime; when spread broadcast this produces an immediate effect, though the action of the hair is slow. The best results are obtained from this refuse when it is poured in or mixed with the soil. It greatly increases the fertility of dairy farms, is said to be preferable to barnyard manure for turnips, and is an excellent fertilizer for cabbages.

AGRICULTURAL.

A Good Fertilizer.

A proper place for the fowls to roost, with a view to save and compost the manure, is important. This fertilizer is so strong and so fine that a large quantity of swamp-muck should be added. If only a small quantity of such material be scattered under the roosts daily, we avoid the pungent odor, keep the air pure, and retain all that is valuable in the material. It has been said and written many times that the fowl-house should be kept clean. Now, every poultry-keeper cannot afford to sweep and garnish things daily; but, if an absorbent be used, the place may be kept pure, and an excellent compost formed. Great sums are paid for guano every year, and it has been determined that three hundred pounds of this substance is sufficient for an acre of corn-land. The manure of thirty fowls in one year, mixed with four times its bulk of swamp-muck, is more valuable than three hundred pounds of guano. The advantage of this method of mixing is that the work is done easily and effectually.

If the droppings are suffered to accumulate, they become hard and compact. If applied to land without mixture with other substances, they burn and kill plants, and also prevent seeds from germinating. Besides, the compost crumbles readily, is easily mixed with the soil, or applied in the drills before planting. This fertilizer is very quickly assimilated by growing plants. It commences its work immediately. The mill in which it is ground makes fine work. Bone, meat and grain, when passed through the gizzards of fowls become so thoroughly disintegrated that, after nourishing them, the residuum, with the waste material from their bodies, makes a better fertilizer than any other made on the farm. Any one cultivating a farm, or only a kitchen garden, fruit yard and flower-borders, can make this compost *tell*, in the increased quantity and quality of his products. We have in mind a man who carefully saves the manure from two hundred fowls by using plenty of earth, muck and swamp-hay under the roosts, and sells the compost in a fine dry state to the proprietors of large gardens near by, getting therefor nearly enough to pay for the food consumed by the fowls. Some require a quick growth, in order to be of the best quality, hence the value of this compost, and the price paid for it as a garden fertilizer.—*Poultry World.*

Tobacco Culture.

The following is clipped from the Hartford *Courant:* The early writers on tobacco were fond of extolling the rare virtues, remarkable qualities, and peculiar kind of soil required for this singular plant. Some writers gave curious accounts of the size of the weed, and in Lobel's "History of Plants," printed at Antwerp (1576) is a cut representing the weed as attaining the height of our largest trees, while the leaves we should judge might measure at least ten feet in length. Dr. Liebault in his work entitled the "Country Farm" (1606) in speaking of tobacco, says that it "craveth a fat soil." Physicians wrote of its wonderful curative powers—that it could heal the sick, was a certain cure for the gout, as well as very useful in colds and fevers. Others still asserted that its use improved one's manners. In Edward Sharpham's comedy, *The Fleire*, (1615) one of the characters (who is a fashionable smoker) says to another: "Before I took tobacco I was an arrant ass," and adds, "Faith these gentlemen have not long used my company, yet you see how tobacco hath already refined their spirits." We have no desire to enroll our name with that of either class alluded to, yet the honest grower of the plant may think so, after reading the title of this article. At first thought it may be supposed that 8,000 pounds of leaf tobacco can not be grown on a single acre of land, but when the method adopted is fully explained it can hardly be doubted by even the most incredulous. Doubtless some at least who read this article have grown 2,500 pounds, or even 3,500 pounds, of tobacco to the acre, and we remember to have read several years ago of a tobacco grower in Massachusetts who raised 2,600 pounds of leaf tobacco on a single acre of ground. These amounts are usually considered very large, and when it is affirmed that one ton and a half of tobacco has been obtained from a single acre, many will regard it as simply a bar-room story or wholly a myth.

Working Crops Early.

Clean culture is one of the first requirements of good farming, a *sine qua non* of the best results in farming operations. It is hardly necessary to repeat here, what we have often said before, against the toleration of noxious weeds. The most auspicious time to deal with them is when they first appear. They are then easily destroyed by exposure to the sun or covering with the turning plow at a depth which is fatal to them. Let it be borne in mind, that when a crop once gets in the grass, it takes double the work to keep weeds down, that it does when they are destroyed in the outset; and besides whatever of fertility in the soil is abstracted by noxious growth is just that much robbed from the crop planted on that ground. Corn, potatoes, tobacco and vegeta-

bles require early cultivation, and in nine cases out of ten, this course ensures a crop, whatever the nature of the season may be. The young corn is just now coming into notice, and it is in order to devote proper attention to it. Stir the ground and destroy weeds that may have germinated, and keep ahead of them throughout the season. If in any hills the seed did not germinate, replant, and where there are too many plants, thin out before the roots have grown so large that removal will loosen the remaining stalks.

Effects of Climate on Plants.

An English agricultural paper says it has been proved that the seeds of certain plants, if gathered in one climate and sown in another, will germinate earlier or later and with more or less vigor, according as the new climate is colder or warmer than the old, and that a difference of a few degrees only in latitude will produce these results. For example, wheat from Scotland sown in the south of England will germinate and ripen much earlier than wheat of exactly similar quality gathered in the south and planted in the same latitude in which it was grown. This fact is of the utmost importance to agriculturists. To secure early growing grain crops it is only necessary to take care that the seed is gathered in a colder climate than that in which it is to be sown. The same thing is noticeable among other plants, and florists and horticulturists might take advantage of this circumstance to produce both earlier and stronger plants than they do now, without the appliances of forcing.

Hungarian Millet.

A great diversity of opinion exists among practical farmers as to the value of the several annual grasses commonly known as millet. This may be accounted for in part by the character of the soil where it is grown. All the varieties of millet are peculiarly adapted to light, sandy or sandy loam soils, such as will produce full crops of timothy and red-top only under the most favorable circumstances. Land that is excellent for grass is not the best for millet, and the best millet land is not natural grass land. Millet resembles the corn plant in its adaptation to warm land and hot weather, and for this reason we should expect to find it a more popular crop on the dry, sandy land bordering our sea-coast than upon the moist, green hill-tops of Vermont, New Hampshire and Western Massachusetts. And this we find is the case—many farmers in the interior having scarcely ever seen a patch of millet growing. Profitable crops of millet presuppose land easily plowed and capable of being smoothed off and laid down with little labor.

Compost for Corn.

What is the best compost to apply to corn was discussed at an agricultural club meeting over in Bucks county. One member said he had received the best result from a mixture of ashes, plaster and hen manure; phosphates he said kept the corn back; dry ashes ditto. Another thought leached ashes and plaster valuable; another thought composts did not pay for putting them on; it was better to fertilize the ground first and then get it in good order, and it would need no compost. He wet his corn and rolled it in plaster before dropping. Another thought the compost did more good if dropped on top of the corn; the corn would come up better. William H. Rice wanted to know the effects of plaster put on after the corn was up. The impression prevailed that it did little good where lime had been used. The Berks county farmers, we believe, rely most upon stable manure and good tillage, and they as a rule always have excellent crops, unless the season is unfavorable.

More Pollen Needed.

The Western *Rural* tells of a man who plants, two or three weeks after the corn is planted, a new hill of corn every fifteenth row each way. And this is the reason: If the weather becomes dry after filling time the silk and the tassel both become dry and dead. In this condition, if it become seasonable, the silk revives and renews its growth, but the tassels do not recover. Then, for want of pollen, the new silk is unable to fill the office for which it was designed. The pollen from the replanted corn is then ready to supply the silk, and the filling is completed. He says nearly all the abortive ears, so common in all corn crops, are eased by the want of pollen, and he had known ears to double their size in this second filling.

Stacking and Feeding.

W. Doyle, of Gratiot, Wisconsin, writes, giving his method of caring for straw:

Straw with us is the principal article of food for cattle in winter, and it becomes necessary as a matter of economy to make the most of it. As the thrashing season comes some time before we feed, the straw should be well stacked and picked up, as in the case of hay, and a good fence built about it for its preservation. Many farmers allow swine to get at the straw stack. This is a miserable practice, for the straw is wasted and made unwholesome for winter use. I feed it out with a great deal of care, as I would hay, and thus utilize it all.

HORTICULTURAL.

Blackberry Culture.

As we are approaching the blackberry season it will do no harm to reflect on how great and how rapid has been the improvement of this fruit. Thirty years ago there is no mention of it in any nursery catalogue, and the wild fruit of the hedges was all that was in use. These at best were dry, seedy things; but they served some good purpose in pudding-making, and now and then in pies and tarts. This is about the position the blackberry occupies in English fruit eating; and to this day they, naturally unaware of the rapid progress we have made, wonder at our taste in admiring such things.

But the discovery of the "New Rochelle," a wild sport from the common high bush blackberry, at New Rochelle, New York, gave the whole class a start. Good varieties are now "as plentiful as blackberries," and new ones are appearing every year. It is singular, though, that all the new ones are chance seedlings, found wild, as the first good one, the New Rochelle was, and, indeed, few if any are yet superior to it.

But even this and the best of them, whichever one's taste may decide the best one to be, is very much improved by good culture; and conversely, very much injured by bad. Almost yearly we are told that this or that variety is "not hardy," just as if we were speaking of some exotic plant, forgetting that the original plant was perhaps found in our neighborhood's neglected fence corner, where it had been growing many years, and never thought of giving way to the fiercest winter's wind. Why should a plant, hardy in nature, become tender when planted in our gardens? There can be but one answer: Our systems of culture are not favorable to hardiness. In what particular respect is our culture defective?

There can be little doubt that the injury to the roots, which our system of culture entails, must be injurious. In a wild state the blackberry has a few creeping roots that run near the surface and collect the food. The hoeing and cleaning necessary in garden culture keeps these roots in continual disturbance. It is well known to cultivators of peach orchards that the stirring of the soil has to be abandoned in summer, otherwise the disturbance of the roots results in ill-ripened wood, and the peach buds and even peach wood is easily destroyed. It is just this way with the blackberry; and it is worse in field culture than in garden culture, because the cultivator goes deeper, and by so much more is it an injury. From New Jersey especially, the land of the blackberries, comes the cry of blackberry disease and blackberry winter-killing, and of kinds "dying out;" and there is no doubt the root injury is the cause of it all. Some of us put blackberry plants near board fences or other places where the roots can get a little protection from hoe, spade or plow; and in such cases no one ever hears of blackberry disease, or winter-killed plants. They go on growing and bearing year after year, as well as if they thought they were in the old farmer's fence row, where they were once found.

But, says some one, are we then to let our blackberries grow up to grass and weeds, and have the whole garden look like a wilderness? By no means. We must keep the garden and farm, blackberry patch included, neat and clean; but remembering that it is an injury to cut off the blackberry roots, we must begin to keep down the weeds early in the spring, so that there shall be no trouble in the fall; and when we do clean, cut the surface as lightly as we can.—*Germantown Telegraph.*

Changing the Bearing Year.

Last year apples were so abundant that, in some localities they would not pay for handling, and large quantities were left to decay where they fell. In view of the fact that a year of excess and low prices, is followed by scarcity and high prices, inquiries have come to us in such numbers as to show that many are considering the practicability of changing this state of affairs. It is an encouraging sign that farmers are induced to think about their orchard at all, for as a general thing there is no part of their belongings so neglected as this. Trees are set, but it is looked upon rather as a waste of land, so the orchard must be cropped, and while no other part of the farm is expected to do it, that occupied by the orchard must yield two crops. The cause of all trouble with fruit trees, whether of failure altogether, or occasional excessive bearing, and the rest may be summed up in one word—neglect. We now confine our remarks to the present trouble and to answering the various inquiries about alternate bearing. The apple tree left to itself will generally bear such an abundant crop that requires another year, and sometimes longer, to recuperate, and accumulate sufficient nutriment to form buds and nourish another crop. This tendency is very marked in some leading varieties, and as it has been going on for many years, the habit has become fixed, and when we propagate these varieties, the young trees start with that as one of their peculiarities, in which they have been educated, so to speak. It is well known that this tendency is much more marked in some varieties than in others, and while some naturally fall into alternate bearing, others resist it, and will, if they have a fair chance, give a crop of fruit every year. This is a character to which little attention has been given by our pomologists; they state if a tree comes into bearing early, or if it is an abundant or shy bearer, but its tendency to annual or biennial bearing is rarely recorded, while it is one of the most important qualities. Varieties that naturally bear annually, may be converted into biennial bearers by starvation; planted, as they often are on poor soil, and robbed of their nutriment by another crop, the trees cannot get food enough to enable them to carry even a small crop every year, and they are forced into alternate bearing. The practical question is, how can trees that now bear excessively one year and nothing the next, be made to bear moderately every year? So far as the alternate bearing is due to the poverty of the soil, the remedy is evident, and no doubt would be, with many varieties, sufficient.—*American Agriculturist.*

The Egg Plant.

People know what trouble they have with the Colorado potato beetle in their potato grounds, and the newspapers are full of the story; but nothing is said of the egg plant, which is troubled by the same insect quite as much, and for which there is much less remedy.

The potato we can protect from the beetle well enough by the use of Paris green. The tuber we eat, and what we do to the stalks have little to do with the parts under the ground. We poison the beetle and there is no danger from such poisonous use. But it is not safe to recommend Paris green for the destruction of the beetle on the egg plant, or on any vegetable where the part used grows above the ground, as the arsenic of the Paris green may attach to it, and dangerous consequences ensue; and thus we are not able to use this remedy, so cheap and so effectual in the case of the potato. So difficult has it been to raise egg plants, on account of the beetle, that large numbers of amateurs who generally have a few for their own use had none last year. The only remedy so far found is *to pick the pests from the plant;* but where only a few are required it is found cheaper to buy what are needed than to grow them. So far as we can learn the cheapest plan to protect them is to have *frames made covered with musquito netting.* This is not heavy enough to exclude light and air and interfere with the health of the plant, but it is quite sufficient to keep off the beetles. The frames need not be costly—indeed hoops from small barrels or kegs will do around which to tack the net.

As generally from six to a dozen plants are enough for ordinary gardens, it is no great task to make these nets, and as no work is needed after the plants are once covered, the work costs but very little more than a lot of Paris green would do. To those who like egg-plants well enough to be willing to go to a little trouble to get them, this little hint may perhaps be of some service.—*Germantown Telegraph.*

Don't Omit the Turnips.

Turnips are a profitable crop, if grown on rich land. Five hundred bushels to the acre are often grown at a cost of about $15, including gathering and putting them in a cellar, root house, or burying them, making the cost only three cents a bushel. Some varieties may be sown in July, the flat variety in particular, which is frequently sown among corn, immediately after the last hoeing. Care should be taken not to sow the seed too thick, as thinning out is not generally practiced when grown in this way; nor is any weeding done. This is decidedly the cheapest way that a crop of turnips can be grown. Cover the seed by a brush drag drawn between the rows of corn. Some farmers object to growing turnips to feed to cows, on account of giving the milk an unpleasant flavor; but this is obviated by feeding the turnips, either when milking in the morning, or immediately after milking, and no bad flavor is imparted to the evening's milk.

Potatoes to be a Profitable Crop for 1877.

This esculent has become by habit almost indispensable. Few families fail to have it on the table at least once a day, however high the price. Last summer's drouth so diminished the yield, that there is now a scarcity in many places. The Colorado Beetle spread so widely, to the very edge of the Atlantic, last season, that very many farmers are afraid to plant largely this year, and the present prospect is that there will be a small crop, and consequently high prices. Those, therefore, who produce a good crop, will be likely to find it unusually profitable. A little extra care will enable anyone to successfully fight off the beetle, no matter how abundant.—*American Agriculturist.*

Hot-Beds.

The *Fruit Recorder* thinks the best manure for hot beds is a mixture of forest leaves and stable manure; and that the best way to obtain this mixture is to use leaves to litter the stables in winter.

DOMESTIC ECONOMY.

Household Recipes.

CHOCOLATE CARAMELS.—One cup of milk; two cups of sugar; two cups of molasses; one cake of chocolate grated fine. Boil till it candies. Pour out on a flat dish and cut in squares.

ONE ounce lemon juice mixed with a quarter of a drachm of sugar will remove freckles. Keep this lotion in a glass bottle corked tightly a few days before using, and apply to the freckles occasionally, and it will soon remove them.

ONE of the most gentle and useful kinds of exercise is friction of the body, either by the naked hand, a piece of flannel, or, what is still better, a flesh-brush. This was in great esteem among the ancients, and is to-day a universal resort with the people of the East Indies.

TO CLEANSE A MEERSCHAUM.—We fear that the husbands of some of our housekeepers *will* smoke; and, if so, they might as well be as clean as possible about it, so we will tell them how to keep their meerschaums wholesome. Wash them with alcohol. Allow the alcohol to remain in the bowl for a few moments, and then rub them gently with a sponge attached to a small stick.—*Cor. Western Rural.*

SOUP OR TOMATO OYSTERS.—Five ripe tomatoes cut fine, or the canned tomatoes will answer; boil in one pint of water with a small teaspoonful of soda; add one quart of milk; butter and salt to taste; one or two pounded crackers, as you like it thick or thin. —*Bostonian.*

OYSTER PLANT.—Boil it well, then grate it, and mix with it a little beaten-up egg, salt, and pepper. Form in little cakes the size of a large oyster, and fry in hot lard.—*S. C.*

MINCED VEAL.—Cut, but do not chop, cold veal in small pieces; rub some butter and flour together to a cream, according to the quantity of your veal, and stir it into a sufficient quantity of boiling milk; also the grated rind of a lemon; let these boil together until the consistency of cream; sprinkle a little flour, salt and white pepper over the cut veal and add it to the cream; stand it where it will keep up to the boiling point, but not boil; when thoroughly heated through squeeze the juice of a lemon over it, and serve quickly on bits of dry toast.—*Aunt Addie.*

TEN drops of carbolic acid were put into a pint of water and pots watered with the solution. It killed the worms and the plants began to improve at once. —*Vick's Floral Guide.*

TO THICKEN the hair and prevent it from turning gray, pour boiling water on a quantity of sage leaves, and let them remain some time in the oven, or near a stove; strain and apply to the roots of the hair daily. If any pomade be needed, an equal mixture of cocoanut and olive oils, with a little perfume, is very efficacious.

BUTTER SAUCE FOR MACKEREL.—Half-cup of flour mixed with cold water till a smooth paste; stir enough of this paste into a half-pint of boiling water over the fire to form a thick cream; add a little salt, and stir steadily with an egg-whip for two minutes; then remove from the fire and stir in a quarter-pound of butter, two tablespoonsful of chopped parsley and the juice of half a lemon. Set it on the back part of the stove to keep warm, but on no account let it boil. (No sauce should be boiled after the butter has been added, or it will have a rancid taste; and to boil after lemon juice has been beaten in will turn the lemon bitter.) Having broiled the fish, lay it carefully into a hot platter with parsley, water cress, or a slice of lemon upon it, and serve. Do not put the sauce over the fish, but send it to the table in a sauce boat.

GRAHAM SHORT-CAKE.—One cup sour milk, one half cup cream, one teaspoonful soda, one teaspoonful salt; make a batter as thick as can be stirred with a spoon, spread a layer of it in a baking-tin, put bits of butter over it, then another layer of butter. Bake in a moderate oven until well browned. When cool enough to handle, open between the layers and put in berries, peaches, stewed apples or any kind of juicy fruit; let stand a few minutes and you will have a "dainty dish to set before a king."

GRAHAM TEA-CAKE.—One cup sugar, two eggs, beaten together, one cup sour cream, two-thirds teaspoonful soda, one teaspoonful salt, two slightly heaped cups Graham flour, one teaspoonful lemon extract or half a nutmeg. Bake in a moderate oven.

TO PREPARE SHEEP'S HEAD.—Take a large sheep's head, cleanse, trim and wipe it well; place it in a well-buttered, oval, flat, well-tinned copper baking-pan, with salt, grated nutmeg, two onions and a green pepper chopped fine, two ladlefuls of stewed tomatoes, a highly garnished bunch of parsley, a few bits of butter on the top, and place a buttered paper over all; set on the fire, start, slowly, let simmer gently for about forty minutes, taking care to occasionally sprinkle the fish with its gravy; when done, place the fish on a dish, and keep it warm; take out the parsley and transfer the tomato sauce, etc., to a saucepan, with a pint of *Espagnole* sauce; reduce to a proper consistency; add the juice of a lemon and a tablespoonful of chopped parsley; serve up the fish in a large dish; pour the sauce over; and serve a dish of plain boiled rice with the fish.

Dried Potatoes.

A German journal thus describes the manufacture of "dried potatoes," as conducted at Carsten's works in Lubeck: The potatoes are peeled with the hand, and cut into disks by a machine. These are put into a basket, and this into a boiler, where the potatoes are nearly but not quite boiled. The disks are then put on wire frames in a dry oven, where they are dried quite hard. It is important to preserve the color of the potatoes, and to prevent them from turning grey, as they would by the process alone. The material, after slicing is treated with cold water, to which has been added one per cent. of sulphuric acid, or one or two per cent. of muriatic acid. The preparation obtained, which has lost none of its starch, is of a slightly citron-yellow tint, and transparent like gum. Boiled with water and a little salt, it is said to resume the natural color and fibrous structure of potatoes, and is not distinguishable in taste from the newly boiled vegetable.

Enjoyment of Work.

Farmers' wives, as a general thing, work entirely too hard. Let them moderate their labors to the proportion of their strength, and even if help has to be obtained to make up the deficit, it were surely better than to wear out prematurely from exposure and overwork, and leave your children at a tender age without a mother's care. A good woman with a good husband, can be happier nowhere than on a farm; but let not a sense of duty in the one, nor a false economy in the other, deprive the wife of all needed assistance. It is far better to enjoy life in old age with your children than to have slaved through life to leave them a fortune, while you lie down in a premature grave, ere life's great tasks be fully done. Let the duties and responsibilities usually devolved upon farmers' wives be lessened, and furnish abundant help for the work to be done.—*Southern Farmer.*

About Milk.

To scald milk fresh from the cow and put it while hot into a shallow vessel for the purpose of letting the cream rise, makes it rich much more rapidly than to set the same away without scalding it: 1. Cream rises faster when cream is hot than when it is cold, all other considerations being the same. 2. Notwithstanding the loss of water by evaporating, heated milk is thinner or of more fluid than that which is not scalded. 3. Cream rises faster when the temperature of milk is falling than when it is stationary, and milk, set away hot, has a wider range of temperature to fall through than that which is not scalded. 4. The cream from scalded milk churns easier than from not scalded, and hence churns more completely, leaving less cream in the buttermilk. Hence a little more butter is the result of scalding and setting in a shallow vessel.

The Farmer's Grindstone.

There is no tool as essential on the farm as a good grindstone; it is therefore necessary that every farmer should have one and know how to take proper care of it. A grindstone should always be kept under cover, as exposure to the sun's rays hardens the grit and injuries the frame. The stone should not stand in water when not in use, as this causes soft places. The water should be allowed to drip from some vessel placed above the stone, and the drip should be stopped when the stone is not in use. All greasy or rusty tools should be cleaned before sharpened, as grease or rust choke up the grit. The stone should be kept perfectly round.

Hanging an Axe.

Get your blacksmith to make an iron wedge to fasten the handle in with. It will cost but fifteen or twenty cents. It should be about two and a half inches long, and about two in width, and the head of the wedge should be large enough to cover the eye of the axe. It is much better than the wooden one generally used for such purposes, as it can be easily knocked out with a cold chisel and hammer. The usual method of burning out a helve after it has been broken softens the steel of the axe. Another advantage is that sometimes an axe is broken, while the handle remains good, then the iron wedge can be knocked out, and as it is ready to be put in another axe.—*Western Rural.*

Re-cooking Meat.

Take any kind of cold meat, cut into slices, taking care to remove all gristle; place in a stewpan with sufficient cold water to cover it, and one or two onions, according to the quantity of meat; season with salt, pepper, cloves and mace, according to taste; simmer gently until the meat is quite tender, thicken it with flour and a small piece of butter. Take an iron spoon, put a teaspoonful of sugar in it and burn the sugar; stir quickly into hash. Toast slices of bread brown, cut in squares and lay them round a flat dish; then pour out the hash and serve hot.

LIVE STOCK.

Healthy Cattle.

Notwithstanding the prevalence of rinderpest in the cattle raising districts of the Old World and the consternation produced thereby, our own country is generally free from this scourge. Reports relative to farm animals, as received at the Department of Agriculture, show general exemption from diseases among cattle, with few exceptions, and a more than average healthfulness and thrift, especially north of the 36th degree of latitude. In the milder region, where shelter is not provided, emaciation and death are not unfrequently reported. In one county in Georgia (Taylor) one hundred and fifty of a herd of five hundred were lost. From all the Alleghenies to the great plains not exceeding seven per cent. of the returns indicate low condition. Cases of pleuro-pneumonia have occurred in Burlington, New Jersey; Baltimore, Maryland, and Cumberland, Pennsylvania. Cases of abortion are scattered through the dairy districts in no greater numbers than usual, and local losess are reported in the South from diseases resulting from miasma and lack of nutrition. Such losses vary from two to twenty per vent. in the counties of the Gulf States, and from five to twenty-five per cent. in certain counties in Texas. No prevalent disease is reported among horses. Mild forms of catarrhal diseases, with occasional cases of lung fever, are reported from Northern latitudes, and from the South more frequent mention of similar diseases and local losses from blind staggers, and less frequent loss from glanders, and in the Mississippi valley a few cases of charbon. Sheep are generally in good condition. In Southern California flocks are dying from drouth, and in some places are sold to go to Oregon and Nevada for thirty-seven cents per head. The losses of swine have been very heavy in the West and South.

Value of Salt.

Not more than twenty-five years ago a learned doctor published an elaborate treatise to prove that salt was the "forbidden fruit," through eating which our first parents fell, and has ever since been the cause of all our diseases and ills, though only a lunatic would deny that salt serves some important and essential uses in the animal economy. The desire for salt seems an instinct implanted in the animal creation, and there is a natural craving for it when it does not exist in sufficient quantity in food.

Animals will travel long distances and brave great dangers to get at saline earths, called salt licks; horses and cows are most healthy when provided with lumps of rock salt in their mangers or pastures, and even bees will sip a solution of salt with avidity. Men will barter gold for it in countries where it is scarce, and for it husbands will sell their wives, and parents their children. In some districts of Africa salt is far more expensive than the purest white sugar in Europe, and children will suck a lump of it in preference to sweetmeats. But the existence of a greater or less appetite for salt in all individuals shows that this substance serves more important functions than that of merely gratifying the palate.

Salt being a large constituent of the human body, and forming about half the total weight of the saline matters of the blood, the constant loss of it by the secretions, the bile, and even tears, requires to be made up by its employment as a condiment. The free acid found in the stomach, and which forms an essential constituent of the gastric juice, is obviously derived from the salt taken with our food; and the soda of the blood and in some of the secretions is doubtless obtained from the decomposition in the system of common salt, which is the only mineral food of man and the only saline condiment essential to health.—*British Manufacturer.*

Sweet Potatoes for Hogs.

We doubt whether as firm pork could be made of sweet potatoes, or of any other kind of vegetables, as corn will make; and while many kinds of food may be profitably used in the commencement of fattening, there is nothing like corn to solidify pork.

There is no better hog feed than sweet potatoes, either raw or cooked. Hogs will fatten rapidly on them raw, and dig them themselves, but will do much better on them if cooked. In this part of Illinois, where the corn crop is uncertain, many farmers fatten their own pork on sweet potatoes. Quite a number have planted them the last season, and turned their hogs into the patch, and they will not touch an ear of corn while the potatoes last. But that is not the best plan, as the hogs will waste them more or less. It pays to dig the potatoes and cook them in a large kettle, and when nearly done mix in a small quantity of corn meal or shipstuff; mash and stir well, and then cook awhile longer to cook the meal. Feed cool, in troughs, and my word for it, you will see hogs grow. It is the best feed for sows and young pigs that can be given them.

I have never tested the relative value of corn and sweet potatoes as a hog feed; but here in the fall of the year, we often have sweet potatoes too large for sale, and feed them to the hogs, as we always do the very small ones.

Some may think it costly feed; but take into consideration the yield of sweet potatoes and corn, corn yielding thirty bushels per acre, sweet potatoes 150 to 250 bushels per acre, and corn sometimes worth twice as much per bushel as potatoes. However, all are not alike situated. Some can grow corn and sweet potatoes. When potatoes do well, they make a good substitute for corn.—*Prairie Farmer.*

Against the World.

In February last Richard Harrison, living near Reecklesstown, slaughtered 28 hogs, which weighed as follows: 505, 575, 575, 577, 577, 579, 579, 579, 583, 585, 585, 595, 595, 603, 605, 605, 619, 619, 629, 635, 639, 655, 665, 677, 709, 715, 735 and 749—making an aggregate of 17,338 pounds—an average of 619 3-14 pounds. This is pretty big for hogs. Mr. Harrison slaughtered about 8,300 pounds of pigs for market with this famous lot of porkers.

But if any county in this State, or any other State, can beat the above exhibit, we present for consideration the crop of Joseph Carter, on the farm of Anthony Bullock, in the same neighborhood. This lot was killed on Monday, and was worth a journey to see swinging on the gallows. There were 20 head weighing as follows: 559, 561, 565, 591, 597, 601, 625, 649, 655, 665, 677, 695, 705, 705, 715, 721, 747, 774, 865 and 905 pounds. Total weight, 13,565 pounds. Average, 678¼ pounds. The five heaviest weighed over 4,000 pounds. We rest on these figures. Mr. Carter also killed five hogs for his own use that weighed about 2,600 pounds; and about 6,000 pounds of pigs for market. Taking the whole 25 hogs the average is nearly 648 pounds.

We have received the weights of these hogs from the purchaser also, Nathan Folwell, stock dealer at Bordentown. The figures vary a few pounds—our figures giving the weights on the day of slaughter, Mr. Folwell the weights when delivered to him. The total marketed crop of Mr. Harrison, hogs and pigs, aggregated 25,436 pounds, for which Mr. Folwell paid 8 cents per pound—$2,035.68, cash on delivery.

Several hundred people congregated on the killing days at the above places to witness the unprecedented spectacle.—*Burlington county, N. J., Paper.*

Half-Bred Buffaloes in the Dairy.

The long mooted question whether the buffalo can be successfully utilized for dairy purposes, says the *Turf, Field and Farm*, is now in a fair way of being satisfactorily settled. The apprehension hitherto entertained regarding the untamable nature of the buffalo, and that the characteristics of this branch of the bovine family would be certain to crop out through indefinite crossings, appears to be totally groundless. The buffalo, or more properly the American bison, is being used extensively in portions of the State of Nebraska, bordering on the wild plains of the far West, for stock purposes, and half and quarter bred females of the bison family yield an abundant supply of rich milk. A remarkable feature connected with this cross of the bison with domestic cattle is the fact that the color of the bison and the majority of its distinguished characteristics disappear after successive crossings. Its outward conformation is also, in process of time, in a great degree lost sight of. The hunch or lump of flesh covering the long spinous process of the dorsal vertebræ, becomes diminished with each successive cross, and will, doubtless, also disappear entirely as the original type becomes merged in the domestic animal.

Garget in Cows.

N. G. E. writes to the *Western Farmer* and says: From inquiries made it appears that it is not generally known that saltpetre is a remedy for garget in cows. Now to such as want information on the subject I would say that I have kept cows nearly forty years, and the best and surest remedy for garget that I have found is, when the cow shows signs of garget by giving curdled milk, to pound up a table-spoonful of saltpetre, put it into a quart or two of meal and give it to her to eat. If she should object to eating it you may mix a little fine salt with it.

But I consider a preventive better than a remedy, I think every man that keeps cattle and has dry, sandy land, ought to plant and grow the garget root, or as it is more commonly called, shoke root. It can be raised in such land with but little trouble, and if fed freely in the spring of the year it will prevent the disease effectually. The roots should be covered in winter with leaves or straw. But every one that feeds it should be careful and not give it to horses, as it was said in the lower part of New Hampshire to be poison to horses, but there is no danger of feeding it too freely to horned cattle or hogs, as it is very beneficial to the health of both.

MANCHESTER, Iowa, has become famous as a butter market. During the past year no less than seventy-eight cars of butter were shipped from that place, making 1,200,000 pounds, which, at twenty cents per pound, would aggregate the nice little sum of $312,000. This only includes the full car loads and not the scattering lots that belong to promiscuous shipments.

THE POULTRY YARD.

To Exterminate Parasites.

"One ounce of prevention is better than a pound of cure," says the old adage. In regard to parasitic insects of poultry, this is particularly true. It is much less trouble to keep them down, so as to be almost entirely clear of them, than it is to fight a host of vermin. I said almost, for there is, no doubt, a remnant always remaining of some lice, for no sooner are the ordinary cleanliness and vigilance relaxed, than they again show themselves. If fowls are kept in a damp places without dust or dry earth, these insects immediately appear in large numbers.

The methods of destroying most of them are very easy. The poll-tick is prevented or got rid of by slightly greasing the heads of the chicks as soon as hatched. The same process, repeated once a week for about two or there weeks, will carry them beyond further danger. I will not on this subject give the Latin names of insects, as I find so much variableness and so few varieties described that it is well to employ the terms in common use. Of the varieties that still remain on the fowl, there are two distinct classes: Lice that suck the blood from the fowl's body, all of which have their mouths near the ends of their noses, and another class that live on and eat the feathers. These latter have their mouths under the middle of the head, and of them there are several varieties, differing from each other in form, color and size. Both kinds can be got rid of by dusting sulphur well into the feathers of the birds. If the chickens are young and under the hen, dust the hen thoroughly with sulphur, and, provided the usual dust bath be supplied, this treatment will keep the fowls clean, if repeated about once a week.

Of the gape worm, it is difficult to say anything positive, though, of course, prevention is best. In order to get rid of this pest, the surest way, when a yard is once infested, is to remove the fowls entirely away from the contaminated ground. I know of a yard that was once infested for many years. One year the chickens were all taken across a brook to another part of the farm and not allowed to visit the old ground until too large to get the disease. No trace of the gapes has been seen there since then, although several years have elapsed.

Some poultry authorities say that there is a connection between the gape-worm and a kind of louse, and that the latter either introduces or extends the gape-worm; but, after some experiments, I am satisfied no such connection exists. Of the remedies for gapes I cannot say much as there are as many advanced with as much positiveness as there are cures for the toothache. If attended to in time, the worms can sometimes be drawn out with a horse hair or a thin feather. Care must be taken that the hair enters the windpipe, as the worms are *there* and not in the throat. Details of this process would make too long a chapter, so I simply generalize the subject until properly treated. Carbolic acids inhaled by the chicks, either in a box or by holding the chick over the acid, heated hot in a spoon over a lamp, will also sometimes dislodge them; but when the worms get low down in the throat, where the wiodpipe branches, there is not much hope for the sufferer.

The house-mite or spider, that lives in the woodwork of dirty nests, is easily got rid of by cleanliness, whitewash or petroleum, and fumigation. A good way is to saturate all the inside wood work with crude petroleum. For scaly-leg itch, soak the legs with kerosene oil, holding the toes upward, so that the oil will run well under the scales. Two or three applications generally effect a cure. Intestinal worms are dislodged by a decoction of wormwood, or the leaves may be cut up and given in food, or a pill made of aloes may be administered; but these pests are rarely numerous enough to be of serious consequence.—*Henry Hales.*

A Word of Caution.

We have advocated in the pages of *The Poultry World*, not infrequently, the use of kerosene for destroying lice upon the fowl-house roosts, and have advised the application of this pungent oil occasionally, with a mixture of lard, to be used upon adult fowls—under the wings and at the back of the neck—for a similar purpose; while, at the same time, we know that its use in removing the scales upon the legs of old fowls is an excellent remedy for that unsightly affection so often complained of by poultry-breeders.

But we have always intended to commend due caution in the use of this powerful insect-destroying agent, inasmuch as, though it is an admirable thing if judiciously used, it is over-harmful if not properly applied, and in moderate quantity.

At this season of the year, for example, *when we are desirous to have the eggs hatch well*, little or no kerosene should be made use of, where the laying and brooding-hens come in contact with it. In hot weather, when vermin germinate rapidly and numerously, both upon the body of fowls and in their roosting-places, it is well to apply it, freely; but during cold weather it is not so necessary; and where hens are laying or hatching, the less kerosene used *that may reach the eggs we wish to hatch*—either in the laying or the sitting-nests—the better.

The penetrating qualities of this crude oil are so strong, and the destruction to insect life (where it comes in contact with these parasites) is so certain, it is but reasonable to understand that its fumes, when allowed to reach the porous shells of eggs, may injure their yolks, or even destroy their vitality, oftentimes.

For this reason we advise caution in applying kerosene directly upon the bodies of laying or sitting fowls *during the breeding season*. For the few weeks while they are laying and sitting it may well be dispensed with altogether, where there is danger of their eggs becoming smeared with it. We have no doubt that the careless or too free use of this article, at the period mentioned, has had its influence upon many a hatching nest, where the owners of fowls have injudiciously applied it.

It is all very well to kill lice with; but you can unquestionably kill the germ in your eggs with it, if you indulge in a reckless application of it at a time that it is not so much needed as it is in the warm months of the year, when you do not set the eggs your hens lay. Through the months of March, April and May, therefore, we suggest that the use of kerosene be dispensed with among the laying and breeding fowls.—*Poultry World, Hartford.*

Poultry-Keeping by Boys.

It is one of the most promising indications of character when a boy shows a disposition to earn something. This desire to hold something in fee simple is the very opposite of *trampism*. Among boys, the enjoyment of owning, buying and selling, is very keen, and is often gratified in the getting of knives, old watches and trinkets, and making exchanges with each other. Who does not remember the wonderful dicker and trade of his boyhood? It was only the beginning of a development, or, rather, a self-education. This matter should not be permitted to go without some guidance. Parents and guardians should take an interest in it, not exercising a meddling interference, but inspiring confidence, so as to be able to co-operate, plan and watch the results.

Now comes a scheme that is just right. How can we teach a boy business habits better than by giving him an opportunity to "run" a hennery? The accounts must be accurately kept; there must be buying and selling; there must be bantering; there ought to be *profit!* A miniature *business* springs up; and, inasmuch as it is *real*, why is it not as good as a business college? It may be better; for it may prevent spending time in the streets, or away from home, perhaps among questionable companions. A love of home is fostered by the ownership of flowers, small fruits and poultry. A fondness for the finest things produced in our climate—to cultivate them, if belonging to the vegetable kingdom; to breed, foster and *pet* them, if belonging to the animal—is not only a source of keen enjoyment, but indicates good traits and a certain elevation of character above that which is brutish. Young people should be deftly guided, step by step, through pleasant paths, with here and there a little job of *earnest work*, made easy by social frolic and recreation, which come after in their proper place. With a little encouragement, boys may become quite familiar with the points of excellence in high-class poultry, pigeons and other pets, and learn the best methods of breeding and management.

They may learn when and where to purchase supplies to the best advantage, and how to sell the surplus products so as to give the most profit with the least expense. A pleasant self-reliance and good business habits may be growing, and, at the same time, a love for nature, for refinement and humanity.—*The Poultry World.*

"Plymouth Rock" Fowls.

This fine breed of domestic poultry, which has been steadily growing in favor among farmers and small poulterers, for a few years past, has now come to be a general favorite with fanciers and breeders in all directions, if we can form an opinion from the numerous letters we are constantly receiving, regarding the intrinsic merits of this popular modern variety.

They have proved very hardy, easy to keep, are excellent layers, they do not incline to trouble the keeper with the inclination to sit so persistently as do the Asiatics, they are ample in size (when selected from the best strains) and altogether they have turned out a valuable accession to the list of American standard breeds.

A singular fact has been demonstrated in the instance of the "Plymouth Rocks." It is known that this fowl is a cross of the Black Asiatic (or Java) with the Dominique variety. For several years after their original production, the *color* of these birds, both male and female, was uncertain and irregular. By a judicious method in mating and selecting, in the hands of the most careful manipulators of this stock, the last year's birds were on the average much better in uniformity of size, and much more even in general color and marking of plumage, than hitherto.

This year's fowls, maturing this spring, are an

improvement in these respects upon all former hatchings within our knowledge; and we now know several yards of these birds, where both cocks and hens are really very fine, in 1877. The Plymouth Rocks of the present day promise to equal the best varieties for all the desirable practical qualities sought after in a first-class variety—either for fancy breeding or for marketing.—*Stoddard's "Poultry World."*

Gapes and Chickens.

The more the naughty children of Mother Earth try to put themselves in accord with her beneficent laws, the more pure, clear, few and simple they will become, instead of being the complex, multifarious and often contradictory beings they seem to be. For instance, the simple little disease called gapes in chickens is a strong case in point. Treated in the light of natural laws (common sense), it yields readily to the proper remedy—the same remedy for the same disease that is indicated in the human being; for we are all essentially the same flesh and blood, from the tadpole to the President, and what is good for one is good for the other. Now, what do we use salt for in almost everything we eat? It not only furnishes no nutriment, pleasure, or anything else, but is absolutely a poison; and that is the reason we take it, to prevent undue germination of worms within us. The old-time Hollanders used to punish their criminals by giving them unsalted food, and they were thus soon literally devoured by the worms engendered in their own stomachs. Now what causes gapes in chickens? Worms. What is given animals to prevent this? Salt. But all the books, etc., say salt will kill chickens. So it would you, if you took too much, as they often do through the habit of bolting their food without mastication and tasting. In brief, and in fact when the weather is damp and cool, always put about as much salt in the chicks' feed as you would in your own bread, and I will answer for the life of every one. I never lost a chick by gapes in my life, and have raised thousands.

Raising Geese.

When a farmer has a tract of low, marshy land near his house, where there is a running stream of water, he might raise geese profitably by confining them to this tract during the day in summer, and yarding them at night. When allowed to run on good grass land their manure is so strong that it kills the grass where dropped; and for this reason many farmers have given up raising them. But they are certainly profitable, as they are subject to no disease, always salable (dressed) at a fair price, and their feathers will pay the expenses of keeping them. With an extensive marshy range more money could be made by raising geese than on any other kind of domestic poultry.

The First Food for Chickens.

Just before the chick breaks from its narrow cell, the last of the yolk is taken into the stomach, which gives it the strength to make its own grand effort for freedom. This food will certainly last twelve, if not twenty-four hours after it is free. During that time no other food is needed; only rest is required for the little stranger, after its exhausting labor.—*Poultry World, May.*

LITERARY AND PERSONAL.

The Semi-Tropical.—The June number of this excellent magazine is unusually interesting. Ex-Governor Gleason contributes a valuable paper on the importance of "Southern Inland Navigation" between the Mississippi Valley and the Atlantic seaboard. C. Drew, State Comptroller of Florida, has a carefully written and scholarly article entitled, "Making the Most of a Topic," in which he traces the similarity between the sites of Tallahassee and ancient Jerusalem. "The People and Language of the Timucua," by A. S. Gatschet, is an interesting historical and philological paper. William P. Browne presents interesting facts relative to sugar-cane and oranges, the two great staple crops of the Indian River section of Florida. Dr. D. H. Jacques has an interesting article on "Naming the Baby." A valuable abstract of the report of the committee of the Florida Fruit-Growers' Association on the "Nomenclature of the Orange" is given. "The Triumphs of Peace," referring to the political condition of the South, and "Is Florida the Poor Man's Home?" by the editor, will be read with interest. Dr. D. H. Jacques continues his series of articles on "Gardening all the Year Round," which are regarded as invaluable by the Southern planter and gardener. There are several other interesting articles. The "Editorial Department" contains much instructive original and selected matter on fruit culture, gardening, stock growing, floriculture, poultry raising, household affairs, etc. Under the head of "Note, Query and Incident" the editor will hereafter answer a part of the many inquiries received concerning the State, its advantages, etc. All interested in Florida should send 30 cents to the publisher, Chas. W. Blew, Jacksonville, for a copy. Three dollars per annum.

A Song worth its weight in Gold.—"*Bless the Badge of Heaven's Blue.*" The above is the title of a new and beautiful song and chorus that is worth its weight in gold. It is composed by "Charlie Baker," America's famous song writer. Nothing ever written contains such fine sentiments and beautiful melody. It is really the advance guard of all temperance songs, and is fully endorsed by all leaders of the "Murphy movement." We ask, therefore, that every professing Christian, whose eye may chance to fall on this article, to consider the subject prayerfully, and see if our assertions be not true. Then we urge them in the name of that Master whom they serve, to prepare for the contest. The work of saving the fallen must not cease while there is one to save, and we know of no better way than the introduction of the above beautiful song into every family circle in the world. A copy should be seen in full view on every piano and organ in the land. Each copy of the song contains a beautiful cabinet-sized photograph of Francis Murphy, originator of the present prevailing Murphy movement.

Any music dealer in this country will mail you a copy on receipt of fifty cents. Published by F. W. Helmick, 50 West Fourth Street, Cincinnati, Ohio.

Bismarck.—His authentic biography, including many of his private letters and personal memoranda. Giving curious researches into his ancestry; lively incidents of his youth and student life; and a full account of his social surroundings, and the growth of his official and public career. Translated from the German of George Hesekiel. With an introductory by Bayard Taylor. Profusely illustrated by actual sketches from Bismarck's life—Home, Student, Political and Battle Scenes, Portraits, Landscapes, Ornamental Vignettes, &c., by distinguished German artists. 596 pages, Royal 8 vo. J. B. Ford & Co., New York. "*Mitt Gott fur Konig und Vaterland.*" As interesting as the most highly wrought romance, and vastly more instructive. We are not astonished at the greatness of Bismarck, he had an illustrious line of ancestors, and what is better still, *a great mother*, in addition to circumstances, and personal merits.

Injurious Insects of Michigan, by A. J. Cook, of the Michigan State Agricultural College. From report of the State Board of Agriculture for 1871. This is a royal 8vo. pamphlet of 43 pages, and from beginning to end we recognize, in its illustrations at least, the foot-prints of Prof. Riley, and it is therefore, probably, more of a compilation adapted to a local district than an original work. Indeed, nearly all that is published on practical entomology over the whole country, bears the impress of Riley's brain and handwork. This, however, does not detract from its usefulness. If the same matters, adapted to the different localities, were published in all the States of the Union, it would be all the better, as it would facilitate that diffusion which is so essential in getting these works before the people. But what of the people? Do they read and heed as they ought, proportioned to the interests involved? We fear not. Real diffusion cannot be without appropriation.

Kunkel's Bitter Wine of Iron.—Many are the medicinal remedies that find their way, by imposing advertisements, into the columns of the newspapers and magazines of the country, of which it might be admissible to characterize as "good, bad and indifferent," but we believe that time, circumstances and experience will demonstrate, without a peradventure, that *E. F. Kunkel's Bitter Wine of Iron*, advertised in the columns of this journal, will be entitled to a position among the first named qualities. There is hardly a respectable druggist in the country who does not sell it, and hardly a respectable periodical that does not advertise it; and these facts, together with the rationale of its composition, and the increasing demand for it as a reliable tonic, cannot be interpreted otherwise than favorable to the "virtues and values" of this popular medicine. Our readers will only consult their own interest by referring to the advertisement and acting on its suggestions.

Ninth annual report of the Noxious, Beneficial and other Insects of the State of Missouri. Made to the *State* Board of Agriculture, "*pursuant to an appropriation for this purpose, from the Legislature of the State*;" by Charles V. Riley, State Entomologist. For the year 1876. A royal octavo, in paper covers; 129 pages, and a copious index; accurately illustrated, and in fair print, on white calendered paper. Its practical character may be judged from the subjects it discusses, among which we may instance: The Gooseberry Span-Worm, the imported Currant Worm, the native Currant Worm, the Strawberry Worm, Abbot's White Pine Worm, Le Conte's Pine Worm, the Colorado Potato-beetle, the Army Worm, the White-Head Army Worm, the Rocky Mountain Locust and others. Like all of Prof. Riley's former reports, it exhibits thorough labor, patient and persevering research and skillful illustration, in a vast field of usefulness.

Great Fortunes in Gold and Silver are reported daily from the Black Hills and San Juan Mines. Thousands are flocking thither from all parts of the country. The rush for California, in 1849, and Pike's Peak in 1858, was nothing compared with this new begira. But all who are bound to go, or who think of going to the Black Hills Gold Mines, or the San Juan Silver Land, should *get all the facts* they can before they start—such as the location of the mines; actual yield to this time; the best routes; cost of getting there; cost of living; business openings; population of the towns and camps; character of the country, &c., &c. The *Colorado State Directory* for 1877—250 pages—contains all that the capitalist or emigrant wants to know about the Colorado, San Juan and Black Hills Mines. This directory, together with a supplement and a *Map of the San Juan* country and the *Black Hills*, will be sent post-paid for one dollar. Address J. A. Blake, publisher, Denver, Colorado.

Pennsylvania School Journal.—The June number of this excellent educational magazine completes its *twenty-sixth volume*, and is annually rich in the amount and quality of its school literature. We can only estimate the vast amount of matter it contains during the year, on subjects relating to the interests of our public schools, by a careful examination of the index accompanying this number. It is saying just the least that can or ought to be said in this connection, that every school director in the State, every school teacher in the State, whether male or female, and every board of school directors in the State, ought to take one or more copies of this journal, and ought to thoroughly read and study it; and we don't see how there can be an intelligent discharge of their school duties without doing so. J. P. Wickersham & Co., Lancaster, Pa. $1.60 a year.

Instructions in Strawberry Culture, by E. W. Durand, of Irvington, Essex county, New Jersey. A concise and remarkably well arranged 12mo. pamphlet of 63 pages, including a copious index, in which the amateur strawberry cultivator may find all that is necessary to know from theory alone. As Mr. Durand is a cultivator of large experience, and gives only the results of that experience, this little volume will at all times be a reliable hand-book on this subject, even if it should be demonstrated that in some cases a modification should be deemed advisable in adapting it to special localities. Mr. Durand's "invitation to all interested in strawberry culture" to visit his farm when the fruit is in season, will be found in another column of this paper, and we regret that it came to hand after our last number had already gone to press.

A Descriptive Catalogue of Homœopathic Works on Domestic and Veterinary Practice, together with the prices of Homœpathic medicines, either by single vials or complete sets. From Boericke and Tafel, Homœpathic Pharmaceutists and Publishers, New York, Philadelphia, Baltimore and San Francisco. This is a royal 12 mo. pamphlet of 43 pages, and contains within its covers not only lists of books, medicines, sanitives, &c., together with their prices, but also plain rules on diet for the sick, and receipts for invalids, and many other domestic matters relating to bodily health and personal miscellany. Our Homœopathic readers can rely on our endorsement of the above firm, as to perfect reliability in all that relates to their vocation.

Butter and Butter Making, with the best methods for producing and marketing it, by Willis P. Hazard, President of the Chadd's Ford Farmer's Club, author of "The Jersey, Alderney and Guernsey Cow," &c., Philadelphia, Porter & Coates, No. 822 Chestnut street. A handsome 12 mo. of 48 pages in paper covers, and illustrated with four figures of the best "Butter Cows," namely, imported Jersey "Duchess;" "Tilearia" of Centennial Premium Herd; "Improved Niobe," and "Milkmaid." This little volume discusses the chemistry of butter, feeding, coloring, washing, milking, skimming, working and many other necessary things to secure good butter.

The Young Folks' Monthly.—Young people read the June number of the *Young Folks' Monthly*, which is brimful of good things for entertainment and instruction. Should be read by every young person in the east, west, north and south. Price only $1.00 a year. Send 10 cents for sample copy. Address the Young Folks' Monthly, No. 151 Fifth avenue, Chicago, Ill.

What has "Gang A'gley?"—We have not received a copy of the *National Live Stock Journal* at this office since January last. This seems to us somewhat extraordinary, especially as we have cheerfully complied with all conditions of exchange. We hope it is still *alive*. Will our hope be realized in the future?

We call the attention of our readers to the card of W. C. Chaffee, in our advertising columns, as a matter of the greatest importance to those who desire to obtain or to attain perfection in the art of phonography, a qualification that is increasingly in demand in this country.

Proceedings of the Fifth Annual Sessions of the National Agricultural Congress, at Philadelphia, Pa., September 12th, 13th and 14th, 1876. Chicago. *Prairie Farmer Co.*, Printers.

Tobacco in Virginia and North Carolina. Presented by the Southern Fertilizing Company, Richmond, Va., 1877. 8 vo.

Monthly Reports of the Kansas State Board of Agriculture for February and March, 1877. 8 vo.

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Prof. S. S. RATHVON, Editor. LANCASTER, JULY 15, 1877. LINNÆUS RATHVON, Publisher.

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The Lancaster Farmer;

A MONTHLY NEWSPAPER,

DEVOTED TO AGRICULTURE, HORTICULTURE, DOMESTIC ECONOMY AND MISCELLANY.

PRACTICAL ENTOMOLOGY

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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., JULY, 1877. Vol. IX. No. 7.

A BETTER CIVILIZATION.

If American agriculture has an unsatisfied need, it is surely the need for more intelligence and more enterprising interest on the part of its working men and women. From one end of the land to the other, its crying defect—recognized by all—is that its best blood—or, in other words, its best brains and its best energy—is leaving it to seek other fields of labor. The influences which lead these best of the farmers' sons to other occupations is not so much the desire to make more money, or to find a less laborious occupation, as it is the desire to lead a more satisfactory life—a life where that part of us which has been developed by better education and better civilization for which, in this century, we have worked so hard and so well, may find responsive companionship and encouraging intercourse with others.

We have noticed the foregoing paragraph in a number of papers without comment, and we infer from this that it received the unqualified endorsement of all those who have published it. We do not intend to either assent or dissent, without qualification; but when the writer asserts that young men of education leave the farm for the purpose of enjoying a "better civilization" than that which the farm affords, and to find a more "responsive companionship and encouraging intercourse with others," we are not sure that such a motive is always a proper one. Something depends upon what is *in* the man that he desires others should respond to, or what is in others to which he desires to respond. Similarities unite, whilst dissimilarities disunite; and, intelligent young men leaving the farm with warped or perverted social affections, will be drawn towards those in the towns whose affections are simiarly dwarted and perverted, and therefore, "the better civilization," although it may be externally more refined and showy, may be internally a hollow cheat. There is something more than a cultivated brain necessary to enable a young man to form the proper social affiliations.

If heart culture does not go hand-in-hand with brain culture, there is no *moral* safety, at least for a young man, either in the town or on the farm. Thousands upon thousands from the country and the farm are going every year down to the moral Jericho of the city and the town, falling into the hands of "thieves and robbers," and are left wounded and bleeding by the wayside; and are passed "on the other side" by social priests and Levites, and find no good Samaritan to bind up and pour oil into their wounds, and set them on their way again. Not that *all* in the cities and towns are literally thieves and robbers, but that guided by a false inward monitor, these young men may have naturally sought such associations as the most congenial to their own inclinations. There never was a man yet who fell into temptation, that had not something within him that was in harmony with the tempter. Those who could have morally and socially benefitted him, would have appeared to him as prosey and as void of sensationalism as those he left on the farm, and therefore, there would have been no ground of affiliation between them. Witness the stercorarious insect, whose natural element is stench and filth. See him expand his wings and fly abroad in pursuit of new pleasures. He describes his circle of flight and passes over perfumed and honey-ladened flowers—turns his face away from beauties and from fragrant odors that have attracted other insects, and finally folds his wings and lights upon a concealed mass of excrementitious filth, and fairly revels therein; because it is in harmony with his habitual instincts, and he seems powerless to deny their control.

Man is a *microcosm*—a little world, as it were; and in his moral and physical constitution, reflects some phase, or many phases, of the great *macrocosm* of nature which is outside of and separate from himself; and his character, when entirely free from social, conventional and legal restraint, will be a correspondential reflex of that which he has freely received, that which is the basis of his internal affections and desires. By habitual perseverence in any direction, which is impelled by his ruling affections, he will at length become as unalterably confirmed in his habits as an animal is confirmed in its instincts, with the single reservation that he *can* be otherwise if he *will*, but that of his own power alone he *never will*. Now, if he permits himself to become morally a wolf, how can he possibly be in free and congenial association with those that are lambs? It is true, that for the sake of social position, worldly fame, or pecuniary compensation, he may assume the garb of the lamb, but so far as relates to the constitution of his soul, he will still be "a wolf in sheeps clothing," and when it conflicts with no other interest, he will be in association with wolves. Every human attribute—every human aspiration or desire—every good or evil affection of the human heart, in their multitudinous phases, has its correspondential outbirth in some object of the world of nature, and, however externally restrained, will, internally, be in sympathy with them; and man's civilization, for better or for worse, will seek social cohabitation with these, as naturally as one animal will seek its likes in fetid filth, and another in purity or in fragrant sweets.

Daniel Webster has given utterance to the apothegm, that "The farmer is the founder of civilization," and if there is any truth in the saying, it seems to us that those who imagine there is a "better civilization" than that which the farm is capable of developing, must be in pursuit of a most deceptive phantom. Farmers are, perhaps, not laboring too assiduously and too self-denyingly for the possessions that pertain to this world; but they may be just as liable as any other people to labor too little for those possessions which they can carry over into the other life, and constitute their capital in beginning the long lease of eternity. And to possess those elements of character *there*, the foundation must be laid *here*. The possession of worldly wealth must be regarded as an instrument of *use*—as a *means* of attaining a better civilization, rather than as the *end* for which human energy is exercised. For this purpose, the highest physical and mental culture that their lands, their bodies, and their intellects are capable of attaining, will assure a more certain progress towards a better civilization than placing themselves in rapport with the contaminating influences of the *sharp* idlers of the towns. Nothing can possibly be morally, socially and physically, more damaging to a young man of habitually industrious habits in the country, than to be doomed to a life of idleness in a city or a town; moreover, idleness is that satanic workshop, in which many of the festering evils which afflict society are conceived, developed and executed. Social intercourse, when it is refined and pure, is a great auxillary to a "better civilization;" but when it is low, mean, and corrupt, nothing tends to demoralization greater than it.

Our intentions are the very farthest from dictation; but, if farmers were to solicit our advice, we should say, so long as it depended upon their own will and ability, that they should remain on their farms. And we say this, not that the town *per se*, or town society, is necessarily demoralizing; but that often, from a sense of inferiority, induced by a want of confidence in themselves, a lack of experience, and the absence of intellectual culture, the farmers defer too much to the conduct and the opinions of those who are almost infinitely inferior to themselves. And when they finally get their eyes opened, they then only begin to see the hollowness and selfishness of that "better civilization" which they had so ardently coveted. We are just as far from intending to cast unqualified reproach upon cities and towns, for there is perhaps as pure and lofty virtues cultivated and practiced in them as in any part of the world. For the development of the mechanical and commercial interests of the country, there perhaps always will be, and always must be, hamlets, villages and towns. But primarily there must be farms and farmers, or society and civilization could not exist; therefore, agriculture and the agricultural interests of a country are paramount to all other interests, and are the founders and sustainers of them; and instead of being made a mere football to be kicked about by the sharpers and shysters of society, they ought to give to society its quality and its tone—through their influence and example, the "better civilization" of the world ought to be engendered and developed.

Improve and beautify the farm, so far as the means are available and allowable. Establish schools, lyceums, museums, and social as well as religious institutions. Do not devote all your time and energies to physical labor and the mere acquisition of material wealth. There is an immortal mind that needs to be provided for, a noble intellect that needs careful culture; and, as these become healthily developed, the necessities for mere physical energy will grow less, because the intelligent pursuit of any occupation facilitates its progress, by enabling the subject to adopt the best and shortest methods. Without ignoring scholastic training and social effort, try also the advantages of being "self-taught, self-raised, and self-supported." Provide for yourselves and and your families healthy literature in the form of useful books, newspapers and periodicals, and thoroughly study them. Devote the tranquil hours, which, through an intelligent and economical adaptation of means to ends, may be upon your hands, to reading, and you will read with much more profit and satisfaction than the denizen of the town, whose reading may be merely a monotonous occupation which he feels himself compelled to resort to, in order to "kill time," and to bridge over his long and anxious waitings for the ingress of "the next customer." This course would be a shorter and more certain road towards a "better civilization," than those fanciful and precarious occupations—either commercial, mechanical or professional—which are separate and distinct from the tilling of the soil—the employments of the farm.

LATE POTATO PLANTING.

About the 20th of June we received from Mr. H. M. Engle several small lots of potatoes of his late crops of last year's planting. These were of the Peerless, Early Rose, Snow-flake, and Brownal's Beauty varieties, and were far superior to any of the old potatoes then in market, and even preferable to the new crops which were then just coming in. They were as solid and as mild and mealy as we usually find potatoes in January and February. If this retention of original quality was due to late planting, then, so far as our individual judgment, and the judgment of our family go, we would by all means recommend late planting for the stock that is intended to be carried through the winter and into the following spring and summer. Of course, for immediate use during the early and late summer, an early crop is also desirable, and especially is this desirable when the former crop is "short"—as was the case last spring—but from this test we are decidedly favorable to a late crop (other things being equal) *for potatoes to keep.*

TREES KILLED BY SALT.

"The fine maple trees in front of Alderman Amweg's residence, South Duke, have been in a languishing condition all spring, and so have the maples a short distance below them. The large tree in front of Mrs. Hawthorne's residence appears to be in a dying condition. Alderman Amweg has had his cut down, and in exposing portions of the roots to the sun, there is a mineral substance very much like salt crystalized on the surface. Mr. Amweg believes that his trees have been killed by the salt water thrown into the gutter from a neighboring ice cream saloon. What say the scientists about it?"

In reference to the maple trees alluded to in the above paragraph from a late number of the *Daily Intelligencer*, we would say that we visited them on several occasions before their "downfall," and even from very early in the season they exhibited evidences of an infection of some kind; and at the same time we felt pretty certain that whatever the original cause of their enfeebled condition may have been, it was not due to the presence of insects, so far as concerned that portion of the tree above ground. They appeared to be internally or constitutionally affected by some unfriendly element absorbed from the soil, or the absence or neutralization of some element necessary to their healthy growth, that was very local in its operation, for other trees of the same species in near proximity to them were as thriving as usual. It cannot always be even conjectured what the real causes of such phenomena are; because it would involve a thorough and careful analysis of the soil, an operation that could only be satisfactorily performed by a chemical expert, even if a laboratory and implements were accessible.

But when no such laboratory exists, except in a few of the most simple and obvious cases, all must be left, more or less, to mere conjecture. Such a laboratory, with a competent person to manipulate it, ought to be the object of every County Agricultural organization in the State. The condition of Agriculture, embracing Horticulture, Floriculture and Sylviculture, is becoming such in our country, through the increase of its population and the draughts made upon the land—and hence its depletion—that farming, fruit growing and forestry will have to be pursued more scientifically than it has been in times past and gone, when the soil was virgin and the population sparse. *Salt* is a very essential ingredient to the soil, if applied "when and where" it is needed, and in the requisite quantity. Like every other ingredient, however, wherever it happens to exist in excess, it is essentially hurtful; and, from external appearances, the damage to Alderman Amweg's trees, is the effect of *too much salt*, without much doubt, and this is rendered doubly probable, from the fact of its being the discharge of an ice cream freezer, as it is likely to have been continued in its application, and hence the trees, with all their previous vigor of growth, were eventually compelled to succumb—illustrating that a given quantity may be "meat" to a tree or plant, but in excess of that it is "poison." On one occasion we emptied the contents of a pork barrel, containing strong brine, and perhaps a quart or two of salt at the bottom, on a small grass plot; soon after which a snow fell upon it, and after the snow had melted away in the spring, the salt had disappeared. The following summer no grass came up where the brine and salt had been emptied, and for one or two years thereafter the spot was conspicuously visible by the absence or feeble growth of the grass, but it subsequently recovered and grew as vigorously, if not moreso, than it had grown before. This effect is also evinced on spots where the carcasses of dead animals are decomposed, and is caused by an excess of elements that in proper quantities would be beneficial to the soil. In some localities the soil is recuperated by fish-manure, but if the fishes were all permitted to decompose on one spot, the vegetation on that spot would be, for a time, entirely destroyed. These effects of excess, have, without a doubt, been often witnessed, and we have only alluded to them here, because they all seem to belong to the same category of causes, and illustrate the essentiality of some analytical and chemical knowledge in manipulating the soil, in the successful culture of trees, shrubs and plants, and how little ought to be left to the mere operations of chance.

THE ELM TREE BEETLE.

This insect is present again this season on some of the elm trees in Lancaster city, in increased numbers, and the *larvæ* have been coming down from the trees for the past week, and are pupating in the fissures of the bark and in the crevices between the paving bricks about the bases of the trees.

Those who value the foliage of their trees should busy themselves in sweeping them down with a stiff, long-handled brush, and also sweeping up those on the ground, and crushing them or scalding them; otherwise there will be a second brood more numerous and destructive than the first. The present brood has been propagated by the comparatively few that have hibernated and survived the winter, and as they had already commenced pupating about the middle of the present month, there is little doubt we shall have another brood about the latter part of July.

This is a foreign insect, and was introduced into this country about thirty-five years ago; and on one occasion, in the city of Baltimore, the authorities ordered the cutting down of all the elm trees in the city in order to circumvent it.

An application of a strong solution of whale oil soap, or common lye, may also prove useful, for although there may be little hope of destroying all of them, yet the number may be so far diminished as to greatly lesson their power for evil. Insects of all kinds might be kept in check or entirely destroyed if people would use the same energy, perseverance and forethought that they do in the acquisition of dollars and cents.

This is the *Galerucha xanthomelæna*, and belongs to the same family as the "striped cucumber beetle," but differs from that species in that it feeds on the leaves of the elm, both in its *larvæ* and in its adult states, and also that it is larger in size, and becomes more numerous than the latter has ever been known to be. In that respect it approaches the habits of the "Colorado potato beetle," to which it is somewhat allied by systematic classification. It would be a poor commentary on the vigilance and industry of property owners, if these insects were permitted to increase to such an extent as to defoliate all our beautiful elm trees in Lancaster city.

Since writing the foregoing, which was published in the NEW ERA, near the end of June, we have frequently visited the elm trees in the city of Lancaster, which we found in many places still very seriously infested, and especially the trees along East Orange street, opposite the burying ground of St. James' Episcopal church. The yellow *pupæ* were lying by thousands on the pavement about the bases of the trees, on the 5th and 6th of July, and could easily have been killed, but it seems to be "nobody's business." In Kansas they have a law, making it compulsory upon "all able-bodied males, between the ages of 12 and 60 years," in districts that are infested with the "hateful grasshopper," to destroy the eggs, the young, and the adult of that pest, and such a law might not be amiss here, if people will not be "a law unto themselves."

REMINDER FOR JULY.

This is not only a great transplanting month, but also one in which some planting and sowing may be done. Cabbages, cardoons, celery, endive, leeks, peppers, &c., for autumn crops, may be planted up to the 20th of the month. Bush-beans, pole-beans and cucumbers, for pickling, may be planted. Endive, kohl-rabi, summer radishes, and ruta-baga may be sown, and after the 20th also turnips. If late potatoes have been neglected, they may be planted up to the 15th. There seems to be some virtue in late potatoes, and therefore gardeners ought to experiment, in order to discover exactly how late a crop of any kind may be planted, transplanted or sown. The idea that only one crop of any kind can be raised in a season, in this latitude, is becoming obsolete. We have been surprised to find in the New York markets, late in October, garden vegetation that we are accustomed to see here only in the months of June and July. Why can we not have green peas, beans, &c., all through the months of July, August and September, in a market so large as that of Lancaster city? Green corn is not an uncommon thing in the New York, Philadelphia and Baltimore markets, in October. Sweet herbs should be cut, dried, and stored away, during this month. There are many other things which practical experience may suggest that ought to be done in this month, and some of them may be safely done after midsummer.

UNITED STATES COMMISSIONER OF AGRICULTURE.

General Wm. Le Duc, of Minnesota, has been appointed to this unfortunate position. He is a graduate of Kenyon College, Ohio, and served in various official capacities during the wars of the rebellion, in the Federal army. He is said to be a man of "great scientific attainments," but with all that, the position is an unfortunate one, in that almost every incumbent is damaged, more or less, in reputation before he leaves it, mainly, perhaps, from the fact that it is morally impossible to please everybody.

Of course, General Le Duc will be approvingly spoken of by some; some, perhaps, will "damn him with faint praise;" some will speak of him disapprovingly; some will be indifferent, or "possess their souls in patience," and be content to wait before they express an opinion at all. This, no doubt, will be accordingly as they speak from knowledge, from ignorance, from envy, or from indifference. In any event, the office has been so kicked about by the Agricultural press of the country, and by members of Congress, that it has become an unfortunate one. And yet we cannot see clearly why this should be so. The Agricultural interests of the country needs such a Bureau, and needs much more encouragement than has ever yet been vouchsafed to it by the government or the people.

MEETING OF THE AMERICAN POMOLOGICAL SOCIETY.

The 15th annual session of this great National Institution, commencing on the 15th day of September, 1877, will be held in the city of Baltimore, Md. A large, interesting and useful assemblage of the fruit growers of the entire country is expected; for, in addition to its own membership, it invites delegates from all the horticultural and fruit growing societies in the United States and the British Provinces, to be present and participate in the proceedings. In conjunction with this session, the annual exhibition of the "Maryland Horticultural Society" will be held; and, on the whole, a "high old pomological time" will be afforded. Will our local society appoint a delegation?

EXPLANATION.

Some matter intended for our June number only came to hand after our *form* was "locked up" and on the press, and therefore too late for insertion therein. If we have not said it before, on several occasions, we would respectfully beg leave to say it now, namely: that all matter intended for THE FARMER, whether essays, contributions, correspondence, communications or advertisements, should be in our hands not later than the 5th of the month, and it would be still more acceptable if we could have them by the 1st of the month. Our delays heretofore in the issue of our journal, have been mainly caused by the late arrival of current matter. We hope all interested will bear this in mind, as it is a matter of as much importance to them as it is to us.

We are always willing to adapt ourselves as much as possible to the convenience of our friends and patrons, but our ability to do this has its limit, beyond which we cannot go without a serious frustration of all our previous arrangements on the subject.

MAKING WINE FROM NATIVE GRAPES

The following recipe for making domestic wine from Catawba or Isabella grapes is commended by a gentleman who has tried it successfully. Its directions have the merits rare in recipes of being full and precise:

1st. Select perfectly ripe bunches, and carefully pick off the stems and remove all grapes which are not quite ripe.

2d. Squeeze the juice out, either by hand or press, strain through a hair sieve, and pour it at once into a clean, sweet barrel or keg, adding to the vessel two gallons of water for every gallon of juice made.

3d. At the same time put in four pounds of sifted sugar per gallon of juice.

4th. In adding the two gallons of water stated in section 2, let it strain through the pulp, skins, &c., of the residuum of the grapes often being squeezed.

5th. Fill the vessel full, up to the bung-hole, which cover with a sand bag, to allow the fermentation to escape.

6th. Watch the barrel daily, and clear or scrape away the scum, which will be thrown out in large quantities.

7th. As the wine falls below the bung, fill up daily (after clearing away the scum) with sugar water, made with two pounds of sugar to the gallon of water.

8th. The fermentation will continue from three to six weeks, according to the weather. When it had ceased, I poured into the bung-hole about one gill of brandy to the gallon of juice, to flow over the surface and prevent its souring; but the brandy may not be indispensable. Then bung the vessel up tight.

9th. During the cold weather, say in the following February, when the wine is perfectly still and clear, draw it off into any other clean vessel, then quickly clean, scald and rinse thoroughly the barrel in which the wine was made, and return the wine to it, and draw it off as required for use.

10th. If you wish to make a very palatable champagne, have the champagne bottles ready when you rack off the wine as stated in section 9, put a tablespoonful of common syrup in each quart bottle; then fill with the wine, leaving about $1\frac{1}{2}$ inches clear below the bottom of the cork, which fasten very securely with strong twine, as the pressure of the fixed air to escape is very great.

11th. The wine will improve by age, after the operation described in section 9.

12th. An old brandy or whisky barrel is the best (see section 2). Never use a new barrel, as the wine will taste of the wood.

13th. About fifteen pounds of grapes will give one gallon of juice. The riper the grapes the better the yield of juice. One gallon of grapes in bunches weighs about four and a-half pounds.

14th. Keep the wine in the cellar, where it will not be exposed to extremes of temperature.

15th. An approximate estimate of the quantities required for a thirty gallon barrel will be as follows:

To make thirty gallons of wine: 150 pounds grapes, yielding ten gallons of juice; twenty gallons of water strained through the pulp residue (see section 4); forty pounds of sifted sugar; $2\frac{1}{2}$ pints of common brandy (see section 8).

If carefully made, the wine will be wholesome and palatable, with a flavor like grape juice Madeira. It was preferred to all others at the Washington hospitals during the war of 1861-1865, and was reported to have been the means of saving the lives of some of the soldiers.

The foregoing process comes so near our own, in making wine—a process which we have been using these many years, that we do not hesitate to commend it to the notice of our wine making readers, especially as the season is now rapidly advancing, when their attention will be turned in that direction. It is hardly necessary to add that this process, with some modification, may also be followed in making wine out of blackberries, currants, raspberries, strawberries, or any other kind of fruit; but *good* fruit, properly cleaned and fully ripe, as well as *good* sugar and *good* attention to details, until the end is accomplished, are the primary essentials in making good wine.

THE SEVENTEEN YEAR LOCUSTS.

Prof. Leidy has examined the so-called "seventeen year locusts" which have made their appearance near Easton, Pa., and confirms the statement that the cicada is incapable of damaging the cereal crops, and he thinks that the admitted injury to the wheat in that vicinity must be ascribed to other insects, and especially to the Hessian fly. The female cicada does not sing. Much information is already presented to the public in the bulletins of the United States Entomological Commission, concerning the Rocky Mountain locust, *caloptenus spretus*. The Commissioners are Professors C. V. Riley, A. S. Packard, Jr., and Cyrus Thomas. Careful descriptions of the circumstances and mode of life of the young locust are given. Before obtaining wings and when most ravenous, while traveling in swarms, it is calculated that the insects cannot make a progress of more than thirty miles from their hatching place, in a season. When food fails they become cannibals. After acquiring wings they lose appetite to a considerable extent and cease to be very destructive; they are then also the prey of many parasites. The Commissioners recommend several methods of destroying the insects, for different stages of their growth. Before the eggs hatch they should be plowed under, and the ground thoroughly compressed by harrowing and rolling. After hatching, the young locusts can be driven in numbers almost as readily as sheep; windrows or piles of burning hay or straw should then be prepared, and the locusts can be driven into them. An effectual method at this stage is to drive them into a ditch two feet wide and two feet deep, with perpendicular sides, out of which it appears that they can not readily jump. If the width of the ditch is increased, the depth should be also, and the steepness of the sides is essential; but if water can be let into the ditches they need not be so deep. Where the winds are high the insects are more apt to escape from the ditch, especially if it be shallow. A large open-mouthed bag, driven by horses over a field, does good service, especially if the end of the bag or net be made of wire gauze instead of cloth. When the horses are hitched at the sides of the bag or net, 12 to 16 feet apart, they help to drive the locusts inward toward the net. Other effective contrivances are sleds, sometimes made of oil-cloth, zinc sheets, or iron smeared with coal tar; sometimes carrying an open furnace, made of wire and filled with burning pine; the latter plan requires a hot fire, and a sheet to cover the grate and keep the heat within; the scorching that the grain beneath gets only makes it a few days later. Smooth-barked trees can be protected by liberal white-washing; if the bark is rough or the trunk is short, a strip of bright tin, three or four inches wide, tacked around, serves the purpose if the spaces between the bark and the tin are blocked with earth, and the bark below the tin is smeared with grease, tar or kerosene. Of course the tin must be put on high enough, so that the 'hoppers can not jump over it from the ground. Cotton batting, stiff paper, and glazed paper answer the purpose of tin to an inferior extent. Missouri and Minnesota have passed laws offering rewards for the specific destruction of the insects and their eggs, and Kansas makes the work of destruction compulsory upon "all able-bodied males between the ages of 12 and 60 years," in the districts attacked. The various prices paid by the States are, for eggs, $5 per bushel and 50 cents per gallon; for grasshoppers, from $1 down to 20 cents per bushel, the highest prices being paid early in the season.—*Philadelphia Ledger*.

It is really wonderful to see how very slow the masses of the people are in acquiring even a tolerable knowledge of the habits of the "seventeen year locust," or they would not suspect it, at this late day, of destroying or even injuring the wheat. They certainly would not deposit their eggs in wheat stems, for that would defeat their procreative object; and as to drinking anything (they cannot eat) it is questionable whether they ever do "anything of the kind," in their mature states. Very little has been developed through the Entomological Commission—and probably little will be developed—that is *new*. Nearly all the remedies recommended in the above article may be found in Harris', or in Fitch's and Riley's reports. But this good will be done; it will arouse the attention of the people; more knowledge through the commissions "bulletins" will get into their hands, and more of their work will get into the public press. The greatest drawback is, *will the people read?*

WHAT IS A PRACTICAL FARMER?

We like the word "practical" when applied to farmers and farming. It has a kind of genuine ring in it that sounds like business. But it is frequently misapplied and abused, and as it is part of our title we are bound to defend it against the tongue of slander or ignorance. Some men seem to think that a practical farmer has no business with books or papers, that all his knowledge must come from his own experience and observation; otherwise he is a theoretical farmer; or, in common parlance, a "book farmer." This is a definition we will not accept, because there is nothing in reason or language to support it.

Webster tells us that practical means, when applied to a person, "one who reduces his knowledge to actual use." This definition is easily understood, and answers the question at the head of this article very clearly. A practical farmer is one who reduces his knowledge to actual use. The definition does not limit him as to the source of his knowledge, nor indicate how it is to be obtained. He may get it from agricultural papers, by studying books, or in listening to the lectures of a college professor—no matter how, so long as he makes actual use of it upon the farm, it is practical knowledge he obtains, and the more he gets and reduces to practice the better practical farmer he becomes.

It is a mistaken notion that book knowledge is opposed to the practical. There is much practical knowledge that cannot be obtained outside of books or their equivalent. The captain of a vessel is a practical sailor; so is the man before the mast. But while both can reef a sail equally well, the latter would run the vessel to destruction, perhaps, if placed in command. There is a science in navigation that cannot be learned by simply performing the duties of a common sailor. It must be obtained from books, and the men who safely conduct the thousands of vessels from one port to another, across the boundless ocean, demonstrate how eminently practical this book knowledge is. It is just so in farming. Holding the plow, driving the machine, pitching hay, sowing grain and making cider, is all practical work, that must be learned just as a sailor must serve his time before the mast ere he can aspire to the command of the vessel. And before the farmer can take the higher position of a commander, he must learn something of the science of agriculture, and this can no more be learned by holding the plow than science of navigation can be by reefing sails.

How long would it have taken the farmer to learn what plants and soils are composed of simply by his own observation and experience on the farm? He might plow, and sow, and reap till doomsday without being wiser in this respect. Science has made known the fact that phosphoric acid, potash and nitrogen, are about the only substances necessary to apply to the soil in the cultivation of crops. Does it render the farmer less practical if he learns this from a book or paper and then makes practical use of the knowledge on his farm? And suppose he makes an experiment in the use of these substances, and writes the result for publication—is he any the less practical for so doing?

Let no farmer be afraid of becoming less practical by reading books and papers that treat upon his profession. "Knowledge is power" in farming as in every other business of life, and the more the farmer obtains, the more practical he may become.—*Practical Farmer*.

The above, from a sterling Pennsylvania Agricultural journal, that for practical matter has not its peer in the whole country, is not mere gossip, it is *gospel*, which cannot be gainsaid. It is so near our own way of thinking on the subject, and is said so tersely and so rationally that we believe it will be useful to those of our readers who are in the effort to become *practical* through brain-culture, the exercise of their mental faculties, and the perusal of instructive books, as well as by the labor of their hands, through which they "fell the sturdy oak, and direct the unwieldly plow." No manipulation of the soil, no mechanical contrivance, no fertilizing compound is possible—however simple it may be—without trenching upon the domain of *practical science*.

PATRONS OF HUSBANDRY.

Is the Grange on the decline? We hope not; for we regard it as an instrument of moral and social advancement, to say nothing about it intellectually and pecuniarily. But when we see the Grand Secretary of the State Grange of Tennessee, officially announcing the delinquency of *one hundred and forty* Granges in that State, it looks very much as if they were becoming "weary in well-doing." It is true that these subordinate Granges may only be a little neglectful, but when they are warned that unless they make reports to the Secretary of the State Grange within thirty days from the 1st of June, the Master of the National Grange will be requested to revoke their charters, it looks like more than merely temporary neglect. If the Grangers wish to progress in their honorable and elevating organization, they must not be spasmodic, but must lean to the work like faithful oxen, and move steadily ONWARD to the end of life.

Do not forget your subscriptions for 1877.

ECHOES FROM THE PUBLIC PRESS.

If we were to treat with entire silence the flattering recognitions of our cotemporaries, we should only exhibit that want of appreciation which savors of sullen indifference; and therefore, eschewing the selfish and uncharitable attitude that—

"I care for nobody,
And nobody cares for me,"

it yields us a becoming pleasure to illustrate in a public manner the friendly notices that have been taken of us, and to record our aeknowledgments of them, not only on our own account, but also on account of the solid class of men in Lancaster county, of whom our journal is the responsible representative. If it is true that "A prophet hath honor save in his own country and among his own kin," it is incumbent on us to illustrate how far it may be true, in order that those concerned may render "Honor to whom honor is due," for many only need the opportunity to make the amendment at the proper time. That sterling weekly, the Mount Joy *Herald*, is pleased to speak thus of us:

"Lancaster Farmer for June. Here are 16 large, closely printed, three-columned pages of choice reading matter, such as is wanted for the farm, garden and household, including one illustration. Some numbers are more fully illustrated. No advertisements except on the cover sheet, which is exclusive of the 16 pages. No blowing and puffing of itself, offering of long premium lists and other matter in the special interest of the journal itself, is found on the 16 pages of reading matter. The *Lancaster Farmer* is decidedly the best and cheapest household and agricultural journal of which we have any knowledge. To subscribers in Lancaster county, Pa., $1.00 a year, or 6 copies for $5.00; single numbers 10 cents. Prof. S. S. Rathvon, Editor; Linnæus Rathvon, Publisher, 22 South Queen street, Lancaster, Pa.

Our young and ably conducted local journal, *The New Era*, with that intelligent discrimination which it is so competent to make, has this to say of us:

The Lancaster Farmer for June has been received, and we find as the months roll around, our friend, the editor, is abating nothing of the energy and industry that have been so visible since this journal has been under his charge. In addition to the many able original articles, the selections are admirably adapted to the needs of the farmer who desires to keep abreast with everything that pertains to his calling. There are not many good farmers in the county who are not subscribers, and therefore we can't see how the poor ones are to get along without it. Price only $1.00 a year. Address S. S. Rathvon, Lancaster, Pa.

The Editor of *The Journal of Forestry* (England) is pleased to say in his June number—in alluding to his American exchanges—"among the numerous newspapers and magazines representing almost every department of agriculture and rural economy that we have received from various parts of the world, we may mention—the *Lancaster Farmer*, an excellent farmer's paper; the *Albany Cultivator* and *Country Gentlemen*, covering somewhat the same ground as our *Field*, and full of useful intelligence."

It may be our vanity, or our weakness, but we confess we feel complimented at being placed in such good company by one so disinterested, and so capable of exercising an intelligent discrimination. If our American readers would only vouchsafe the necessary support, we would like to show how good a journal we could make of the *Farmer*.

CORRESPONDENCE.

Jenkintown, Montgomery County, Pa., June 25th, 1877.

Mr. S. S. Rathvon—*My Dear Sir:* Knowing your willingness to contribute of the valuable stock of information you have acquired in the important branch of natural history, to which you have devoted so much time and careful research, I take the liberty of addressing you some questions in regard to some of the habits of that vexatious pest, the "Colorado potato beetle."

In the summer of 1875, these bugs had become so numerous in this locality as to almost entirely destroy the crop—very few farmers having learned how to destroy them effectually. In the fall of that year the bugs were so numerous they could be seen everywhere by thousands. It was impossible to walk the roads without treading on them at almost every step. All winter they could be found everywhere in the soil, and in the following spring they devoured our tomato and egg plants in the hot-beds. So destructive were the bugs in the spring of 1876 that few potatoes were planted. Of these, some were devoured by the bugs, and others were saved by a liberal use of *Paris green*, and the consequence was that the bugs either starved for scarcity of their natural food or were killed with poison, so that in the fall there was scarcely a bug to be seen, and not one was to be found in the soil last winter—nor did one make its appearance on the plants in hot-beds this spring as they did the spring before—so that farmers were encouraged to believe that we would have a year, at least, of comparative exemption from the pest, and, consequently, a large breadth of potatoes were planted. But, strange to say, as soon as the young potato plants began to show above ground, the bugs put in an appearance in innumerable numbers, worse, if anything, than they had been before. Now, what puzzles me is, to know where they came from so suddenly; certainly there were none or next to none that hibernated here as they did the winter before, and I don't see where they could have come from in such vast numbers, less than one hundred miles distant. Could it be that they have migrated from the potato regions of New York, where they were as numerous last fall as they were here the fall before? Are they capable of such long flights? Can it be that the very warm days we had in May, brought them out there, and there being no potatoes yet above ground in that locality, they took their flight south?

We have now learned pretty well how to manage them. One part Paris green to about one hundred parts land plaster, dusted on the vines, is effectual with the young bugs; but I am afraid the old ones do not eat enough to be killed with the poison, so diluted, and as these still keep about and seem to be all the time depositing more eggs, the dose of poison has to be frequently repeated. This is troublesome and expensive. I would like very much to know if any remedy more effectual or less expensive has been discovered. Do you think lime would do as well as plaster? It would be much cheaper.

I have noticed this summer a beetle similar in appearance to the potato bug, but smaller and darker colored, and with longer legs, attacking furiously the potato bugs. Sometimes three or four would be on one potato bug, and have him completely surrounded and struggling desperately to get away. Do you know what this is? Please excuse this too long letter.

Yours, with great regard,
E. Satterthwait.

In regard to the sudden disappearance and reappearance of the "Colorado Potato-beetle," people often mistake the semblance for the reality. We have known people to congratulate themselves with having extinguished these insects by mere hand-picking, when lo, a few weeks thereafter they would reappear in greatly increased numbers. There are in reality two broods of these insects in this latitude in a season, but farther south no doubt there may be three broods. But as each female will deposit from one thousand to twelve hundred eggs, and as these eggs are deposited generally on the undersides of the leaves, at different places, and at different periods, within the space of thirty-five to forty-five days, and as the young are excluded from the eggs at correspondingly different periods, develop and reach their larval maturity, and hence burrow into the earth and pupate there at different periods, there is the *appearance* that there are many broods; and hence it also sometimes appears as if all had been destroyed, or had deserted the premises, when in fact they were only enjoying their pupal sleep, either in the loose earth, under some convenient rubbish, in some old wall, in some old unfrequented out-house, or in some dark cellar. We have seen them enter cellars through the grates, and creep under door steps in the fall, and we have seen them issue from the same places in the spring, and we also *know* them to have been discovered under heaps of rubbish in the fields, in the months of January, February, and March. They differ in their habits according to their developmental conditions. The matured larvæ, as a general thing, will go into the ground to pupate, and if they go in late in the season, they will hibernate there until next spring; and it may also occur that many of the larvæ, on account of sudden autumn coldness, would not have the necessary energy to pupate, in which case they would hibernate as larvæ and pupate the next spring; and therefore would emerge from the earth as beetles, some days or weeks later than others. But this is not necessarily the case with those that are overtaken by the cool autumn, in the beetle form. These wander away from the potato fields in thousands, after there is no more succulent vegetation. If the weather is cool, they will seek a convenient cover to pass their winter hibernation, if warm, they will seek other food than the potato.

In addition to the potato, the tomato and the eggplant, these insects have been known to feed upon henbane, nightshade, jimsonweed, spinage, thistles, plantain, cabbage, lettuce, lambsquarter, mullein, strawberry, currant, and other species of vegetation, as well as the *potato tubers*, so that the idea of "starving them out" at any time, is a mere hallucination. It is true, on some of these plants they feed but sparingly, and only in cases of dire necessity, but this is sufficient to illustrate that they are capable of adapting themselves to almost any circumstances, involving their self-preservation and perpetuation. It is also very evident that they are migratory in their habits, but how far they may be able to fly has not yet been ascertained with accuracy. They must have flew aeross the Mississippi and Missouri rivers years ago. In the summer of 1875 we found them strewn in great numbers for six or seven miles along the Atlantic beach—from the Lighthhouse to the extreme point of Cape Henlopen—and not a potato field within from two to four miles. How far they had flew out into the ocean, before they had dropped in and were borne back and thrown upon the beach by the waves, it would be difficult to estimate. If in their flight they should come into a current of wind they might, no doubt, be carried to a great distance. It is difficult to account for their presence on the shore of the Atlantic, far from any potato field on the 20th of July, when most potato vines are still green and succulent, unless by making a temporary change of locality, they were caught in a current of wind, or were obeying their eastward migratory instincts. The best thing now is to regard them as a "fixed institution" and provide for them as we do for other contingencies.

Paris green is the best and only reliable remedy to destroy the Colorado potato beetle—to those who do not care about resorting to *traps* or handpicking—and the farmers of Lancaster county mainly rely upon it. We will have, according to present prospects, a larger and better, as well as a cheaper, crop of potatoes the present season, in this county than we have had for some years. The beetles appeared as usual in the spring, but the people regard them as *a matter of course*, and they "dosed" them from the beginning with *Paris green*. But—homeopathically speaking—we consider our correspondent's dilution entirely too "high." One part of the poison to one hundred parts of the diluting substance, we have no recollection of having before seen recorded. Our farmers here use one pound of the *green* to from 20 to 30 pounds of wood-ashes, sieved coal ashes, pulverized gypsum, cornmeal, shipstuff, slaked lime or flour. Some prefer the different kinds of meal on account of their adhesive qualities; and, so far as the larvæ of these insects are concerned, this remedy is entirely effectual, if the *green* is of a good quality. Upon the bodies of the adult beetle, however, it has little effect. We have known the beetles to live thirty-six hours corked up in a bottle of *Paris green*. It does not penetrate their hard integument, nor will they eat it, because being more perfectly endowed with the powers of locomotion than the larvæ, they can more easily change their positions. But after the female beetles have once deposited all their eggs, they never become refertilized—that is the end of their allotted functions. After the male exhausts his procreating energy, that is also the end of him. Those that hibernate and survive the winter, are either *gravid* females, or virgin males and females. The spent stock invariably die off.

In conclusion, we think there is no just

ground of apprehension that the tubers will be injured, or rendered unhealthful by the use of Paris green. It cannot be possible that the western farmers should have been using it for seventeen years without a single authenticated case of such injury, if there were any liabilities of this kind. Nevertheless, it is a rank poison and should be "handled with care." Only a few days ago a farmer in this county lost four valuable cows by leaving a bucket, or box, containing Paris green mixed with ships-stuff, exposed. Of course, neither cattle, swine, nor poultry, ought to be allowed access to fields treated with this poison. It is mineral, insoluble in water, and when thus used, it is merely held in suspension and needs constant agitation.

Since writing the foregoing we have visited the farm of Mr. Lawrence Knapp, near the eastern suburbs of Lancaster city. Everything on this farm looks exceedingly healthy and thrifty. Mr. K. had about three acres in potatoes of different varieties, in three separate "patches," which we will designate as 1, 2 and 3. No. 1 were quite early potatoes, and the crop is already consumed. This patch was half an acre, and was vigorously attacked by the "Colorado Beetle," but he gave them their quietus by a liberal application of Paris green, and saved his potatoes, which were fine, and of an excellent quality.

No. 2, an acre and a-half lies a little north of No. 1; and No. 3, about one acre, lies east of it, with the barn between. These two patches are about the finest and healthiest looking potatoes we have seen this season, and have already fine tubers, but they are later than No. 1. Mr. K. states that neither of these patches have been visited by a single potato beetle since they have been planted, although they were up above ground when No. 1 was infested. He had read in an Agricultural paper, that to plant hemp and buckwheat among his potatoes would *prevent* the beetle from attacking them. He did so, and this he believes has repelled them. *There* are the potatoes, the buckwheat, and the hemp, but *there* are *not* the potato beetles, account for the result as we will. "Stick a pin in that." We have seen other fine lots of potatoes without the hemp or buckwheat, but we did not learn whether they had been visited by the beetle or not, and we merely publish this on account of the *coincidence*.

As there are at least twenty known species of insects, that in one way or another prey upon the Colorado beetle, we cannot even guess which is meant by our correspondent, and we therefore hope he will send us specimens—it may be new.

WEST CHESTER, June 22d, 1877.

MR. RATHVON—*Sir:*—I see in your June number of the Farmer, a receipt for cholera. I send you by this mail, a root that is decidedly the best thing for dysentary or diarrhœa, that ever was given; it has, and will cure, the worst case in two hours. I speak by experience in my own family and others. It requires but a trial to prove its value; and the best of all is, no matter how sudden the complaint is checked, it leaves no bad effect in the head, or any other part of the body. How many children die every summer in our large cities with dysentary or cholera-infantum; whereas, if they had a desert spoon full of tea made from this root, life would be saved. There are thousands of dollars in it, if taken hold of it by some live yankee. I never made it into syrup, but always make a tea direct from the root; always keep it in the house, or the woods being handy to get more; but it requires manuel strength to mash it when dry, as you can see by this, as it is green or fresh from the ground. This root I send you is sufficient for three pints of water, boiled down to one quart, then strain it; add a little sugar when taken. Although it is almost void of taste when warm, when it is cold it is somewhat roapy (as Elm bark). I will not send the name of the root at present, but perhaps you know it, but by all means use it if it should be needed.

Yours truly,

WM. J. PYLE.

P. S.—For an adult, a wine glass full will check the worst case, and sometimes sufficient to cure; but if there is a desire to go again, or symptoms of bearing down, repeat it and you will find it sufficient.

As "some things can be done as well as others," and as we are always open to conviction and conversion, especially in cases involving a disease that is so fatal to children, and so prostrating if not fatal to adults. We have made a decoction of the roots sent us, and now only wait for an *opportunity* to test their efficacy (which heaven forefend we should ever *desire*, either in ourself or any other human being), when we will publish the result. We confess that we can only guess remotely what the root is, for it is almost tasteless, and there are several roots to which it makes more or less approximation, but perhaps it is best that the name should be concealed until the curative quality is practically demonstrated, and our object of this publication is to facilitate an opportunity to make a trial of it.

MR. S. S. RATHVON—*Dear Sir:* I find at West Chester that the currant and gooseberry bushes (I believe both) are much eaten (the leaves) by an insect, which I rather suppose to be the same that was so very injurious to them when I was at Scranton, three years ago. One of my friends at West Chester said something to this effect, namely, that the foliage would be nearly destroyed in one night.

Yours, respectfully, P. E. G.

PHILADELPHIA, June 21, 1877.

There are several insects that defoliate the currant and gooseberry bushes, conspicuously amongst which are the "Currant Moth" and the "Currant Saw-fly," the former *Lepidopteous* and the latter *Hymenopterous*. Of course, we cannot tell which you allude to, from your description alone. But, if it is either of them, dusting the bushes with white Hellebore, or diluted Paris Green, would prove an extinguisher. Syringing them with a tobacco decoction, or a soap solution, might prove sufficiently efficient. The first broods of these insects, especially the last named, spin a slight web-like cocoon among the rubbish on the ground under the bushes. These, therefore, should be gathered up and burned, and a second brood prevented. If this is thoroughly accomplished, there can be no *second* brood this year, nor yet a *first* brood next year.

An Architectural Question.

MR. EDITOR: What are the proper dimensions of a large hall or room, in order to avoid the echo or confusion of sound, so often noticed in some of our public buildings.

JOHN B. ERB, Lime Valley.

An echo is a reflected sound; whenever a sound-wave strikes any obstacle, such as a wall, a hill, or a rock, it is reflected or thrown back, and this reflected sound is called an echo: and the reason these echoes are produced in large halls or rooms, is because the sound-waves cannot flow freely forward, but are constantly striking against the walls and are beaten back. Books say that "no echo is heard unless the surface against which the sound strikes is 65 feet from the place where the sound originally proceeded." In rooms smaller than this, the sound travels with such velocity that the echo is blended with the original sound; but in larger ones, the walls are so far off from the speaker that the echo does not return in time to be blended with his voice, but is heard separately.

This is the theory, at least, of those who have professed to be teachers on the subject; and would therefore suggest about the size that a room ought to be to be free from echoes. Height of ceiling, perhaps, would also have some effect upon the sound—the exceeding long winding stairways and corridors in some cathedrals are known to have.

Perhaps the most remarkable echo in the world, is that at *Rosneath*, a mansion house seventeen miles above Glasgow, in Scotland. If a trumpeter plays a tune and stops, the echo will begin the same tune and repeat it all accurately; as soon as this echo has ceased, another will echo the same tune in a lower tone; and after the second has ceased, a third will succeed with equal fidelity, though in a still lower tone. At Lake Killarney, Ireland, there is an echo which plays a "second" to any simple tune played on a bugle.

These echoes are caused by separate reverberating surfaces receiving the sound and reflecting it in sucession.

QUERIES AND ANSWERS.

Dr. E. K. Y., Lancaster, Pa.—The beautiful yellow mottled moth, with black spot, and a white central dot in it, on the underside of the *anterior* wings, and a large black spot, with gray and white centre, occupying the whole central portion of the upper surface of the posterior wings, is the "American Peacock Moth," (*Saturnia Io*) a male specimen. The female is of darker or brownish color and much larger in size, but the horns (*Antennæ*) are not so feathered. It belongs to the "American Silkworm Moths," (BOMBYCIDA) and the caterpillar green, and covered all over with diverging prickly hairs, spins a regular cocoon. The moth is very pretty and harmless, but the caterpillar feeds on plants and the foliage of fruit and other trees, but never occurs in sufficient numbers to hurt them.

Prof. T. R. B., Millersville, Pa.—The illustration of the large gray insect, with the long, horn-shaped *mandibles* projecting out in front, and the long, many-jointed *antennæ*, is what is, rather profanely, called a "Hellgramite," (*Corydalis cornutus*) or the "Horned Corydalis." The larvæ lives in the water, and in our boyhood we called it the "Black Alligator," from its shape and formidible jaws. It lives in the water a whole year, and feeds upon any small animals it may be able to capture there. In May or June, it comes out and changes into a clay-yellow *pupa*, in a cavity which it forms in the sand near the stream, and in due time the mature insect evolves.

Mr. D. S., Lancaster, Pa.—Your small chestnut-brown beetles, which you say infest your grape vines in great numbers, cutting the leaves, and even the tender branches into mere shreds, are the "Grape Vine Fidia," (*Fidia viticida,*) which have long been so destructive to the Concord and Morton vines of the Western States. Little seems to be known about their larval development, but it is the mature beetle which is the pest of the vines. I have noticed them these twenty years past, but never knew them to be as numerous as you appear to have them. Their habit of falling to the ground and "acting possum," suggested to Mr. Peschell, of Hermann, Mo., to train a large brood of chickens to feed on them, and all he had to do was to start them in the vineyard, with a boy in advance, to shake the vines, and he himself to drive up the straglers, and they would pick up every insect, and in this way he kept his vineyard clean and saved his crop. There is little use in attempting to apply a dust of any kind, or a liquid to the foilage, for they fly very readily to other places.

Prof. B. F. S., Lancaster, Pa.—The chrysalis which you left in our custody, is that of a species of *Grapta*, and so far as we are able to determine from a chrysalis alone, it is *G. interrogationus*, one of the "Hop-flies," or "Hop Caterpillars," a Diurnal Lepidopter, and will develop a brown butterfly, with notched wings, and a metallic interrogation mark on the under side of the posterior wings. When it occurs numerous, it deseroys the hop vines.

Mr. I. M. W., Lancaster, Pa.—The gall-infested Hazel leaves, and also those left with us some days earlier in the season by Mr. W., of the Landisville Junction, on the Columbia and Reading Railroad, are the effects of a species of *Phylloxera*, and is allied to the great pest which has been so destructive to the grape vines of France. There are now about twenty species of *Phylloxera* described, natives of this country, infesting the grape, hickory, oak, hazel, sumac, and various other trees and shrubs, but we could not make out the species—the galls were dry and compressed.

Mr. L. P., Christiana, Pa.—The large, smooth chestnut-brown beetles, with formidable jaws, to which you allude, are a species of "Capricorn beetle" (*Lucanus dama*). The larvæ live in decayed wood of various kinds. We have frequently found them in the decayed heart of old cherry trees. Look out for the "American Stag-beetle," (*Lucanus elephas*). We have never yet taken one, but we have been informed that they have been seen in this county.

For The Lancaster Farmer.

CROPS IN NORTH CAROLINA.

Wheat and oats have been reaped, both of which have turned out well. Some farmers have threshed out their wheat, and new flour is already in this market. The corn is very promising, but early Irish potatoes will not yield a full crop owing to dry weather in the early part of the growing season. Cotton and tobacco both look well, but the "stand" is not so good as might be desired by sanguine growers. It may be best, for this section at least, that those crops should not turn out so well. Less tobacco and cotton, and more bread and meat is what is wanted most here, for the good of the public generally. Garden vegetables of all kinds planted here, are doing finely. I have never seen apple, pear, peach, prune, plum and other fruit trees, and grape vines, so heavily laden with fruit, and so promising at this season of the year as they are now, and if nothing happens to destroy it, we will be blest with an abundant fruit year. Cultivated strawberries at 25 cents a full quart, and the *old field* (in common parlance) variety, in some countries called *wild*, at 10 cents per quart; and are better to the taste than the best cultivated kinds—at least to *our* taste—we have ever eaten in any country.

Cherries, from the great quantity brought to this market, we judge are very plentiful, and are selling at from 5 cents down to 2½ per quart. Dew and blackberries, growing wild, 5 cents per quart. I saw peaches of the present season in market here on the 28th of June, fine and ripe, and apples three weeks ago. Upon the whole, all things bid fair in this country, and we expect better times, and more business here, after the crops of this season's growth are gathered and marketed than we have had for a long time. M. R.

Salisbury, N. C., June 27, 1877.

[God grant that you, and all other people and communities, may realize these reasonable expectations, for such a consumation is much needed to remove the heavy business pall that has been so long hanging over the material interests of our country. If being at peace with all mankind, the general prevalence of good health and abundant crops do not revive the business of the country, and afford bread and employment to its honest, idle population, then we must be most desperately wicked, and need a further chastisement. Let us hope that when prosperity again returns, we will have a higher appreciation of it than we ever had before, and turn it to a good account.]

For The Lancaster Farmer.

FROM NEBRASKA.

Mr. Editor: This prosperous young city of about four thousand inhabitants is the capitol of Dodge county, and located on the Union Pacific Railroad, forty-six miles west of Omaha, at the junction of the Sioux City and Pacific, and the Freemont, Elkhorn and Missouri Valley Railroads, at the junction of the Platt and Elkhorn valleys, which here are about ten miles wide.

Freemont has a $25,000 public school house, two daily and two weekly newspapers, and in the county sixty school houses and about thirty churches, and five mills running twenty-four burrs. Last year there were about three thousand car-loads of grain shipped from Freemont, nearly two thousand of which was over the Union Pacific, and about eight hundred of this went west. Only 76 deaths in the county last year, including children and invalids who came here sick.

In the county are 67 miles of railroad. Two large rivers, the Platte and the Elkhorn, flow entirely across the county, besides a great number of smaller streams tributary to these, some idea of the number of which may be inferred from the fact that in the county are 39 bridges, aggregating 9,563 feet in length.

This region is the best watered and timbered in the State, and Dodge county has the largest area of rich valley farming lands of any in the United States. The soil is the richest and deepest the writer has ever seen. The present crop prospects are excellent, and no grasshoppers. The prices of land near the railroad here range from three to eight dollars per acre. The Union Pacific is selling rich bottom land here at about six dollars per acre on long credit, and only six per cent. interest, thus affording the best opportunity for a man to secure a good farm near the beautiful and growing great railroad centre, city of Omaha, and on the longest and best managed railroad in the world, and which, with the Central Pacific and their connections, form the great highway around the world, within the belt of population, wealth, and Christian civilization which encircles the earth between the 39th and 44th parallels of north latitude. Nebraska is the most western agricultural State, and nearest inexhaustible mining and grazing regions, both non-producing as regards food supplies, insuring a ready market and good prices for all farm, garden and orchard products.—*Examiner.*

For The Lancaster Farmer.

ABIES—SPRUCE FIR.

The valuable work on Book of Evergreens, by Mr. Josiah Hoopes, is one that was much in demand and supplies great dissederatum to the student of the coniferæ.

In his excellent description of the Abies Nordmannia, so named by Link in memory of the first discoverer of this desirable Fir, Prof. Nordmann, who found it growing on the Adshar Mountains, at an elevation of 6,000 feet, from 80 to 100 feet in heighth, with a straight stem. It is quite abundant on the Crimean Mountains, and those east of the Black Sea; also in various other localities.

Mr. Hoopes describes it on page 205, and says, "Our experience with this species has been so very satisfactory that we wish it were known. The most severe winters have never affected in the least, and it appears always to retain the beautiful green color of its foliage in all seasons and through all viscissitudes. It is quite vigorous in growth, beautiful in verdure, regular and graceful in form, of large size and perfectly hardy in this latitude." He also says, that the "leaves are 1 inch long, linear, flat, incurved, dark green above, and glaucous below," &c.; but he fails to inform his readers of the very curious feature of the leaves to attract the attention of a close observer, and one that induces inquiry as to the cause of it. Early in the morning and forenoon the foliage is uniformly of a whiteish color, as also toward evening or about sunset, while during the middle of the day they are of a uniform green color. This arises from a periodic movement in the position of the leaves. In the day time the leaves are spread out upon the branches and present their upper surface which is green, but towards the evening, or sunset, they begin to erect themselves, until the under or whiteish side of the leaves are presented to the eye, often becoming nearly perpendicular during the night season, travering an angle of 90°. Thus there is a diurnal and nocturnal position of the foliage, which accounts for this change of appearance, and is an interesting fact that should not be omitted. J. S.

For The Lancaster Farmer.

LARGE FARMS AND SMALL FARMS—THEIR ADVANTAGES AND DISADVANTAGES.

In regard to the size of farms we find two sets of champions—the one set advocate large farms, the other small farms. Such a thing as a farm of medium size has no existence with them—it is sometimes claimed by one, sometimes by the other set. Each set sees and trots out the advantages, the disadvantages being kept in the background, or altogether out of sight.

Locality has a great deal to do with the term "large" and "small" as applied to tracts of land. A large farm in the eastern States is a small farm in the western States or California, and what would be called a small farm in New England is only a lot in Iowa or Nebraska. For our purpose we will consider a large farm to contain two hundred acres or more, of land in cultivation.

But it is the advantages and the disadvantages that we wish to consider, in what they consist, and, if possible, to find a way to remedy the disadvantages.

We will consider small farms as first in order.

Their advantages are: they make close neighbors; close neighbors bring stores, mills, schools, post-offices, churches and other conveniences near each man's door; they make a more educated community, and as a consequence create a better and a pleasanter social life; roads are better graded, and kept in better condition; fences, houses, barns and other buildings are kept in neater order and better repair.

The above and many more are the advantages, claimed and real, and besides it is claimed that small farms are better tilled, and thus more productive than larger ones, but here we come to the very disadvantages themselves.

The disadvantages are: the cost of a dwelling house is as much for the small farm as for the large one, and in other buildings and fences the cost is proportionally higher; also on a small farm many of the operations are carried on by mere physical labor, because it will not pay to purchase all the implements and machines by which so much of the labor is saved—and even that is done by horses; to buy all these would bring the profit and loss account in a bad shape, as the interest, and wear and tear would eat all the profits.

For a community of small farmers it would sometimes be well to have implements and machines in common, each individual paying his share of the cost, and be entitled to the use of them on his own farm. There would necessarily have to be a place to where such implements would have to be returned, for if this would not be done it would be sometimes very annoying to hunt them up. Where many of them are in joint ownership, it would be the better plan to have each farmer hold and care for one or more of the machines, and when not in use always have them at that place.

Some of the objections against such joint ownership are, that two of the farmers might want to use the same implement at the same time, and that many persons are very lax in the care and proper usage of implements, and this would be a source of great annoyance to their more orderly neighbors and joint owners. Grain drills, corn-planters, mowers (and reapers combined,) hay-tedders, horse-powers, threshing machines, power cutters, and such other machines that do a great deal of work in a short time, and that are used only at certain seasons of the year, are the proper ones for joint ownership.

The advantages and disadvantages of large farms are just the contraries of the small farms; and in addition the schools are generally of a lower order and not graded.

As far as we can see, the only important advantage that large farms have over small ones, is in the use of machinery. Like in manufactories, labor can be more economically directed where there is a division of labor, and special machines for performing such labor.

To overcome some of the isolation of large farms, agricultural writers have commenced advocating that four farms should be located on a cross-road, and the houses and buildings belonging to the farms be built at this crossing, so that four houses are quite close neighbors.

The above plan is only practicable in the western country, where counties, townships and sections, are laid out in squares like a well-planned city, and where the country is comparatively level. In hilly sections it would, in many cases, be out of the question to build in this manner, as the buildings would have to be situated in accordance with the lay of the ground.

It is also recommended by some writers, that in the unsettled west, farmer's villages, of a dozen or more farms, might be started; all

the houses, barns and other buildings, gardens and orchards, to be close together, giving each farmer five to seven acres, or more. The balance of the land is outside of the village, and by proper arrangement and location the most distant farm need not be more than a mile from the buildings.

This is done in some parts of Germany, I believe, but there the villages have more inhabitants than these American villages would have, for the reason that the farms are there much smaller than in this country, and the peasants often have a couple miles to their farms. Of course, in these German villages the lots belonging to the houses are quite small, too small to suit the taste and wants of the average American farmer.

Whether this style of farming will suit Americans, remains to be seen, as there are disadvantages connected with it, that may, in many cases, seem to over-balance the advantages and conveniences.

A few of these villages have been started in late years, the most noted of which is Greely; but it needs further experiment to determine the ultimate success. Greely is very much praised, and is a very desirable and agreeable place to live, if we may believe the letters that are published in the papers from time to time.

There is also such a village in some part of New England, (Deerfield, Ct., I believe), that has existed from the earliest time, it being built in this manner as a protection against the raids of the Indians. I have never heard how successful it is, but suppose that its advantages are considered to over-balance the disadvantages, or it would have long ago passed out of existence.

The question of the advantages and disadvantages of large farms and small farms, is one of those perplexing questions that can never be really settled, and so to the end, we will have advocates for farms ranging in size from four acres up to four hundred or more, locality to some degree determining the size.

A. B. K.

For The Lancaster Farmer.

PRACTICAL CONTRIBUTIONS FROM LEOLINE.

Egg Plants.—I have just read in the June number of the *Farmer* about this plant, and the use of Paris green. I can safely say, use Paris green, for I saved my egg plants last year by the use of it, and I used the eggs, but always pared them, and they done us no harm; and I also used it on my cucumber plants to keep the striped bug off, and on squashes too.

Locusts—*Mr. Editor:* You have turned things upside down about the locusts; it is neither W nor V; it is M, or more this style m. That is meaning Moses, and if you live to see eight years more, please take notice if it is not so. The seventeen year locusts generally come up along woods, and when that is cut down, they will only come up there at that place once after that. Nine years ago they were up in this place, and could have been gathered by the bushel.

Soups.—"Noodle Soup." Take 3 eggs, 3 egg shells full of water, and work enough of flour in to make it stiff to roll on a board; roll it as thin as you can without breaking; lay it on a cloth to dry. Now put over the fire a good fat piece of beef, or a fat pullet is just as good, but it must be fat; put it in cold water if you want your soup to be good, with salt to taste; add a small quantity of saffron, parsley, celery, winter savoy, or sage, if palatable, and boil until it is tender. When your "noodles" are dry, which will be in about one and a-half hours, take and roll them together, cut in thin slips, put them in and boil 15 minutes longer. Serve with pepper sprinkled over the top. Enough for a family of six.

Milk or Pellet Soup.—Put over the fire a piece of fat beef and boil till tender; put in salt just enough to take away the raw taste; boil down to one-half the original quantity of water. Have ready the same quantity of new milk (boiling hot,) and pour it into the water. You must take care that it does not run over. Now take two eggs (if you have enough to make four or five quarts of soup) break them into some flour, and rub it in enough to make it in small balls, or rivel to separate it; drop it sparingly into your soup kettle, stirring it all the time, till it is all in, and boil five or ten minutes longer. It is best to stir till done to prevent burning. Serve.

Cabbage Soup.—Put in cold water a good piece of beef, let boil half an hour; take a nice head of cabbage and wash clean, shred it up, put it in with the meat, sift two tablespoonfuls of flour in, add very little saffron, and salt to taste; boil until the beef is tender. Add one pint of rich new milk, stir it a few moments and it is done. Serve with pepper.

Invalid Soup.—Put over the fire two quarts of new milk, let it come to a boil; in the meantime, toast some bread, nice and brown, break it up into small pieces, put it into a tureen and put in a little salt; grate over it a little nutmeg and add a small piece of butter; pour your milk boiling hot over it and cover; let it stand ten minutes, and serve either with more salt or with sugar, as preferred.

For The Lancaster Farmer

THE HORSE.

The horse is not only the most noble and elegant, but he is also the most useful subject of the animal kingdom. He appears to have been specially created to assist the human family in their labors, their recreations, and their pleasures, and therefore ought to be treated by man as a superior among quadrupeds—as a gift from Providence, to accompany him in his various industrial and social occupations. The original locality of the horse is in dispute, if it is not almost entirely unknown. Both Egypt and Arabia claim the first notice of this noble animal, but the preponderance of profane testimony seems to be in favor of Egypt, but doubtless much might be said on either side. Even in the sacred writings, when describing the earliest stages of the world's progress, we find the horse is in extensive use in Egypt. In comparatively modern times, when Mahomet attacked the Koreish tribes, we find not a single horse in the entire camp—showing how scarce at so late a period, horses were, even in Arabia, and how plentiful in Egypt. But Arabia became long afterwards the greatest place for fleet and beautiful horses in the world. Horses at a very early period were discovered grazing wild on the banks of the Danube. When emigration flowed into Europe, the horse, like the dog, accompanied man, uncivilized as well as civilized, and was therefore found in most congenial climates. The first mention we have of horses in Great Britain, dates from the Roman invasion of England, under the command of Julius Cæsar; and are mentioned by him as a noble local race of animals, and he also speaks of their skillful management by this uncivilized race of people.

The horse is found wild in Mexico and South America. It is not positively known whether they are indigenous to those countries, or whether they were imported into them by the Spaniards, and became wild in the course of time. The fact that Prof. Cope and other explorers have found the organic remains of half a dozen distinct species of horse, buried at different depths in the alluvial soil of our western States, throws some doubts upon the theory that they were introduced by Columbus and other foreign explorers, and that they did not originally exist here as well as in Asia and Europe.

The horse is used in different ways and for different purposes, in different countries and in different climates. In mountainous countries he is mainly used as a beast of burden, and heavy cargoes are carried on his back over the steepest and most dangerous mountain passes. In Tartary, Afghanistan and Arabia, on account of his fleetness, he is used for war purposes, and in roaming from place to place. In Europe and the United States mainly for agricultural purposes—in cultivating the soil, and as a draught animal, in transporting produce to market, and a means of conveyance for business, for pleasure and for profit. Fifty years ago our "Conestoga horses" were in extensive use in conveying goods from Philadelphia to Pittsburg. Then it was necessary to raise the heaviest and strongest horses, but that trade has long since been superceded by canal, railroad and steamboat navigation. It was also necessary to raise some of the fleetest varieties of horses for stage and coach draught in conveying U. S. mails and travelers from one State, or place to another, or for courier despatches, in the absence of telegraphs or other means of conveyance, as at the seat of the present war between Russia and Turkey. They have very few railroads in that country, hence we read a good deal about "Reuter despatches," meaning *rider despatches*—news brought by couriers or horsemen. How cruel the noble horse is often treated, even in our Christian America. Among the unchristianized Arabians the horse is differently appreciated, and a higher value is accorded to him than elsewhere, and the horse and his master often exist under the same protecting shelter that protects the whole Arabian family; and they are so well trained that they lie down at command and permit the children to crawl over them or under them without being hurt. They esteem the mares much higher than they do the horses. The Mexicans are the reverse of this. They never catch wild mares at all, and consider it a disgrace to ride on a mare, but esteem the horses very highly. We Americans, send missionaries to Asia and to Mexico, yet we might learn from those nations how to treat horses. Horses are sometimes treated very cruelly in our country in various ways. Often they are overburdened and made to draw enormous loads under the cruel goadings of the merciless whip, with galled wounds under their collars, and often without enough to eat. They are hitched under the hot sun for hours, and this too, very often by pious worshippers at the Sunday meeting house, with no shedding nor shade-trees outside of, or surrounding their holy temples. Since then the horse, in intelligence and general usefulness is almost next to man, he should be treated as becomes the humanity of man to man. As to what kind of horses we ought to raise at the present time there need be no very serious question. Since the introduction of the steamboat, the locomotive and the telegraph, there appears to be no particular necessity for "fast" horses.

Wherever there is a telegraphic communication, and men in one locality, in the lapse of a few minutes, can talk with those in Philadelphia or New York, or in thirty minutes, with those in California, or almost over the whole country, there seems to be little use for fast horses, and therefore we seem to have arrived at that moral, domestic, and economic period in our social history, when we should make it a leading point to breed and raise middle-sized horses; very gentle, yet willing and strong. The Norman would be about the proper horse for the present period. As we have a great many one and two horse farms in our county, and nearly all one and two horse wagons are now being built instead of the great Conestoga wagons of former times, a different adaptation of means to ends seems to be necessary. Fast horses, in their proper places, and for proper uses, perhaps, will be more or less necessary for some time yet to come, and we might be "content to wait contentedly" until that time arrives, were it not for the pregnant fact that the *abuse* of the possession of "fast horses," so often makes "fast men." The American people, in many ways and for many objects, are becoming a fast people; and young America, in particular, should not be wilfully led into temptation, or encouraged in evil habits. Therefore, the whole conclusion hath this extent and no more, that the special business of raising fast horses, in the face of telegraphic, railroad and steamboat intercourse between men and places, is not only a useless

business, but it is also demoralizing in many, many cases, and, except in very rare instances, and for very essential uses, ought to be abandoned, as injurious to the interest of progressive agriculture.—*L. S. R., July* 1, 1877.

THOROUGHBRED SOUTHDOWNS.*

Southdowns are acknowledged the general favorites for wool and mutton. They produce the very best mutton. We do not deem it necessary to dwell on this point, as Southdown mutton is everywhere famous the world over. Butchers pay higher prices for pure and graded Southdown lambs than for any others. In England they always bring a penny a pound more than any other lambs. Consequently, blackfaced Southdown lambs always sell well. In the Southdowns we have large hams and shoulders, a prominent development of all the valued parts, and the absence of horns, long necks and large heads. Thus all waste parts are small. A Southdown will dress more real solid flesh than any common sheep. At eight months' old they will dress from 75 to 100 pounds, and they can be brought into market at any age, from that named to four years. They will attain a weight of 175 to 200 pounds at two years' old, and fatten readily at any age. They will shear from 8 to 12 pounds of superior wool annually. Farmers who keep sheep for mutton and wool will find that Southdowns "fill the bill."

A Southdown ram will make a wonderful improvement in any flock of sheep, and will enhance, very much, the value of the offspring. Wide-awake farmers cannot afford to neglect this important addition to their stock at so small a cost. Southdowns have brown faces and legs, haunch well down, small head, neck short and well set on, forequarters broad and deep, back and loins broad and straight, chest broad and ribs well arched, limbs short in proportion to size of body, bone fine, face and forehead covered with short hair, wool thick and soft, coming close to the face, ears thin and eyes bright. They are docile and thrive well.

LEGAL RATES OF INTEREST.

Maine, Massachusetts, Rhode Island, Texas, California and South Carolina have abolished all usury laws, and give the people the right to contract for money as fully as for food.

The legal rate of interest in Alabama is 8 per cent. On usurious contracts the principal only can be recovered.

Arkansas—Rate of interest six per cent., but parties may contract for any rate not exceeding ten. Usury forfeits both interest and principal.

California—Ten per cent. after a debt becomes due, but parties may agree upon any rate of interest whatever, simple to compound.

Connecticut—Seven per cent. Usury forfeits interest taken in excess of legal rate.

Colorado—Ten per cent. on money loaned.

Dakota—Seven per cent. Parties may contract for any rate not exceeding twelve. Usury forfeits all the interest taken.

Delaware—Six per cent. Penalty for usury—forfeits a sum equal to the amount lent.

District of Columbia—Six per cent. Parties may stipulate in writing for ten. Usury forfeits all the interest.

Florida—Eight per cent. Usury laws repealed. Money may be loaned at any rate.

Georgia—Seven per cent. Parties may contract for twelve. A higher rate than twelve forfeits interest in excess.

Illinois—Six per cent., but parties may agree in writing for ten. Penalty for usury—forfeits the entire interest.

Indiana—Six per cent. Parties may agree in writing for any rate not exceeding ten. Beyond that rate is illegal as to excess only.

Iowa—Six per cent. Parties may agree in writing for ten. A higher rate works a forfeiture of ten per cent.

Kansas—Seven per cent. Parties may agree for twelve. Usury forfeits the excess.

Kentucky—Six per cent., but contracts may be made in writing for ten. Usury forfeits the whole interest charged.

Maine—Six per cent. Parties may agree in writing for any rate.

Maryland—Six per cent. Usurious contracts cannot be enforced for the excess above the legal rate.

Massachusetts—Six per cent., but parties may agree for any rate in writing.

Michigan—Seven per cent.. Parties may contract for any rate not exceeding ten.

Minnesota—Seven per cent. Parties may contract in writing to pay as high as twelve; but contract for higher rate is void, as to excess.

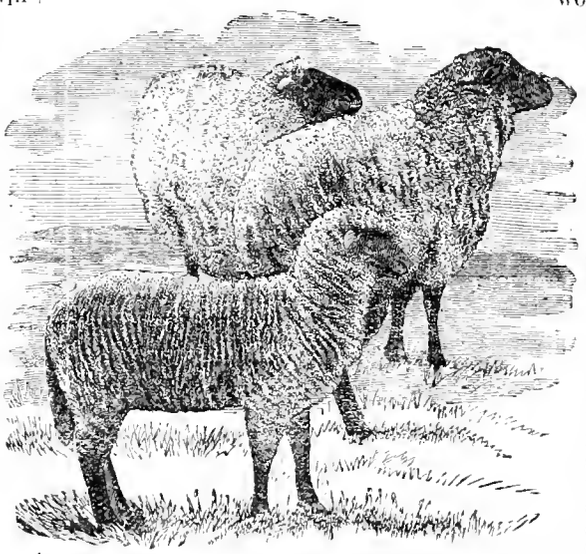
Missouri—Six per cent. Contract in writing may be made for ten. The penalty for usury is forfeiture of the interest at ten per cent.

Nebraska—Ten per cent., or any rate on express contract not greater than twelve. Usury prohibits the recovery of any interest on the principal.

New Hampshire—Six per cent. A higher rate forfeits three times the excess to the person aggrieved suing therefor.

New Jersey—Seven per cent. Usury forfeits all interest and costs.

New York—Seven per cent. Usury is a misdemeanor, punishable by a fine of one thousand dollars or six months' imprisonment, or both; and forfeits the principal, even in the hands of third parties.



THOROUGHBRED SOUTHDOWNS.

Ohio—Six per cent. in all cases where there is no contract. Eight per cent. on written contract.

Oregon—Ten per cent. Parties may agree in writing for twelve.

Pennsylvania—Six per cent. Usurious interest cannot be collected. If paid, it may be recovered by suit therefor within six months.

Rhode Island—Six per cent. Any rate may be agreed upon in writing.

South Carolina—Seven per cent. Usury laws are abolished and parties may contract without limit. Contracts must be made in writing.

Tennessee—Six per cent. Parties may contract in writing for any rate not exceeding ten per cent.

Texas—Eight per cent. All usury laws abolished by the new constitution.

Vermont—Six per cent. Usury forfeits only the excess.

Utah Territory—Ten per cent. No usury laws. Any rate may be agreed upon.

Virginia—Six per cent. Lenders forfeit all interest in case of usury.

West Virginia—Six per cent. Excess cannot be recovered if usury is pleaded.

Washington Territory—Ten per cent. Any rate agreed upon in writing is valid.

Wisconsin—Seven per cent. Parties may contract in writing for ten. No interest can be computed on interest. Usury forfeits all the interest paid.

Wyoming Territory—Twelve per cent.; but any rate may be agreed upon in writing.

Dominion of Canada—Six per cent.; but parties may agree upon any rate.

TOBACCO.

A New Pest for Tobacco Growers.

The tobacco growers in this section have found a new worm at the plants this season, which is more troublesome than the cut-worm. It is a little over half an inch long, of a brownish hue, and does not operate like the cut-worm. It commences underground just at the top of the root, and bores into the centre, and then eats out the heart of the stalk until it reaches the top of the ground. The plant thus hollowed out will remain green for a week or ten days before it begins to wilt, but the presence of the worm can be detected by the smallest leaf withering before it has long been at the root. The plant once attacked by this animal it becomes worthless and might as well be pulled up. Messrs. John and Calvin Sultzbach, who have three acres in tobacco have had one-third of them destroyed by this new pest. It was supposed that the growers had as much to contend with in the cut worm in the early stages of its growth as they could handle, but this wire-worm, as it is called, promises to give them a good deal of trouble.

[The foregoing we clip from the *Marietta Times*, and regret that the description of the "new pest" is so very indifferent and indefinite. The matter is important, and specimens of the insect should be sent to an entomologist. It would be some satisfaction to know *what* the insect is, even if he had no remedy against its destructions.]

[In contrast with the above the tobacco growers may take some consolation from the following, which is offered for all it is worth—nothing more and nothing less. If it does not instruct it may amuse:]

Three Thousand Pounds to the Acre.

The following is clipped from the Hartford *Courant:* The early writers on tobacco were fond of extolling the rare virtues, remarkable qualities, and peculiar kind of soil required for this singular plant. Some writers gave curious accounts of the size of the weed, and in Lobel's "History of Plants," printed at Antwerp (1576), is a cut representing the weed as attaining the height of our largest trees, while the leaves we should judge might measure at least ten feet in length. Dr. Liebault in his work entitled the "Country Farm," (1606), in speaking of tobacco, says that it "craveth a fat soil." Physicians wrote of its wonderful curative powers—that it could heal the sick, was a certain cure for the gout, as well as very useful in colds and fevers. Others still asserted that its use improved one's manners. In Edward Sharpham's comedy, "The Fleire," (1515), one of the characters (who is a fashionable smoker,) says to another: "Before I took tobacco I was an arrant ass," and adds, "Faith, these gentlemen have not long used my company, yet you see how tobacco hath already refined their spirits." We have no desire to enroll our name with that of either class alluded to, yet the honest grower of the plant may think so, after reading the title of this article. At first thought it may be supposed that 3,000 pounds of leaf tobacco can not be grown on a single acre of land, but when the method adopted is fully explained it can hardly be doubted by even the most incredulous. Doubtless some at least who read this article have grown 2,300 pounds, or even 3,500 pounds, of tobacco to the acre, and we remember to have read several years ago of a tobacco grower in Massachusetts who raised 2,600 pounds of leaf tobacco on a single acre of ground. These amounts are usually considered very large, and when it is affirmed that one ton

*Photographed from W. Atlee Burpee's flock, now owned by Benson & Burpee, Philadelphia.

and a half of tobacco has been obtained from a single acre, many will regard it as simply a bar-room story, or wholly a myth.

Tobacco in Berks.

The Berks county agriculturists are waking up to the importance of the tobacco crop. At the last meeting of the agricultural society the following preamble and resolution were passed:

WHEREAS, The culture of tobacco has proved highly remunerative and is extensively cultivated in the adjacent county of Lancaster, and with a view of stimulating the farmers of Berks to commence its growth, therefore

Resolved, That the Agricultural and Horticultural Society of Berks county offer a premium of fifty dollars for the best acre of tobacco grown in this county, and that the president appoint a committee of three farmers who shall be authorized to award the premium in 1878.

CUTTING AND CURING TOBACCO.

The *United States Tobacco Journal* makes the following statement of some experiments which have been made in some of the tobacco producing districts of Germany, with decided success. At the time the plant is ready for cutting, judgment should be used in determining the body and texture the leaves posses at such time. If the leaf should be of a flimsy, weak character; the whole stock, including *the root*, should be extracted and nailed, or hung up in the barns with the tips of the leaves hanging downward. This will greatly benefit the leaves, as the sap contained in the root will gradually diffuse itself into the leaves and add considerable to their strength and the coming sweating process. If on the other hand, the leaves should be of heavy character, then only the leaves should be cut off and hung up. This will reduce the surplus of sap, deprive the leaf of any accumulation of strength, turn out to be of a thinner and more desirable texture after sweating.

[Of course, our experienced tobacco growers will know more about the value of the above than we do, and we only quote it because "In the multitude of counsel there is safety."]

CULTURE OF TOBACCO.

A few Practical Hints—Danger of Overdoing it—Shedding, Sorting, etc.

This is a subject which at the present time seems to be foremost in the great agricultural interests of our county, and is claiming the attention of the majority of our farmers. In fact, with us, it is the great topic of conversation, and apparently seems to be the golden dream of every owner of land—from the possessor of a parcel of 20x40 feet, to the large landholders. Every one you meet talks tobacco; as if it were not enough to chew and smoke it. It is the everlasting theme that greets our ears from morn to night, and on every side. And as a consequence its culture, &c., being the great subject of the day, and items of news being scarce, we concluded that perhaps it would not be amiss to throw out a few practical hints in regard to its culture, &c., formed from observation. It is true there are "millions in it," but the question has arisen in our mind if it may not be possible that it may be overdone. First, may not the soil finally fail to produce, and may not the growers in their anxiety to amass wealth, overstock the market, and as a consequence reduce the price or value of it, and thereby realize less from it than they would from a corn or wheat crop. As a general thing growers of tobacco use every particle of manure and fertilizer that becomes available on the tobacco ground, entirely neglecting the manuring of the wheat, corn and potato patch, and as a consequence short crops are the result, and instead of, as in the days of yore, when thirty-five and forty bushels of wheat were harvested from the acre, the average yield has fallen to fifteen and twenty-five bushels, a decrease of almost one-half, besides a very short crop of straw; and such is the case with all other crops. The question need not be asked why this is, for it is an admitted fact that tobacco absorbs in its growth from the soil certain ingredients or properties of the same, that heavy fertilizing and rest of the soil will alone replace again. And another point which we desire to draw attention to, is that two many land owners endeavor to grow more themselves than they are able to manage, and as a consequence it fails to get that attention necessary to secure a good crop. We have frequently observed that some of the land owners put out from twenty to thirty acres of their best land, and entirely robbing the balance of the farm of manure, and whilst endeavoring to farm more than they can properly work or give their attention, the result follows, that where they have one acre of good tobacco, they have five of an inferior character (and all other crops neglected and short according), and consequently flooding the market with an inferior article. We hold that no one man can properly with the care and attention necessary, manage more than two acres, and then only by giving it his whole attention. Besides, as a general thing, many of those growers have not sufficient shedding, and are therefore compelled to crowd it into too small a space. To cure tobacco properly it should have sufficient room, so that each stalk may hang free from the other; otherwise we will have what is commonly known among the growers as "mow-burnt" tobacco, and also an ununiform color. We predict that if farmers continue to presist in driving their land in growing crop after crop so extensively, without sufficient fertilizer and rest, that their land will finally become non-productive. There should by all means be a less area of land farmed, and that should be placed in charge of good experienced growers, and not more than two acres to any one man, and I feel justified in asserting that a better and more merchantable article will be placed in the market, and as a consequence a better price realized, and in the end recompense the owner of the land better than if he had double the number of acres, besides resting his land. We have known right in our own vicinity, growers to realize from three acres, which were well managed and attended, as much as some growers realized from ten acres. The reason is quite simple and reasonable. In the first place, the land was well manured; secondly, they had plenty of room to house it, without crowding; thirdly, they were able to give it all the attention required—keeping it free of worms, &c., and, lastly, sorting it properly. In the last particular many fail in putting forth a good merchantable article. It should be properly sorted, too much care can not be given in this direction. Sound and uniformed colored leaves should be placed by themselves—each stalk should be very carefully examined when being stripped, leaves should also be of a uniform length, a handful with long and short leaves tied together make rather an unmerchantable appearance, and very often cause a poor sale. We think from what little experience we have had, that many growers also fail at the time of topping, by waiting until the seed-head makes its appearance. This, we hold, is a bad practice, from the fact that the top leaves never fully mature, and as a general thing cures very irregularly, and nine out of ten of a light yellow color. In our judgment we think that it should be topped, even on very strong land, with from ten to fourteen leaves at the outside, and experience has taught us, that as much weight can be grown from the acre by low topping as if topped eighteen and twenty leaves, besides a better article. But I am becoming lengthy, and will leave the subject for some future time.—*Zebedee, Washington Borough, June 4, 1877, in Examiner and Express.*

THE TURNIP CROP.

There has been given more attention of late years to the culture of turnips by those who live in the vicinity of large cities than was formerly the case; and we are glad to find it so, for there is no better sign of a prosperous farm than a field of first-class turnips. It shows at once that he who raises them does not altogether depend on grain raising, and also that he knows how to keep up the fertility of his soil, for one may as well expect to gather figs from thistles or grapes from thorns as to have a good crop of turnips off a piece of poor land.

At the same time it will bear remark, that turnip-culture is not attended to with that degree of thoughtful skill which aims to produce the best results with the least expenditure of labor and skill; and the consequence is that many a turnip-crop costs more in labor than the whole thing is worth.

It is often said that the labor of putting and topping costs as much as the turnips bring; but that is chiefly owing to the small size of the roots. Of course it takes less than one-half the time to work a bushel of large size than it does small ones. It is worth a little extra care, therefore, to get them all as near as possible of full size.

The trouble with many is that they fear the seed may not all be good, and hence it is sown much more thickly than it ought to be, but the proper way is to test the seed before sowing, and then sow understandingly. It is a common belief that turnip seed will grow after being many years old. Some of it will, but experiment has shown that of a hundred seeds which will grow when one year old, some will not grow the second, and less the third. The older it is the worse it is. If, therefore, good fresh seed is to be had, it need not be sown any thicker than desirable on this account. Again, some fear losses by the fly; but if seed be sown as it ought to be on rich soil, it usually grows faster than the fly can eat it. At anyrate the fly is as likely to destroy it when thickly as when thinly sown. It is much better to risk a thin crop than to have so much labor brought about by a too thick sowing.

We believe that it is generally conceded that the white turnip is best sown broadcast, as in drills they get too large and "pithy." The rutabaga, however, never get too large for us, and thus drill culture is employed exclusively for it. For the same reason it is sown in July, while for the ordinary turnip, August, or even early in September, is quite time enough for it.

Besides the evidence of prosperity which good turnip culture affords, a crop of turnips is in itself a means of prosperity, for there is nothing more useful where a number of cows or sheep are kept. Dry cows can almost live on them; and by proper timing the food, they can be given to milch cows without any danger of flavoring the milk.—*Germantown Telegraph.*

THE ORIGIN OF PRAIRIES.

Why they are not Encroached Upon by Bordering Woods.

In a paper in the *American Naturalist*, Prof. J. D. Whitney, after showing the insufficiency of the ordinary theories to explain why prairies are not encroached upon by bordering woods, offers the following explanation of his own:

"Let us turn at present to the geological side of the investigation. The whole of New England and New York, and a large part of Ohio and Indiana, together with the whole of Michigan and Northern Wisconsin, constitute a region over which the northern drift phenomena have been displayed on a grand scale. Consequently almost the whole of this area is covered with heavy deposits of coarse gravel and boulder materials. These deposits, if not at the surface, are near it, and the finer materials deposited on them, by alluvial and other agencies, generally form only a thin covering for the coarse deposits beneath. But as we go south and west from the region indicated above, we find the underlying rock—the "bed-rock" as the California miners would call it—deeply covered with loose materials, it is true, but we observe also that these are quite different in character from what they are to the north and east. We come to a region where the drift agencies have

been very limited in their action. The bulk of the superficial detritus has been formed from the decomposition of the underlying rock, and this detritus has been but little disturbed or moved from its original position. If erratic deposits exist, they are usually deeply covered with finer materials derived from close at hand. A great area exists in Wisconsin and Minnesoata over which not a single drift pebble has ever been found, either at the surface or at any depth beneath it. The strata have become chemically disaggregated and dissolved by the percolation of the rain through them, the calcareous matter has been carried off in solution, and there is left behind as a residuum the insoluble matter which the rock originally contained, and which, consisting largely of silica and silicate of alumina, forms by its aggregation a silicious and clayey deposit of almost impalpable fineness. It is this fine material which makes up the bulk of the prairie soil; and as the writer conceives, it is this fineness which is especially inimical to the growth of trees. Exactly as we see the desiccated lakes in the midst of forests gradually filling up with finely comminuted materials and becoming covered with a growth of grasses or sedges, which is not afterwards encroached on by trees, no matter whether the ground becomes completely dry or whether it remains more or less swampy, so we have the praries, which have certainly never at any time been overspread with forests, and which would always remain as they are, providing the climate underwent no radical change, and they were not interferred with by man. It is for the vegetable physiologist to say why this fineness of the soil is so unfavorable to the growth of trees; it is for the geologist and the physical geographer to set forth the facts which they may observe within the line of their own professional work."

HOW TO KEEP OUR BOYS AT HOME.

And now let us talk a little about the boys, whose future is so closely interwoven with our own happiness and well-being. And the first question we must ask is: "What course shall we pursue to interest them in the work of farming?" That is the chief topic to discuss, because, unless we do make it for the interest of the boys to remain with us and to pursue the honorable calling of their fathers and forefathers, they will surely seek for pleasanter places in the large cities. Often, though, their search is unsuccessful, and, after many years spent in unprofitable labor, they may gladly return to the old farm, whose rocky hills and green forests will then seem to them like the garden of Eden. Therefore, we should endeavor to make the home attractive; to give a cheery appearance to the sitting-room and the kitchen, and even to the boys' chamber, which so often is located in the attic or upper chamber of the woodshed, and contains nothing but the bare necessities of a bed room—a bed, a table, one or two chairs, and nails upon the door to hold the few garments which are their only possessions.

So let us commence with these chambers first. Give up a few of the comforts of the rarely-occupied guest-chamber, if need be, and cover the bare boards of the floor with some kind of a carpet; or, if that is not obtainable, braid or knit some bright colored rugs to spread beside the bed and in front of the bureau or washstand. Your sons are becoming men now—are 16, 18 or 20 years old, as the case may be—and demand at your hands a more comfortable apartment than was needed in their childhood. Perhaps they possess a desire for "pretty things," as well as your daughters; and it is a proper desire, and should be gratified in every possible way. Their bed should be made comfortable, and the table should be covered with a spread. If it is knitted by your own hands or embroidered on linen by their sister's, so much the better, for it shows them that their pleasure and comfort are akin to yours, and that you take delight in making them happy. Brightly colored chintz and cretonne can be procured at cheap rates now, and, by their aid, out of the homeliest materials, such as old boxes and barrels, you can fashion comfortable chairs and couches. A planed and neatly-fitted square top can also be made and nailed over a barrel, and a strong table will be the result, which, when covered with a cloth, answers every purpose. An ingenious boy, with the aid of his mother's and sisters' fingers, can fashion all sorts of pretty articles, at little expense, which will make his chamber attractive and pleasant to himself and his friends.

Then, boys should be encouraged to work *with a will* by presents of a colt, or a calf, or a lamb. Even if they possess these three varieties of stock, it will not be an injury to them, but a decided advantage, because the love of possession is inherent in the human breast, and, if it is gratified, often increases one's desire to be of use in the family—to do what is to be done with pleasure and as if it were play-work, rather than labor. Give your boy a cock and a half a dozen hens as his own property, and see with how much more zeal he will attend to the needs of the poultry. Give him a share of the egg money and see how many more dozens you will carry to market. The chief trouble with our boys is the affairs of the farm, and so they take little heed to its prosperity.

Again, it is well to encourage pleasant society for them—to join the farmers' clubs and the agricultural societies, and strive for the prizes the latter offer. Cultivate good manners, as well as good morals; and do not ridicule your sons if they like to look well dressed when they go into society, but give them the means to do so and tell them how nicely they appear. If farmers would but pursue this course, the boorishness and rusticity of their class would be greatly diminished. To be sure, there are farmers in our midst who are among the best educated and the best bred men of New England, and their sons are being trained to grace a rural life; but their number is very small and it does not increase in due proportions of the whole.—*Springfield Republican.*

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The Society met in the Athenæum, at 2 o'clock on Monday afternoon, July 2, President Calvin Cooper in the chair.

The following members were present: W. J. Kafroth, Secretary *pro tem.*, West Earl; Levi W. Groff, Earl; P. S. Reist, Manheim; M. D. Kendig, Manor; Henry Kurtz, Mount Joy; Prof. S. S. Rathvon, city; H. M. Engle, Marietta; David G. Swartz, city; C. H. Hunsecker, Manheim; Levi S. Reist, Manheim; John Garber, Hempfield; John Miller, Manheim.

Mr. M. D. Kendig, from a committe appointed to experiment and report which is the best variety of wheat, and what is the proper quantity of seed to be sown per acre, reported that he had sown side by side in the same field a strip of Fultz and a strip of Clauson wheat, and he brought for examination a bunch of heads from each variety, plucked at the same time, which showed that the Fultz variety matured much more rapidly than the other, that it contained a greater number of grains to the head, but that the grains were by no means so large as the Clauson. He had sown from one bushel to one bushel and a half of Fultz wheat to the acre, and his observation was that one bushel is quite enough where the land is fertile. In thin soil more may be required, but not in soil where the land contains a sufficient quantity of vegetable mould. He preferred the Clauson to the Fultz, though the first named is considerably later.

P. S. Reist agreed that one bushel of seed was enough to sow, unless the sower calculates that some of the seed is to fall by the wayside, or among thorns and brambles. He had known good farmers, however, who sowed a bushel and a half or two bushels with good result.

Henry Kurtz was in favor of light seeding, as the straw would then be stronger and the wheat less likely to lodge. He had sowed last fall as much as two bushels of amber wheat to the acre, but he was satisfied this was too much unless the soil was very thin. He had suffered considerably from smut and would like to know what was the cause of it.

Mr. Groff said he had made several experiments in growing wheat this season, and he would be pleased to have the president and a committee of the society to call at his farmhouse, where he would show them the growing wheat, and explain to them his mode of cultivating it. He would show them the difference between cultivated and uncultivated wheat, and the great advantage resulting from cultivation. He had also a variety of rye he would like to show the committee, the grain being of unusual size. He had taken the advice of a seedsman and sown only sixty pounds of seed to the acre. Had he used his own judgment he would have sown two bushels to the acre. He believed in a liberal use of seed; unless we sow liberally we cannot reap liberally.

Henry Kurtz thought 60 pounds of seed to the acre too little, and two bushels two much, unless the seed was very large. We should endeavor to find out just what is the right quantity between these extremes.

W. J. Kafroth said that the farmers of West Earl sowed two bushels of wheat to the acre, and there was as good a crop in that section as anywhere else in the county. He would not sow a less amount of seed.

P. S. Reist said there was on an average 36,000 grains of wheat to the bushel, and that is enough for an acre. If the grains are small there are, of course, more of them in a bushel and a less bulk should be sown. If the grains are large there are a less number in a bushel and a greater bulk should be sown.

Mr. Kendig remarked that when he recommended a bushel of seed to the acre he referred to the Fultz wheat. A larger grained wheat would require a greater weight of seed.

H. M. Engle said the question of the proper quantity of seed would never be settled among farmers, each of whom had his own opinion in the matter, and would be governed by his own experience. His own opinion was that farmers used to much seed. The English agriculturists are in advance of us in grain growing, and they raise as large crops as we do, by sowing three pecks of seed to the acre. Mr. Engle himself would never sow more than a bushel and a half of any kind of grain to the acre; but no rule can be laid down. We must use our best judgment and be guided by our own experience. His own experience was that where he sowed the seed heaviest last fall his crop was the lightest this summer.

Levi W. Groff having been requested to state his mode of cultivating wheat, said he drilled it in rows several inches apart. This he did by changing his wheat drill so that it had but four instead of the usual eight seed spouts. He had shovels so arranged as to scatter the seed in each drill to the width of about four inches, instead of allowing it to lie in a straight line, as is usually done. After the wheat is well up he cultivates it with the shovels attached to the wheat drill, the shovels being passed between the rows of wheat the same as the cultivator is passed between the rows of corn. He had no difficulty in getting the mules to walk between the rows of wheat. They seldom tramped it any, and if they did it would do but little harm. He was certain by his mode of cultivation that he could raise at least six bushels more wheat per acre than by the old plan.

D. G. Swartz said that if Mr. Groff could do as he said he could do, his mode of cultivating wheat was certainly a great discovery. If the man who caused two blades of grass to grow where only one grew before was a public benefactor, how much more a benefactor was the man who could add six bushels of wheat to each acre grown.

Mr. Kurtz said that Mr. Heiges, of York, had for some years cultivated his wheat, and had last year grown twice as much per acre as by the old method.

Levi S. Reist said that though the cultivation of wheat was a new thing in Lancaster county, it was old in some other parts of the world. In Japan they cultivate wheat just as we do corn or other vegetables.

Mr. Engle said all plants are improved by cultivation, and wheat is no exception to this rule. It will pay the farmer to cultivate it. He illustrated the advantages of even rough cultivation by telling of a farmer who had thoughtlessly left his harrow in the wheat field after the seed had been harrowed down in the fall, and not wanting the harrow, allowed it to remain there all winter. Late in the spring he sent a boy for the harrow, and the lad dragged it from one end of the field to the other over the young wheat. His master was almost tempted to flog him for doing so, but the wheat that had been thus rudely treated at once took a fresh growth, and was soon ahead of that in any other part of the field, and it continued in this condition to the time it was harvested—the part over which the harrow had passed being distinctly marked by its superiority.

Mr. Swartz favored cultivation, and said that though he was generally regarded as merely a dealer in lands, he had 800 acres of cultivated lands in Iowa, Nebraska and Kansas—in each of which States different varieties of wheat were grown and different modes of farming adopted. It was his desire to learn the best mode so that he might be benefited by adopting it.

Crop reports being called for, P. S. Reist, of Oregon, Manheim township, reported the grass crop at 75 per cent., and wheat 75 per cent., with harvesting fairly commenced; oats very promising; will

yield 100 per cent: corn is from middling to good, promises 75 per cent; apples scarce; peaches good where there are trees, but there are not many in this neighborhood; cherries very scarce.

H. M. Engle, of Donegal, reported a fair average of wheat and nearly an average of hay; corn looks well and promises a good average; potatoes could not be better, there will be the heaviest crop grown for years; there being no potato bugs, new potatoes are already selling for 50 cents a bushel; apples suffer from the curculio and codling moth; peach crop fair, pears the same. The rainfall in June was 3 4-10 inches.

M. D. Kendig, of Manor, reported the hay crop heavier than was expected earlier in the season; wheat very good; oats fair; potatoes good; peaches good; pears pretty good; other fruits not very good; cherries very scarce. Rainfall during June 3 2-10 inches.

Henry Kurtz, of Mount Joy borough, reported that in that section there would not be more than 60 per cent. of wheat; full crops of corn and oats; no potato bugs and plenty of potatoes; tobacco very promising. The wheat in his neighborhood has been much injured by the fly.

Levi S. Reist, of Manheim, reported that the wheat sown before the 5th of September would produce but little, while that sown after the 12th would produce from 25 to 30 bushels per acre.

C. H. Hunsecker, of Manheim township, said he lived near the line of Leacock and Lampeter townships, and in his section nearly all the wheat fields look well. The corn is growing vigorously; oats looks well; tobacco generally very good; potato crop immense, the tubers being already as large as a man's fist. There were never better crops in that neighborhood. He thought farmers were apt to estimate the capacity of their farms at too high a figure, and then feel disappointed if the crops did not reach their estimate. Our fathers were satisfied with 15 to 20 bushels to the acre, while we expect to get from 30 to 40.

Mr. Kurtz said that he had raised 40 bushels per acre, and his neighbor Smith Patterson had raised 42 bushels. This year his wheat was poor, the fly and smut having greatly injured it.

Levi Groff asked if there was any smut in other sections of the county except that mentioned by Mr. Kurtz. In Earl and other parts of the county through which he had passed he had seen none.

W. J. Kafroth had seen smut in Manheim, but nowhere else.

President Cooper, of East Lampeter, reported the wheat crop full; oats never looked better; corn promising; hay a full crop.

On motion, the questions proposed at last meeting for discussion at the present meeting, were postponed.

P. S. Reist suggested that the averages of our crops as at present established are too low. He suggested that they be raised to the following figures: Hay two tons per acre; wheat 40 bushels; oats 60 or 70 bushels; corn 80 to 100 bushels. He moved that a committee be appointed to consider the proposition and report to the society.

Mr. Engle moved to amend by adding that a premium be offered to the farmer who raises the largest crop on a given area, the area to be specified by the committee.

The amendment was accepted, the motion as amended, adopted, and the chair appointed the following committee: P. S. Reist, H. M. Engle, M. D. Kendig.

Levi S. Reist presented for inspection a sample of very small red wild cherries, not larger than currants and very sour. He had several trees of this variety upon his farm. The tree grows to a height of 20 or 30 feet, it is very hardy and the wood and leaves closely resemble the cultivated red cherry. It does not bear abundantly, but he believes it might be utilized by grafting upon it cultivated varieties. The birds seem fond of the fruit.

The following questions were proposed for discussion at the next meeting:

"Should the grass be taken from the lawn when cut by the mower?" Referred to Levi S. Reist.

"What causes smut in wheat?" By Henry Kurtz.

"Will it pay farmers to erect sheds or roofs over their manure piles?" By W. J. Kafroth, for general discussion.

President Cooper, H. M. Engle, Levi S. Reist and Peter S. Reist accepted the invitation to visit the farm of Levi W. Groff on Thursday, the 5th, Mr. Groff extending a cordial invitation to all others who might wish to attend. Adjourned.

Tobacco Growers' Association.

The Lancaster county tobacco growers' association met in the Athenæum, Monday, June 25th.

The minutes of last meeting were read.

The following members and visitors were present: M. D. Kendig, Manor; Webster L. Hershey, East Hempfield; Wash L. Hershey, Rapho; P. S. Reist, Oregon; Henry Shiffner, Upper Leacock; A. H. Yeager, East Lampeter; J. M. Johnston, city; Clare Carpenter, city; Jacob B. Witmer, Manor; H. H. Hostetter, Oregon; John Brady, Millersville.

Visitors—Benjamin Rohrer, Levi S. Reist, Martin Landis, Emanuel Lehr, F. R. Diffenderfer.

The discussion of the question, "What are the best fertilizers for tobacco lands?" deferred from last meeting was renewed.

P. S. Reist said he was trying this year a number of different kinds of fertilizers—barnyard manure, chicken manure, phosphates, guano, gypsum, and bone dust. Chicken manure he thought would kill the plants in dry weather if it touches them. He has tried chicken manure and phosphates on poor patches of ground by putting it on the ridges well covered up and it had a good effect. He mixes the chicken manure with earth.

Henry Shiffner mixes chicken manure with ashes and gypsum and has obtained good results. Chicken manure alone is too hot, and will burn the plants.

P. S. Reist noticed that in the plant beds chicken manure was used that the plants had a yellow and sickly appearance.

Washington L. Hershey, of Rapho, had last year used phosphates and saw no good results, indeed the tobacco was not as good where the phosphate was used as where there was no manure.

President M. D. Kendig said he had no faith in concentrated manures, dealers discourage the use of them. He thinks stable manure thoroughly composted better than all others, and should be almost exclusively used where a sufficient supply can be had.

P. S. Reist wished it to be understood that he preferred barnyard manure to all others, and used it for the bulk of his tobacco; but was this year using the other manures as an experiment. If we should have a poor piece of ground and could not get barnyard manure with which to enrich it, it would be well to know what kind of manure is next best among the commercial manures in use.

Mr. Yeager recommended plowing down green rye where stable manure is hard to be obtained.

Mr. W. L. Hershey said he last year used barnyard manure and this year is doing the same, plowed down the manure and then gave the ground a top dressing of pig manure, and wound up by using plaster and liquid barnyard manure.

Crop reports being called for, Henry Shiffner said that plants in his section, Upper Leacock, were doing well; the cutworm has not bothered him.

Webster L. Hershey, East Hempfield, said he planted 10,000 plants this spring, all of which are growing finely except about 200 which had been destroyed by the cut-worm. These were in ground plowed this spring. In ground that was plowed last fall the cut-worm has done no harm. Plants in his section of the county look very well and are growing rapidly.

P. S. Reist said the plants were well started and were thriving finely. But few cut-worms have been found, and but little replanting has been done. He spoke of a field of tobacco some distance north of this city, which had attracted his special attention, the plants having leaves already from ten to twelve inches long.

Israel L. Landis, who was prevented by business from attending the meeting, sent in a paper containing his observations of the tobacco crop in the northern section of the county. Mr. Landis writes that the plants are nearly all set out and that there has been less trouble than usual in getting them well started, the warm rain that fell enabling farmers to start the plant without watering. The cut-worm is not so destructive as in former years, and hence there has been but little replanting. Many farmers maintain that when there are few cut-worms there will be correspondingly few green worms to eat the leaf during the growth of the plant. This may be a matter worthy of future observation. The acreage this year will be very considerably increased—many are planting this year who have not heretofore planted, while others are planting more than usual—the prices received for last year's crops having stimulated growers to do their best, and caused others to fall into the error of trying to farm more than they can properly care for. Along the sandy hills of the Conewago, in Dauphin, as well as in our own county, growers rake the manure close together for the tobacco crop. Unless this is done the crop remains short, and if it is done it results in injuring other crops—corn, wheat, &c., by keeping away the manure they should have. This is a grave trouble that stares us in the face, and is of great importance to the whole community. How can the fertility of our farms be best maintained, and as much tobacco be obtained as now? This question should receive the serious attention of farmers, and should be thoroughly discussed by this association. There are many good tobacco barns being built in the northern section of the county, and others are already completed.

President Kendig said the crop in Manor is looking well. Not many cut-worms have appeared, except in a few patches. Everything looks favorable for an increased crop of better tobacco than we had last year, there being a feeling everywhere manifested to bestow greater care on the crop than has heretofore been done.

Webster L. Hershey said that in the northern part of East Hempfield the new crop was in about the same condition as has been reported from other sections—large healthy plants and but few cut-worms. There is an increased acreage of plants set out; his neighbor, Mr. Minnich, has 32 acres that look well. He manures liberally with ashes and scrap, purchased from a firm in Perry county, paying for it 11 cents per bushel. He cultivates thoroughly both with hand and horse power.

A. H. Yeager, of East Hempfield, reported the plants well started. Most of the fields have already been once cultivated, and the tobacco looks well.

Washington L. Hershey, of Rapho, reported the growing crop as being in good condition, and stated that of last year's crop there are still lying in bulk seven lots of tobacco. Mr. Hershey has eased, but has not yet sold his own crop.

The question referred to P. S. Reist at last meeting—"Can fertilizers be properly applied to tobacco after the plants grow, and if so, what kind, and how should they be applied?" was not discussed, Mr. Reist stating that he had nothing more to say about it than he had already said.

The question—"What is the best method of cultivating tobacco from the first working up to finishing? What machines and utensils are best adapted for use in the tobacco lands known?" referred to Jacob Frantz, at last meeting, was taken up for general discussion, Mr. Frantz not being present to answer it.

Henry Shiffner said the best method is to cultivate constantly. As soon as the young plant has taken root, commence using the hoe and continue using it. Cultivate deeply with the harrow as long as you can walk between the rows; keep the ground constantly loose about the roots of the plant. Tobacco will not grow well in hard ground; it is a "rooty" plant and must have room to spread.

P. S. Reist, Webster L. Hershey, Washington L. Hershey, Levi S. Reist and President M. D. Kendig united in declaring that constant cultivation with both hoe and harrow, "weeds or no weeds," was the true principle. Let the harrow follow the hoe, and the hoe in turn follow the harrow, that the ground may be constantly kept mellow and loose. Every alternate day is not too often to go through the field with the harrow, if time can be spared to do it. No matter if a few good leaves are tramped down; better ones will grow and take their places.

The question—"Does the growing of tobacco exhaust our soils so as to affect other crops?" was next taken up and discussed at some length.

Mr. Yeager said he had not had much experience, but as far as his experience went, tobacco exhausted the soil much less than some other crops. He believed if two pieces of ground of equal fertility were planted, one in tobacco and the other in potatoes, that the ground in which the tobacco was grown would be found in better condition in the fall than that in which the potatoes were grown. He believed that any crop that was allowed to grow until the seed matures—as wheat, oats, corn and potatoes, will exhaust the soil much more than tobacco, which is cut off green, and the roots of which, if allowed to rot in the ground, make a good fertilizer.

Washington L. Hershey agreed with Mr. Yeager, and added that tobacco stalks cut up into small pieces and composted, make an excellent manure. He has now on his manure pile the stalks from ten acres of tobacco and finds that they ferment easily, and that there is no more trouble in composting them than cornstalks, straw or other vegetable matter.

President Kendig agreed with Messrs. Yeager and Hershey. He had planted tobacco and potatoes side by side in the same field; used the same kind of manure, and gave both crops equal care and attention; and he found that the succeeding crop of wheat was decidedly better on that part in which the tobacco was grown. He cuts his tobacco stalks into short pieces and plows them under. He would much rather have a tenant put tobacco into his land than potatoes, as the latter will exhaust it more rapidly.

John Brady, of Millersville, took the same view. It had long ago been said that if we keep on raising tobacco we will ruin our land; and yet we find that our farms are every year getting better. He believed this was owing to tobacco farming. Last fall his boys piled some tobacco stalks around the butts of fruit trees to protect. This spring he pulled from under the tree grass that was fifteen inches in length, while a little distance off, where there were no tobacco stalks, the grass was only two or three inches long. He believes tobacco stalks to be among the best of fertilizers. His neighbor, Mr. Warfel, uses on his tobacco ground two hundred bushels of lime per acre, plows it down in the fall and manures in the spring. His tobacco this year is very fine, and his wheat in that part of the field in which there was tobacco last year is decidedly better than elsewhere.

W. L. Hershey said he had last year a tract of land planted in tobacco, potatoes and corn, all of which received the same kind of manure and equal attention. This year it is planted in wheat, and the crop looks better in that part which was planted in tobacco than in that which was planted in potatoes, and better in the potato land than the corn land.

The following questions were proposed for discussion at next meeting:

"What is the proper time and height for topping tobacco?" Referred to Henry Shiffner.

"Is there any advantage in scaffolding tobacco in the field?" For general discussion.

On motion adjourned.

THE LINNÆAN SOCIETY.

A stated meeting of the Linnæan Society was held on Saturday, June 30, 1877, the President, J. S. Stahr, in the chair and seven members present.

The Donations

to the Museum were then examined and found to consist of a large jar containing interesting specimens from the Ohio river, put on special deposit by Mr. Martin Stanton.

A fine specimen of the Menobranchus or Western Mud-Puppy, much like our "Hellbender," (*Menopoma Alleghenienses*) met with in the Susquehanna river.

A fine specimen of the shovel-nosed sturgeon, or spade fish. The *Scaphirhinchus platirhinchus*, is generally separated from the true sturgeons, "*Acipenser*."

Two fine specimens of the "spoon bill fish." These are distinguished from the "shovel-nosed" by being destitute of bony shields, and with an enormous expansion of the snout into a long, flat, rounded form, like a spatula, and known generically as *Spatularia* and *Planirostra*. The *P. foliun* is the paddle fish, or spoon billed sturgeon, to which these no doubt belong. (See U. S. R. R., Vol. VI, p. 357.)

Two large horns of the "Rocky Mountain Sheep," (*Ovis Montana of Cuvr.*) One is from Mr. Wm. Rhoem, from a male weighing probably 350 pounds; it is said the Indians consult or use the rings upon these horns as a calendar. The other horn was donated by Mr. Charles E. Wentz, who received it as a present from the "Little Soldier," a Shoshone chief, at Salt Lake City, Utah, in 1859. Tradition claims this horn to be more than 2,200 years old. Each hundred years is represented by a black ring around the horn. One hundred and twenty-five moons mark ten years. We will accept the tradition rather than attempt to prove the contrary.

A relic of "Ye olden times," was found on removing an old tenement by Mr. Cogley, adjoining the Keystone Hotel. This is a mold made of potter's clay, dated 1735.

A German device for embossing confections and cakes, called "Springerlen;" some local Pennsylvania Dutch, says Mr. R., called it "Matzabaum"—my recollection is the "Christmas tree" was so called, upon which these and other confections were suspended. Mr. Michael Fisher donated two boxes of the white sand from the mines of Messrs. T. Baumgardner and Geo. M. Franklin, of this city, discovered in 1868, in Mifflin county, Pa., five miles from Lewistown. This sand is used extensively in the manufacture of glass at Pittsburg, Pa.

A singular growth of a cherry branch, lodged in the fork of another branch and completely imbedded in the wood, from Mr. J. B. Bomberger, of Manheim.

Mr. Umbel, of the Junction, sent some galls found on the witch hazel (*Hamamelis virginica*) made by a species of *Phylloxera*, of which there are many species.

Willie Rathvon donated a mineral, brought up from a depth of 65 feet in sinking a well at New Holland, this county. It has all the characteristics of the common rotten stone, or Tripoli, used for a polish on silver and the finer class of goods. It consists of silica in an extremely minute state of division, fully equal to that imported from Wales and England. That which is brought from the river Trent, consists chiefly of infusorial animalcules.

Master Harry A. Dubbs presented several fossil imprints of spirifers and ganoid osseous plates.

Prof. Dubbs donated a singular stone, shaped like a mallet, with a hole on one side, as if a pebble had been embedded or naturally formed.

Rev. C. L. Houpt deposited some of the cubic stones taken from a Mosaic pavement in Naples, fossil encronoids.

A number of the barnacles from a sea tortoise, by Mr. Copeland, per Mr. Westhaeffer, and the animals taken from them and put in alcohol, by Mr. Rathvon.

Seven bottles of insects, collected near McCalls' Ferry, York county, June 13, 1877. One containing the elm tree beetle, getting quite too common.

A specimen of felting used as a non-conductor of heat and cold, used as a filling in, per S. S. Spencer.

Mrs. Zell sent a specimen of an *Ornithogalum* found wild. Our common *O. Umbellatum*, which has escaped from gardens. Londen describes 29 out of 47 species known in his time. This may be the *O. Narbonenses*, also escaped from gardens.

Mr. J. Stauffer deposited fine specimens in fruit, showing the cups, barren and fertile, pedunculated fructification of the common "Brookliver wort." *Marchantia polymopha*. This is growing in the interstices of the bricks in the paved alley, between his dwelling and Solomon Sprecher's, East Orange street, this city. It is frequently met with on rocks and crevices along streams, but to become a citizen and dweller on a brick pavement is a new freak.

Historical Collection.

A copy of the Marietta *Pilot* of June 7, 1814, Sundry scraps and clippings of interest. Three envelopes per S. S. Rathvon.

Library.

Copy of 11th Volume of Pennsylvania Agricultural Society.

The Ninth Annual Report on the Noxious and Beneficial insects of Missouri, by C. V. Riley.

Copy of the San Francisco *Herald*, per Peter Baker.

Proceedings of the Academy of Natural Sciences, part 1, January, February and March, 1877.

Lancaster Farmer, June number. Index to the Official Gazette Patent Office for 1876, and weekly numbers of Sundry Book Catalogues.

Papers Read.

Descriptive catalogue on the donations to the museum, by S. S. Rathvon, No. 565.

Illustrated description of the *Marchantia*, or Liverwort. J. Stauffer, No. 566.

Report of an entomological excursion to McCall's Ferry, June 13 and 14, 1877, per S. S. Rathvon, No. 567; and notice of the barnacles in an appendix.

The following reverend gentlemen, J. S. Stahr, Dubbs, Geissinger and Houpt, took part in the scientific miscellany suggested from specimens deposited and commented upon, giving quite an interest to the meeting.

A bill for alcohol used in filling up some of the jars, amounting to 50 cents, was reported and ordered to be paid. No further business offering, after a short and pleasant session, adjourned to Saturday, July 28, 1877.

AGRICULTURAL.

Report of the Department of Agriculture for June.

The June report of the department of agriculture indicates a better prospect than usual for wheat. The report of June, 1876, made the average for the country thirteen per centum below the standard of normal condition, and subsequent returns of the condition and yield were still lower, forecasting the scarcity which has occurred. The average for winter and spring wheat together is this year one hundred; winter wheat being above that figure, and spring wheat below it.

There are 277 counties reporting winter wheat in full normal condition; 494 above 100, and 183 below it. Of the spring wheat counties 92 report 100; 117 above, and 157 below. The State averages are as follows:

Maine, 101; New Hampshire, 102; Vermont, 102; Massachusetts, 100; Rhode Island, 100; Connecticut, 103; New York, 108; New Jersey, 100; Pennsylvania, 93; Delaware, 97; Maryland, 103; Virginia, 109; North Carolina, 100; South Carolina, 97; Georgia, 108; Florida, 100; Alabama, 96; Mississippi, 107; Louisiana, 103; Texas, 110; Arkansas, 106; Tennessee, 91; West Virginia, 107; Kentucky, 108; Ohio, 115; Michigan, 109; Indiana, 112; Illinois, 105; Wisconsin, 97; Minnesota, 95; Iowa, 102; Missouri, 110; Kansas, 99; Nebraska, 103; California, 50; Oregon, 109. Returns from California indicate half of a fall crop from deficiency of winter rainfall. Fewer injuries from insects and rust are reported than usual. In the Ohio Valley every return is favorable. In Pennsylvania and in Tennessee the slight depreciation is caused by the Hessian fly.

The only serious injury is caused by the destructive grasshopper of the plains. This pest has been most injurious in Minnesota, hatching numerously in all the settled portions of the state through four degrees of latitude, from Becker county to Freeborn, on the southern border, and including all west of the third tier of counties on the Iowa line. The combined efforts of farmers will prevent a large proportion of the loss.

"Hopperdozers" destroy at the rate of five bushels of grasshopers daily in sections of greatest abundance. In the Western half of Missouri, and throughout the wheat fields of Kansas and Missouri, losses are reduced to a minimum by the effect of wet and cold weather after hatching, and subsequently by the successful warfare of wheat growers. Heavy destruction of wheat by grass-hoppers has occurred in Texas in certain localities.

A Farm Roller.

Agricultural writers for nearly a century back have extolled the field roller as one of the most essential implements of the farm, and farm experience has substantiated the many claims made for it. For crushing clods and lumps, thus performing one of the most important functions in preparing a good bed for the reception of seeds, the roller has no efficient substitute; the harrow and brush are well in their way, but in some conditions of soil are of comparatively little use. Rolling after seeding effects a purpose equally important, as the roller brings finely pulverized soil in contact with the seed, rendering germination certain and rapid. By the use of the roller, land seeded down to meadow is made level and in admirable shape for the mower and horse-rake.

Pasture land is left smooth, slightly, and better fitted for an even and luxuriant growth of grass. In a season of drouth, land that has been thoroughly rolled will suffer far less than that of the same quality unrolled, for it better resists evaporation. The enlightened farmer of to-day would as soon think of dispensing with his drills and cultivators as his field roller. There is, however, a difference in rollers; some are clumsy, cumbersome, unwieldy affairs, and any improvement upon the old style is an important item. The increase of crops in a single year, to say nothing of the improved condition of the farm, will amply repay the cost of the roller.

Carting Out Manure.

In hauling out manure at this season of the year, says T. B. Miner, in the *Sun*, upon fields to be plowed in April or May, if the heaps be made of a size to equalize its distribution, the same as would be made if the land were to be plowed without delay, there will be a great loss in the manure by the escape of its ammonia and drying of the surface of the heaps. Suppose a two-horse load of first-rate stable dung be placed in six heaps in a field in February, and this manure remains in these heaps to the middle of April or the fore part of May, and are then spread and the land plowed, how much loss does the manure sustain? Not less than ten per cent. There must be a certain degree of loss—more than farmers can afford to lose—and the question is, how is this loss to be prevented? One way is, to wait till the ground is to be plowed, and then haul out the manure and plow it under as fast as it is spread. But farmers are too busy to haul it out then, and are compelled often to draw it out in the winter. If one must do so, it would be a good plan to make the heaps large, but not too large to be spread properly with a little extra hard labor; pack them as solidly as possible, and if they be well built up and trodden down, they may be so compact with a little labor that not over one or two per cent. loss will take place. Another way is to put only three or four very large heaps to the acre, making them compact, as in the foregoing case; and when the time comes to spread the manure take, a team and sled with movable sideboards and proceed to remove some of the manure to other places, so that when it is spread it will be evenly distributed. It would be but a short operation to remove a part of the manure in that way, and I think the labor can well be afforded by farmers, rather than lose so large a portion of their stable dung by evaporation, as the ordinary method of hauling out manure in the winter is sure to cause.

Liquid Manure.

F. R. Elliot says, in the *American Rural Home:* It is generally believed that no system of enriching land for small gardens, with a view to perfection of crops, is so truly economical and so easily available as that of liquid manure. We occasionally hear of a gardener or an amateur fruit-grower who has practiced enriching the crop by use of liquid manure; but it is not a common practice so to enrich our gardens and lawns, however oftimes the advocacy of the practice has been written. The writer practiced the sprinkling of a lawn in a dry season with weak liquid manure-water, and in the greatest of heat and drought has kept it fresh and green. In the management of pot plants no course of supplying food equals that of a judicious use of liquid manure. There are in almost every famliy waste liquids, which usually go into a sewer or drains, or possibly upon the road, where they are of no avail. But, if saved, by being conducted to a tank, along with wash waters of the house, would enrich an entire garden for vegetables and fruits, flower borders, etc.; and the whole, if the wash be applied regularly and at night, after sunset, in moderate quantities, would prevent the driest weather of mid-summer from checking vegetation. If an unpleasant odor comes from the tank, a little plaster (gypsum) sprinkled in and around the tank would keep it sweet and clean. Again, the use of liquid manure need never delay planting because of manure not being on hand; but planting could proceed, and the application of manure be made at leisure.

Cut the Weeds While Small.

No farm, or garden even, can be kept clear of weeds unless they are attacked early, when they are small, tender and easily extirpated. Let them get a start on us, and they will not only take a double share of soil nourishment, but will resist the hoe or the plow stubbornly, and not always comes off second best. If their roots become once firmly established, not even the plow or the hoe will always remove them root and branch; but take them early and at them whenever they show their heads, and they are easily kept down. This fact is well-known to all who cultivate the soil; but sometimes the hurry of work will force one to defer the weeding process for a little while; meantime a prolonged rain sets in, a godsend to the weeds, which make great strides to run their course and mature their seeds; and then we all know the labor of dislodging them. We may harrow and cross harrow and still some are left, and nothing but a carefully used hoe or the hand can get at them. And after all there will be found to be some of the roots that have escaped and will require additional labor to extirpate thoroughly.

When young the weeds can be dispatched easily. They have but little hold of the soil, and once removed they are disposed of, and it is only the new young ones following that will require attention, and can be managed as before.—*Germantown Telegraph.*

HORTICULTURAL.

Blackberry Culture.

As we are approaching the blackberry season it will do no harm to reflect on how great and how rapid has been the improvement of this fruit. Thirty years ago there is no mention of it in any nursery catalogue, and the wild fruit of the hedges was all that was in use. These at best were dry, seedy things; but they served some good purpose in pudding-making, and now and then in pies and tarts. This is about the position the blackberry occupies in English fruit-eating; and to this day they, naturally unaware of the rapid progress we have made, wonder at our taste in admiring such things.

But the discovery of the "New Rochelle," a wild sprout from the common high bush blackberry, at New Rochelle, N. Y., gave the whole class a start. Good varieties are now "as plentiful as blackberries," and new ones are appearing every year. It is singular though that all the new ones are chance seedlings, found wild, as the first good one, the New Rochelle, was; and, indeed, few if any are yet superior to it.

But even this and the best of them, whichever one's taste may decide the best one to be, is very much improved by good culture; and, conversely, very much injured by bad. Almost yearly we are told that this or that variety is "not hardy," just as if we were speaking of some exotic plant, forgetting that the original plant was perhaps found in our neighborhood's neglected fence-corner, where it had been growing many years, and never thought of giving way to the fiercest winter's wind. Why should a plant, hardy in nature, become tender when planted in our gardens? There can be but one answer: Our systems of culture are not favorable to hardiness. In what particular respect is our culture defective?

There can be little doubt that the injury to the roots, which our system of culture entails, must be injurious. In a wild state the blackberry has a few creeping roots that run near the surface and collect the food. The hoeing and cleaning necessary in garden culture keeps these roots in continual disturbance. It is well-known to cultivators of peach orchards that the stirring of the soil has to be abandoned in summer, otherwise the disturbance of the roots results in ill-ripened wood, and the peach buds and even peach wood is easily destroyed. It is just this way with the blackberry; and it is worse in field culture than in garden culture, because the cultivator goes deeper, and by so much more is it an injury. From New Jersey especially, the land of the blackberries, comes the cry of blackberry disease and blackberry winter-killing, and of kinds "dying out;" and there is no doubt the root injury is the cause of it all. Some of us put blackberry plants near board fences or other places where the roots can get a little protection from hoe, spade or plow; and in such cases no one ever hears of blackberry disease, or winter-killed plants. They go on growing and bearing year after year, as well as if though they were in the old farmer's fence row, where they were once found.

But, says some one, are we then to let our blackberries grow up to grass and weeds, and have the whole garden look like a wilderness? By no means. We must keep the garden and farm, blackberry patch included, neat and clean; but remembering that it is an injury to cut off the blackberry roots, we must begin to keep down the weeds early in the spring, so that there shall be no trouble in the fall; and when we do clean, cut the surface as lightly as we can.—*Germantown Telegraph.*

Varieties of Celery.

Many who plant celery are puzzled to account for the inferior quality of the product, though much pains have been taken in selecting a good variety. Under these circumstances it is customary to abuse the seedsman, and to declare that there has been some unfair treatment on his part in furnishing a good article.

There can be no doubt but that a good variety is of consequence. Some kinds are very inferior in quality to others. But when a seedsman advertises a red "solid," a white "solid," or a "solid" of any other kind, he rather invites the wrath he brings on his head when the article does not turn out well. If he pretends that there are solid varieties and pithy varieties; that he has the solid kind and that other fellow over the way has the pithy kind, it is a fair moral retribution when he is charged with fraud when his own "solid" kind turns out as pithy as that of anybody else.

Of course no seedsman would deliberately go to work and introduce as a good article a pithy kind. There is no doubt but all kinds are of some value when introduced, and when a variety of this character turns out poorly, it is but a reasonable charity to believe that it is as much in the season or mode of treatment, as in the variety itself. Still it is true that some varieties will prove more permanently firstrate than others. Some kinds, like some people, will stand true under trials and temptations that others would fall before; and it is these sort of tough varieties—kinds solid in character at least—that we are in search after.

The greatest difference in celery is in the flavor. Some have a warm, peppery character, and others have a sweet, nutty taste, though even this varies. The farther we go north the sweeter the taste. Southern grown celery is always more or less bitter. As a general rule the shortest and thickest kinds are the sweetest, and besides the dwarfs require less labor in earthing up when the blanching time comes round in the fall.

The effort of the raisers of new varieties of celery just now is in the direction of these dwarf, chunky kinds. For some time past one of these known as the "Boston Market," has been the most popular; but it has its faults. In some localities it is very liable to send out side-sprouts, and when taken up you have a mass of small material, instead of one clean, undivided mass. But new kinds of a dwarf character are now being advertised, and possibly there may be some improvements among them.

It will perhaps at this season of celery seed sowing serve a useful purpose to show, as we have done, the proper direction in which to look for genuine celery improvement. It is not wise to hanker too much after new vegetables. At best it is often the turning out of an old and good friend for a very doubtful stranger. But there is real room for improvement in good celery, and we would recommend trials with the numerous new dwarfs advertised by our reliable seedsmen.—*Germantown Telegraph.*

Apples and the Way to Keep Them.

We received a few days since from George F. Melvin, of Oil Mills, a box of russet apples which were as crisp and juicy and fresh as apples generally are in the fall. They were so much finer than the withered and tasteless apples which one usually finds in May, that we wrote our friend asking how he had managed to keep them, and received the following reply:

"I use great care in picking them from the trees, and when transferring them from the basket to the barrel handle them like eggs. I get the best granulated sugar barrels to keep them in, and when the barrels are full cover them with a thick paper to keep them from the air. Then with a barrel-header I press the heads in, and keep them out of the cellar as late as I can without having them freeze. I put them in the dryest and coolest part of the cellar, and raise them from the ground three feet or more on skids, and do not open or disturb them until they are wanted for use. If exposed to the air by opening the barrels to pick them over, some of the apples will rot and others will wither."

American Fruit in Europe.

Europe is now taking a surprising quantity of American fruit. The purchases have amounted, according to the New York *Tribune*, to over $2,500,000 worth since June, 1876, compared with $600,000 in the same period the year before. Dried apples figure largely in this movement. This country has exported over 12,000,000 pounds of them since last June, as compared with 522,000 pounds the previous year. This new addition to the trade of the United States is due to invention, which has occupied itself of late with improved methods for drying and preserving for transporting fruit. The greatest progress has been made in the way of dryers. Within a year some notable inventions in this line have been perfected, which are a great requisition to the resources of the country. The fruit dryer bids fair hereafter to be as much of a necessity to every farming community as the cider mill and the cheese factory.—*Scientific American.*

Raspberries from Cuttings.

The following is the substance of the directions for raising raspberries from cuttings of the roots, given by Mr. Parry, which may be adopted when rapid propagation is needed, or large quantities required: In the autumn, after the leaves have fallen, dig up the plants with all the roots that can be secured, cut the roots into pieces about two inches long, and pack them in a box with damp moss, or clean, coarse sand, or damp sawdust. The bottom of the box is to be sprinkled with this material, and then alternating layers of this and the cuttings fill the box. Put this box in a cellar. The cuttings must not be allowed to become dry, although a slight moisture is sufficient. In a few weeks the cuttings will have formed buds and callus. They are set out in open ground.

Floating Melon Gardens.

In the beautiful Valley of Cashmere, among the Himalayan mountains, lies a lonely lake called Dal. Floating about on its surface, sometimes carried by the winds from one end of the lake to the other, are numerous small islands, on which grow the finest cucumbers and the most luscious melons known. The way in which these floating gardens are made is very curious. All about the main shores of the lake grow quantities of reeds, sedges, and water lilies. When these grow very thickly together people cut them from the roots which hold them near the shore. The leaves of the plants are then spread out over the stems, making a sort of trestle-work to support the soil with which it is next to be covered. After this has been done the seeds are planted, and the floating garden is left to care for itself until the fruits are ready for picking.

DOMESTIC ECONOMY.

Household Recipes.

Corn meal Muffins.—Two cups of corn-meal (yellow meal is best), one of Graham or white flour, one-half cup of sugar, two teaspoonfuls of cream of tartar, all rubbed through a sieve. Then with the hands rub in one-half cup of butter, or lard well beaten, a little salt, one egg beaten light. Then stir in with a spoon one and a half cups of either milk or water, in which is dissolved one teaspoonful of soda. Bake in muffin rings. These are nice without the egg, and can be made with sour milk and soda, omitting the cream of tartar.

Potato Salad.—Boil one egg very hard, rub the yolk to a pulp, add one raw yolk, one teaspoonful of flour or cornstarch, one teaspoonful of vinegar, two of sweet oil, one tablespoonful of butter, one salt spoonful of mustard, a little cayenne pepper, and salt; beat all to a cream and pour over cold-sliced potatoes.

Boiled Fruit Pudding.—One quart crushed wheat, one teaspoonful cinnamon, half teaspoonful cloves, two cups sugar, two eggs, one half pound suet, chopped fine, one teaspoonful cream of tartar, one-half teaspoonful soda, half cup of molasses, half pound raisins, chopped fine, citron or lemon peel if desired. Boil two hours.

Hot Slaw.—One head of cabbage, half a pound of pork, and fry it out and take out the scraps. Chop up the cabbage and put in the fat with water and pepper, if liked, mustard. When nearly done add one cup of vinegar.

Indian Pan Cakes.—One pint meal almost; fill up with flour; scald the meal, but not the flour; thin with milk; salt; last thing add one teaspoonful cream tartar, and one-half soda, mixed together; ring and bake right away.

Stewed Carrots.—Boil the carrots until tender; also boil seperately five small onions; cut the carrots into any small fanciful pieces you may choose; mince the onions, and chop a sprig of parsley; have a pint of milk boiling, which season with a little pepper and salt, adding a small piece of butter rubbed in a tablespoonful of flour; put in the carrots and onions, and let simmer ten minutes; stir in the parsley, and dish at once.

White Beans.—Soak one pint of dried beans over night; parboil in plenty of water, with a small piece of soda in it; drain perfectly dry and place in a baking dish; rub one and one-half tablespoonfuls of butter into four even tablespoonfuls flour, until it is a cream; beat in this two spoonfuls condensed egg, adding slowly a gill of vinegar, and a sprinkle of salt; pour over the beans, place a plate, inverted, over them, and put in a rather cool oven one-half hour.

Pickled Fish.—Clean the fish thoroughly and cut into pieces about five inches long; rub each piece on the cut side with salt. Take a stone jar which will about hold the fish, put a layer of fish on the bottom, then a few whole peppers and allspice and a blade of mace, then another layer of fish, spice, etc., till the jar is nearly full; then pour good cider vinegar over it until the fish is quite covered. Tie a paper over the top of the jar, and cover this with flour paste; this keeps in all steam. Put the jar in the oven and bake for three hours. The fish is fit for use as soon as cold, and will keep, in the pickle, for six months. The white fish, pickerel, etc., of the lakes are very nice for pickling, while the land locked sturgeon of the great lakes is almost as good as pickled salmon if it be scalded in water before spicing, etc. Shad is excellent pickled, as all the bones disappear.

Boiled Apple Pudding.—Peel the apples and put them in a kettle in halves, with a pint of water, a small lump of butter, a little salt, nutmeg and a handful of sugar. Make a soda biscuit crust about one-third inch thick, and put it on top of the apples; make a hole in the centre of the crust; boil until the apples are thoroughly cooked. Serve with a hot sauce (adding wine or brandy if you so choose). A plate turned upside down in the kettle will prevent it from burning.

Omelette Souffleé.—Six eggs, six tablespoonfuls of powdered sugar, juice of one lemon and half the peel grated; beat yolks and whites separately, and very well; add to the yolks by degrees the powdered sugar and beat until it ceases to froth, and is thick and smooth; the whites should be stiff enough to cut with a knife; stir together lightly with the seasoning, pour into a well-buttered dish, and bake in a quick oven five or six minutes; the dish should be warmed when buttered, not to chill the eggs; send around with a spoon and let each one help himself before it can fall.

Rice Custard.—Boil rice slowly, without stirring much, until it is tender; turn it into a mold to cool; make a boiled custard thin and sweet, and pour over the rice before it is served.

Coffee Cake.—One cup brown sugar, one cup molasses, one-half cup each butter and lard, one cup cold coffee, two eggs, one tablespoonful cinnamon, and one of cloves, one grated nutmeg, one teaspoonful soda, flour, one pound each currants and raisins.

Cauliflowers.—Slice the head with a sharp knife. Put into a stewpan, over the stove, turn over it a cup or

two of water—less than for cabbage, as it cooks tender in less time—add sufficient salt; cook tender and dry. Then add a cupful of thin sweet cream, and serve.

A Milk Diet.

I find by experience, says Dr. E. N. Chapman, that lime water and milk is not only food and medicine at an early period of life, but also at a later, when, as in the case of infants, the functions of digestion and assimilation have been seriously impaired. A stomach taxed by gluttony, irritated by improper food, inflamed by alcohol, enfeebled by disease, or otherwise unfitted for its duties, as is shown by the various symptoms attendant upon indigestion, diarrhœa, dysentery and fever, will resume its work, and do it energetically, on an exclusive diet of lime water and milk. A goblet of cow's milk, to which four tablespoonsful of lime water have been added, will agree with any person, however objectionable the plain article may be; will be friendly to the stomach when other food is oppressive, and will be digested when all else fails to afford nourishment. Of this statement I have had positive proof in very many cases. The blood being thin, the nerves weak, the nutrition poor, the secretions defective, and excretions insufficient, the physician has at hand a remedy as common as the air and as cheap almost as water. In it all the elements of nutrition are so prepared by Nature as to be readily adapted to the infant or the adult stomach, and so freighted with healing virtues as to work a cure when drugs are worse than useless.

Dried Eggs.

A large establishment has been opened in St. Louis for drying eggs. It is in full operation and hundreds of thousands of dozens are going into its insatiable maw. The eggs are "candled" by hand—that is examined by a light to ascertain whether good or not—and then are thrown into an immense receptacle, where they are broken, and by a centrifugal operation the white and yolk are separated from the shell very much as liquid honey is separated from the comb. The liquid is then dried by heat by patent process, and the dried article is left resembling sugar, and is put in barrels and is ready for transportation anywhere. This dried article has been taken twice across the equator in ships, and then made into omlet in the same manner as made from fresh eggs, and the best judges could not detect the difference between the two. Is this not an age of wonders? Milk made solid; cider made solid; apple butter made into bricks! What next?

To Make Buiter Hard.

An English butter-maker of large experience, who is now on a visit to this country for the purpose of looking over our cheese and butter dairies, gives us the following information concerning a method in practice among the best butter-makers of England for hardening or rendering butter firm and solid during hot weather. Carbonate of soda and alum are used for the purpose, made into a powder. For twenty pounds of butter, one teaspoonful of carbonate of soda and one teaspoonful of powdered alum are mingled together at the time of churning and put into the cream. The effect of this powder is to make the butter come firm and solid, and to give it a clean, sweet flavor. It does not enter into the butter, but its action is upon the cream, and it passes off with the buttermilk. The ingredients of the powder should not be mingled together until required to be used, or at the time the cream is in the churn ready for churning.

Refrigerators and How to Make One.

Take a large, tight box of the required size, and put some blocks on each corner for legs. Then take a small box, leaving a space of at least six inches on the sides and bottom. Place a layer of powdered charcoal, fine saw-dust, or some other good non-conductor upon the bottom, and set the smaller box in. Then pack the charcoal or saw-dust all about in the space between the two to the top. Make a closely fitting cover for each box. The ice should be placed in the box in some tin vessel, so arranged that the water will run off through the bottom of both boxes. If such a refrigerator is tightly and well made and placed in a cool place, 100 pounds of ice will last a week in it.

Kerosene Lamps.

A merchant returned home about two o'clock at night, and found his wife lying on the bed groaning heavily and unconscious. She was waiting his return, and at last, tired ont, laid herself on the bed, after turning down the wick of a lighted kerosene lamp as low as possible without extinguishing it. In this position of the wick, if the oil is bad, a vapor mixed with an innumerable quantity of specks of soot diffuses itself through the apartment, and so covers the eyes, nose and respiratory organs, that on falling asleep one runs a risk of suffocation. It is always advisable, therefore, in the use of kerosene lamps, to allow the wick to burn brightly or to extinguish it entirely.

LIVE STOCK.

Good Cows.

It is surprising when we look around the country to see the large number of poor cows that are kept for years in the dairies, and by men from which better things should be expected. It costs as much, if not more, to keep a poor cow than a good one. In no other branch of farm labor is it so essential to have good material to work with as in the dairy. A little study of the characteristics of a good cow will generally enable a person to tell a good cow when he sees her. I have heard men say that they bred cows to get the smallest eaters. But this is a fallacy, as no one can expect to get something from nothing. The cow (all the other essentials being right) that will assimilate the greatest amount of food will usually prove to be the best cow to keep. In the feeding of cows there is a great difference. A healthy cow will consume many times her weight in food every year, but how to find the one that will do so with the least weight will repay the careful attention of those that keep cows. If this point is not strictly attended to it will make a wide difference in the margin of profits. But it is unfortunate to have a poor cow, and the shortest and best way to get rid of her is to fit her for the butcher as quick as possible, and fill her place with one whose qualifications at the pail can be depended on. Experiment and comparison are the true modes by which a quick observer can tell a good cow. I have seen men whose knowledge was such that they would, as a general thing, pick out the best cows from a herd every time. In purchasing cows all are anxious to get the best; but no one should expect to go into a herd and buy the best in the lot, as few men will sell such. In large herds, the scrubs, or the ones that the rest all drive around, will often prove good when given a good chance, and improve so that their former owner in a short time will not know them. I have several times known this to be the case.

To obtain a good lot of cows in the shortest time, buy the best regardless of cost. But, unfortunately, with most dairymen this cannot be done for want of means, so we must look for other ways to procure good cows. One way will be to raise heifers from the cows in the herd, got by thoroughbred males of dairy breeds. This, although not the quickest, will be by far the cheapest and best way to accomplish the desired result. A good cow will often lack much of being a handsome one. But the size and shape of her head and horns have much to do towards making a good cow. I have never yet seen a good one that had large, broad horns. The best cows carry a small, fine head, with good-sized ears; and in a broad-hipped cow we always find the milk mirror well developed. Any one who owns a cow should lose no time in finding out her qualifications, and if she will not make, at the lowest calculation, 200 pounds of butter per year, she should be speedily disposed of. In a large herd it will be more difficult to accomplish this than where only a few are kept. But still it can be closely approximated if care is taken. A cow that gives milk as blue as a whetstone is poor property for any one but a city milkman. Many farmers keep too many cows that produce that kind of milk. A cow can be kept till she is four years old without loss, as her growth will pay the cost of her keeping, and by that time the amount of her production should be ascertained beyond a doubt. I think that with care in breeding, cows can be raised that will yield on an average three hundred pounds of butter per year, if well kept.—*S. C. Starkey, N. Y.*

The Royal Cow.

When cotton was summarily discrowned from its long reign quite a number of aspirants reached for the regalia, and iron, corn, hay and wheat stretched for the sceptre. A rival has entered the field, while the deposed monarch is regaining his strength and worshippers; and though centuries have lapsed since Egypt deified the cow, and Homer made "ox-eyed Juno" more queenly for that quality, the cow is being statistically foisted above cotton and all its other rivals. The coronation is, of course, at the hands of the dairymen and maidens. Their exponent has just declared that the country has $450,000,000 invested in 10,000,000 milk cows, whose annual product is worth $275,142,585, while the last cotton crop was worth only $200,000,000.

The enormous sum of this dairy interest—which includes nothing of oxen, hides or meat—will surprise every one who has paid no attention to it. The fallacy which destroyed the hay argument is partially wanting here too. For, while our exportation of hay amounts to nothing and hardly equals consumption, there is a great and rapidly growing export of butter, cheese, salt and fresh beef and live animals. The sum cannot be accurately computed, and carries the particular valuation into the same classification with cotton. For in all these interests the final appreciation does not rest upon the amount, how considerable soever that may be which is consumed at home and so lost to wealth, but upon the amount beyond consumption, which is exported and enriches the land by its equivalent in gold or other useds and permanent worths.

This gross value of cattle for labor, manure, milk, meat, cheese, butter, leather and other ends, is susceptible of a vast addition and must necessarily expand with western settlement and increase the returns shown in our foreign trade, while sustaining labor at home more abundantly and cheaply, and so enabling every industry to flourish in competition with less favored countries, and greater comforts and luxuries to be enjoyed by all. It will not hold the throne it challenges any more than the hay crop; provided the southern energy which has done so much toward restoring its early abundance, holds the course it has with the energy it is now showing. But it may, and apparently must, reach a higher sum than any farmer or any statistician has dreamed; for, recovering its total, it has acquired the best blood of the best herds of Europe; has given practical attention and study to the manufacture of cheese and butter; has given the leather interest a new power; is conquering Texas, California, Oregon and all the new States, and is arousing wonder in and drawing money from Europe and Asia at the same time.—*North American.*

A Good Mare.

Some twelve or fifteen years ago a queer character, nicknamed "Jersey Bill," lived at Otisville, N. Y. During the races at Goshen and Middletown he used to visit the courses for the purpose of peddling whips, which were made of reeds, and which he sold for five and six cents apiece. When Bill had accumulated a little money he abandoned his itinerant pursuits, settled down at Hampton, and became proprietor of the tavern there. He had many acquaintances among the farmers in Sussex county, N. J., and when business was slack he would take a run across the line to visit them. On one of these occasions Bill chanced to see a mare which he admired greatly, and which, after some dickering, he purchased for $150, and brought her back with him to Hampton. She stood about fifteen hands high, was a sprightly, neat-limbed creature, and attracted considerable attention from the connoisseurs in horseflesh who frequented Bill's tavern. Not long after he received an offer of $750 for the animal and finally accepted it. The mare was taken in charge by her new owner, removed to Newburgh, placed in the care of a careful trainer, and in due time regularly introduced upon the trotting turf. Her history from that time forward was marked by a series of triumphs. Last week she made the fastest time (2:16¼) ever known on the trotting course in the State of California. The gentleman who purchased her from Jersey Bill was Alexander Goldsmith, and the mare's name is Goldsmith Maid.

Intelligence of Cows.

The London *Milk Journal* says: "That cows have memory, language, signs and means of enjoying pleasant associations, combining for aggressive purposes, has been recognized, but scarcely to the extent the subject merits. Traveling in Italy many years ago, we visited some of the large dairy farms in the neighborhood of Ferrara. Interspersed among much of the low lying, unhealthy land, remarkable for the prevalence on it of very fatal forms of anthrox in the summer season, are fine undulating pasture lands, and the fields are of great extent. We happened to stop at a farmhouse one fine autumn afternoon when the cows were about to be milked. A herd of over one hundred was grazing homewards. The women took their positions with stool close to the house, and as the cows approached, names were called out, which at first were we thought addressed to the milkmaids. Rosa, Florenza, Giula, Sposa, and many names which were noted by us at the time, were called out by the overseer, or one of the women, and we were astonished to see cow after cow cease feeding or chewing the cud and make direct, sometimes at a trot, for the woman that usually milked her. The practice, we found, was not confined to one farm; all the cows on each farm knew their respective names, and took up their position in the open just as readily as the individual members of some large herds in this country turning from their fields take up their places in the sheds."

Black Teeth in Hogs.

A. S. Plummer, Edinburg, O., sent to the American farmers' club two black teeth which he had just extracted. The hogs in his county (Portage) are beginning to be troubled with these teeth, which, if not removed, are certain to cause death. The symptoms are: First, the hog refuses its feed; second, there comes a weakness about the back, and finally the animal fails to get up, and dies. These teeth are found in each jaw—in the upper one near or over the tusks, and in the under jaw some are found between the front teeth and tusks.

As no one present could give any information on the subject, the club desires farmers who may have any knowledge as to its causes and cure to communicate the same to them.

KEEP HORSES FEET CLEAN.—To keep horses free from "grease," or scratches, their legs and feet must be kept clean while standing in the stable, and rubbed as soon as they come out of the wet.

THE APIARY.

How to Begin Bee Keeping.

Every person who has a home, be it ever so homely, should keep bees. The time wasted by almost every one could be spent profitably, in keeping a few stocks. It would not only afford recreation and pleasure, but would replenish the purse also. There is no pursuit I know of that will pay so large a per cent. on the investment. Bees give delicious honey to their owner and thus make his home pleasant. They work for nothing and board themselves. A few stocks well managed will pay, in almost any locality, 100 per cent.

To begin bee keeping for profit it is necessary to *begin right*. To begin right is to procure a few swarms, and adopt some good movable frame hive, the frames not over ten or twelve inches in depth. Choose any of the standard hives in use, and stick to them; don't be made to believe that changing hives is the only road to success—it has been the cause of many a beginner getting discouraged and giving up the pursuit in disgust. I tell you beginners, it does not make much difference what kind of hive you use, so it is movable frame. Begin cautiously, and you will learn as you advance. If you have any fondness at all for the pursuit, it will increase as you proceed, and you will become "fonder still." You will find that the time spent with them and you may keep strict account of every hour) will be the most pleasant, instructive and profitable you have ever spent in any rural pursuit. Don't be deceived by patent right venders of moth traps. Many of them have no practical knowledge of bee-keeping at all, and could not tell you whether a drone is a male or female, and that their traps would exclude a gnat, and yet admit a bee, that is twenty times larger. Strong stocks are the best moth traps, don't fear the moth—a good strong swarm of bees with a good prolific queen never has, nor ever will be destroyed by moth. I fear the moth no more than I do the common house fly; never lost a single stock by them since I have used the frame hive, of either Italians, hybrids, or blacks, but in my locality the Italians are superior in every respects.

Any one desiring to begin bee-keeping should get both Italians and blacks; try them side by side, give the same attention to both, then if you find the Italian superior, or *vice versa*, common sense will teach you which you should keep. In fact common sense is the great lever that moves tons of honey into our markets, and thousands of dollars into common sense men's pockets. Beginners should not expend much in making bee-houses, fanciful hives, etc. Frequently such expenditures overrun the profits, and the beginner thinks bees won't pay, gives it up and ventures on something else, with enthusiasm cries Eureka, bends every energy to it, and finds by experience it is worse than bee-keeping, retires from it to try something else, and never finds it. "A rolling stone gathers no moss;" fortunes are seldom made by many changes in one's business. Neglect your business (whatever it may be) and you will come to grief; stick to it, and nine out of ten will succeed.

I would advise every person to keep bees. I love them so much, I think everybody ought to love them too. Now you faint hearted who fear you will be laughed at, called enthusiasts, or anything else, I tell you *get bees*; pay no attention to what people say; mind your own business, and, my word for it, you will make these same fellows feel that you were not so foolish as they supposed; when by close application and study you have conquered all difficulties and derive from your fifty or sixty stocks an annual profit of four or five hundred dollars. Much depends upon the locality for large profits, some being much better than others. In concluding this article, I would say again to all who have any interest in bees, *keep* them and whether you make enormous profits or not, what you do realize will be the easiest money you have ever made. It will be clear profit, for the time spent on them would otherwise be lost on something probably worse than nothing.—*Cor. Bee Keepers' Magazine.*

Italian and Native Bees.

I see there still is some trouble in the camp with regard to keeping bees through the winter. One correspondent writes plaintively to an agricultural journal that he lost his entire stock, and they had plenty of box-honey. Nothing uncommon; I have no doubt if he had twice the number he would have lost them all. The apiarist can commit no greater error than allowing large quantities of surplus honey to remain in the hive. Bees, like the human species, have a natural instinct to protect their stores, and, when they have vast possessions, will throw out guards, pickets and scouts for protection, and if suddenly overtaken by a cold snap thousands of them will perish in a single night. Again, if the months of October and November are mild, the honey in the surplus boxes will be removed to the centre of the hive, where every available comb and cell is filled to its utmost capacity. If this, as was the case last winter, is followed by extreme cold weather, these combs will very nearly reach a zero temperature, and with only the narrow intervening passages between them which prevent their clustering closely; hence hundreds of colonies have been frozen in this way, "surrounded by plenty (too much) of honey." The bee, unlike the wasp or many other insects, once dead or stiff from cold, is dead forever.

There, also, are still those in the field who claim that the Italian bee is superior to all natives; that they will winter better, are more gentle, defend themselves against the moth, and gather more honey than the blacks, but I generally and invariably find that this "superior" song comes from persons only who have them for sale. The experience of myself and neighbors, who represent one hundred colonies, is that we have less honey from the Italians—and we have them as pure as ever winked at by an Italian sun—than we had from the same number of natives. I never had more than thirty pounds of box honey from Italians, while the blacks have given me forty. But the hybrid—that is a mixture, half-breed, of Italians and blacks—have quite frequently yielded double this amount of surplus honey in one season. Will some one rise and explain?—J. M., Slackwater, June 5, 1877.—*Examiner and Express.*

Beeswax.

The uses for wax are numerous and important. Its property of preserving tissues and preventing mold or mildew was well-known to the ancients, who used cerecloth for embalming, and wax for encaustic painting, as in the wall pictures of Pompeii. Wax candles and tapers play an important part in the processions and ceremonies of the Roman Catholic Church. Wax is used by the manufacturers of glazed, ornamental and wall papers, and on paper collars and cuffs for polishing the surfaces. It is used in varnishes and paints and for the "stuffing" of wood which is to be polished, as for pianos, coach work, fine furniture, and parquette floors. Electrotypers and plasterers use wax in forming their moulds. Wax is an important ingredient in preparations for covering surfaces of polished iron and steel to prevent rust. Combined with tallow it forms the coating for canvass and cordage to prevent mildew, as in sails, awnings, etc. Artificial flowers consume much wax, and despite the introduction of paraffine, ceresin, and mineral wax, its use appears to be extending. One of the oldest of its applications is in the laundry, and in polishing wood-work. The product of wax in the United States is stated to be 20,000,000 pounds annually, and increasing—worth in money at least $6,000,000. Of this about $700,000 worth are exported, and about $1,200,000 worth of honey also goes abroad. The total product of honey and wax is worth at present in the United States nearly $15,000,000. The ingenious production of artificial combs, in a machine recently constructed that turns out combs with cells rivaling, if not excelling, the natural product is an important American improvement in apiarian culture, which will add largely to the economy of that industry, yet in its infancy. As the bee is said to consume three-fourths of its time in producing comb at the very time when the honey harvest is at its best, it is evident that the invention of artificial combs must be a great economy in collection and storing of honey; but it is not so clear how the stock is kept up unless man deceives the bee by using "mineral wax" in the formation of the artificial comb; and this wax is not true wax, but a natural paraffine.—*American Grocer.*

Extracted Honey.

At all of our principal city grocery stores honey in glass jars and tin cans is sold at much less price than it can be purchased for in the comb. To many this is a mystery. The general supposition is that the article is not pure. Such, however, is not the case. The quality is quite equal to that which is sold undisturbed in the combs. The comb, which is a fatty, solid substance produced by bees, is first excreted from a row of pouches along their sides in the form of scales. This being masticated and mixed with saliva becomes whitened and tenacious and the substance is employed in the construction of their cells, the repositories for their honey and eggs. The bees consume about three-fourths of their time constructing their comb, whilst gathering the honey only requires one-fourth.

In this age of progress apiarians take a sharp knife and skim off the tops of the cells, and, with the extracting machine, throw the honey from the comb by centrifugal force. The comb is then put back into the hive, the operation being repeated frequently during the season. This enables the bees to gather three times the quantity of honey by relieving them of the necessity of building their combs, hence the reason why there is always more extracted or "strained" honey on the market and its consequent cheapness. The honey thus extracted can be eaten without fear or sickness. It is eating the comb which often produces attacks of indigestion.—*Germantown Telegraph.*

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THE POULTRY YARD.

Effects of Cold Storms on Poultry.

Each season of the year brings its special work and care, demanding the attention of the keepers of poultry. Excepting the bleak autumn storms, no period of the year is so trying to the constitution of fowls as cold, spring rain storms. The germs of disease, however, are sometimes contracted during confinement in winter, and the sudden change of weather, experienced during a cold rain, will develop the malady, which is likely to become contagious. Fowls that have been highly fed and kept warm to induce laying, will, like a forced plant, be too tender to stand neglect during the early drenching rains that penetrate to their very skins.

The danger need not be feared, however, by those who will take a little extra care of their stock during such weather. As soon as the earth softens under the first mild breath of spring, fowls are all awake to the prospect of getting worms and other insects from the ground. They will then be off, prowling about before it is light enough to see their prey, but as they evidently know that the early bird catches the worm, they are on the ground betimes. Perhaps the next day there is a severe change in the weather, with sleet or rain, and you will see the birds hunting about, in hopes of finding insects, till they get soaking wet through their feathers, and if not well cared for, this often proves fatal.

Most fanciers have noticed that a cold storm frequently stops hens from laying for a week. Now, this delay and risk of sickness may often be prevented by giving them a liberal mess of soft, warm food, with a little cayenne pepper in it. To this should be added a generous amount of animal food, either scraps or haslets, to take the place of the supply of worms, which is stopped when the fowls cannot get out. With this little extra care, hens will often keep on laying, retain perfect health, and be profitable to their keepers.—*Henry Habs, in Rural New Yorker.*

Vermin on Poultry.

John E. Roberts, in the *Southern Poultry Journal* says:

"Many fanciers use the carbolic (or carbolated) powder in order to rid their fowls of lice and mites. It is considered the very best of remedies. My plan is one which, I think, is used by no other breeder; has never failed me in completely ridding my fowls of every insect, and has demonstrated to me its infallibility. It is simply the use of oil of sassafras mixed with sweet oil. To one ounce of oil of sassafras put five or six of sweet oil, and apply a small quantity to different parts of the body of the fowl, selecting those points where the vermin would be most apt to hide.

"In applying the preparation I fill with it a small oil-can, so that I can force out as much or as little of the oil as I wish. A very small bit can be made to go a great ways, for one drop can be rubbed over two or three inches of space, and is no more trouble to apply than the various insect powders. I use sweet oil because of its curative powers, but any kind of grease, no matter what, will do to mix with the oil of sassafras. The oil of sassafras is the eradicator, the other oil merely the vehicle. I believe common sassafras tea would be wonderfully efficacious.

"Make it in a large pot, then after allowing it to cool, dip the fowls in bodily. In one second the lice will be dead, and in ten seconds the fowl will be perfectly dry, if placed in the sunshine. It is hard to form an idea of the magical effort produced by the oil of sassafras. I have never tried the remedy in greater attention than that mentioned, (one to five or six), but believe that it would be equally good if composed of one ounce of oil of sassafras to ten or twelve of any other oil or grease."

Purification of Hen Houses.

Advice like the following, which we find in the *Live Stock Journal*, is always in order:

As the season advances, poultry keepers should not neglect the purification of the fowl houses. Proper sanitary measures must be taken, or health and successful poultry raising cannot be expected, nor is it deserved. Lime is an excellent purifier, and, when carbolic acid is added to the whitewash, will effectually keep away vermin from the walls. After every cleaning of the floor it should be sprinkled with carbolic acid; dilution, twenty of water to one of acid. This is one of the best disinfectants and antiseptics known, and is not used as much as it deserves. The roosts should be sprinkled with it every week. This whitewashing should be done twice at least, better three times a year. The nests of setting hens should be sprinkled with carbolic acid to keep off vermin; and the coops, also, where young brood are kept for a time, should be purified in this way. If a hen gets lousy, the dilute acid will destroy the lice, if put under the wings, and on the head and neck. Wood ashes are excellent to be kept in fowl houses for hens to dust themselves with. They are much more effectual than sand; but sand should be kept for a bath. Without proper attention to these matters, poultry keepers cannot expect to succeed.

All Styles of Chicken-Coops

Are in use, and many elaborate contrivances are recommended by those who indulge in the fanciful. But the most economical and serviceable nest-house and cage for the hen and brood, for the first three months, is the common pitch-roof box, about three by two and a half feet, if it can be placed upon the ground or lawns.

This should have no floor; or, if rats are troublesome, use a floor; but, by all means, let it be *movable*, i. e., *not* nailed to the coop. The coop may be moved about and set in a new place every few days, thus affording a fresh, clean groundwork continually. This arrangement is an excellent one for the health of the young birds.

The coop should have an open slat front, with a pitch-roof overhanging the body of the box two or three inches to shed the rain, and near the eaves two-inch holes should be bored on both sides for ventilation.

The chicks will run out at the front in fine weather, and the mother will have ample room inside for her own comfort, as well as to brood the young when needful. If the box be kept clean and free from lice, the chickens will do nicely in this form of shelter until they are strong enough to be transferred to the larger coops of a similar formation, where they may be colonized in numbers of forty or fifty together at night, before they get large enough to go to the roost. —*Poultry World.*

Red Pepper and Poultry.

A correspondent of the *Poultry Bulletin* says: I do not know whether other persons who raise poultry and pet birds are as much dependent as I am on red pepper; but I have found so much benefit from its use in my poultry yards and cages that it may not be amiss to call the attention of others to its good properties. I do not speak of the article that is sold in drug stores, (and sometimes not remarkably fresh), but of the capsicum that grows in our gardens. I have tried all the different varieties, and find that the most pungent and efficacious is the small kind usually known by the name of "bird's pepper." The plant in itself is a beautiful object, it grows about two feet high, and in autumn its bright little scarlet berries look like coral beads peeping from under the dark, green foliage. Indeed, one plant in a pot seems a very pretty ornament for a flower stand. The seed possesses a stimulating and reviving property, and I find that two or three given to newly hatched chickens, especially if they are weakly, have a most happy effect. If a hen looks feeble after moulting, six of those berries or pods, given daily, in some cornmeal and sweet milk improves her wonderfully. Last summer two of my finest canaries began to droop. Every day I gave them each one seed of the "bird's pepper," and in less than a week they were quite well. The same remedy is invaluable for mocking birds.

Turkeys.

A little experience is a very good thing in raising turkeys as well as anything else. If they run where they please, they need not be fed more than twice a day; if kept in a small yard, every hour is not too often while they are young. The practice of feeding wet raw cornmeal is very injurious to all kinds of fowls, and especially turkeys. Small grain and corn bread, meal just mixed with water and baked, then dampened, may be fed, and the chicks will thrive. A pan of sour milk set out to them will disappear in an incredibly short time, and the curd scalded and the whey poured off is excellent for them. Hens should be quite young, but gobblers ought to be kept over until the second year. Breaking up the nest and forcing the hens to lay a second time is not best, as the turkey raised with common fowls never do so well, and the late chicks thus obtained do not often make up in weight what might seem an advantage in getting a few more eggs. For several years eighteen out of twenty eggs under turkeys came out, and fifteen out of eighteen lived to go to market.—*Western Agriculturist.*

Catching Hawks.

As the season is approaching when hawks are most destructive to young poultry, a method of catching and killing these marauders will be in order. It is a well-known fact that a hawk will always alight on some conspicuous place close to the poultry yard, from which to swoop down on his victims. Taking advantage of this, erect a pole with a flat surface at the top just large enough to hold a strong steel trap. Fasten this trap by a chain to a staple in the pole, and await results. No bait will be needed, for the hawk will be quite certain to light on the trap and be caught. A gentleman who has tried this method has succeeded in killing all the hawks in his neighborhood, and now can raise poultry without loss except by accident.—*California Horticulturist.*

Soft Eggs.

O. E. F., writes: My chickens lay eggs with soft shells. What shall I give them?

Reply.—Give them a rest. They are laying too many eggs, more than they have material to finish properly. Some bones burned and powdered should always be given to fowls when laying, but if the hens are supplied with a variety of food and can get plenty of gravel and earth or coal ashes, and are in perfectly good health, they will not lay soft eggs. This defect is an indication that they are fed too highly and are overtaxed.

Dead Shot on Poultry Lice.

Take an old wooden bucket, bore a half-inch hole an inch from the brim, and cut out the half-inch piece to the top of the brim; smooth the edges of this slot, grease a pine splinter, sprinkle fine sulphur upon it, and burn it under the inverted bucket; put the fowl under quickly, with head through the slot; hold the bucket firmly about ten minutes; let the fowl go, and the lice will all be killed.

SUPPLY your chickens with milk if you can. Let them have good shelter and fair attention, and you will find it will pay you when you come to fix them for the show pen, or offer them for sale to customers who are willing to pay fair prices for choice breeding birds.

LITERARY AND PERSONAL.

OUR ATTENTION has been called to some new and useful cooking utensils recently invented. One of which is known as the Centennial Cake and Baking Pan, made of Russia iron, and is so constructed that after your cake is baked, you can instantly remove it from the pan without injuring it; and having a raised bottom the cake can not possibly burn. It is also provided with a slide on the bottom, so that when you remove the tube, you can close the hole, making a pan with plain bottom for baking jelly or plain cakes, bread, etc. Another—the *Kitchen Gem*—is also a very useful and long-needed household necessity. It is a plated wire boiler or steamer to hang inside of an ordinary iron pot, for boiling or steaming vegetables, which, when done can be easily removed *perfectly dry* without lifting the heavy, sooty iron pot off of the stove, avoiding the danger of burning the hands with the steam in pouring off the hot water. And the vegetables can not possibly burn, if the water boils dry, as the steamer does not touch the bottom of the pot.

These goods are sold exclusively through agents to families, giving universal satisfaction, and presents a splendid opening for some reliable lady or gentleman canvasser of this county to secure the agency for a profitable business. For terms, territory, etc., write to L. E. Brown & Co., Nos. 214 and 216 Elm Street, Cincinnati, Ohio.

CALIFORNIA AGRICULTURIST AND PACIFIC ARTIZAN, (Consolidated), San Jose: S. Harris Herring, Editor. A royal quarto of 20 pages, including illustrated covers, with ornamental margins: monthly, $1.50 per annum. Its editorials, its contributions, and its selections are able, solid and condensed; and, including its typographical execution, it is a credit to the "Golden State." The editor says: "It will be what its name purports, the *California Agriculturist and Artisan*, a magazine for the workshop, farm and fireside. It is not, nor does it pretended to be, a newspaper, but it will be a living conveyor of intelligence upon the most important topics connected with industrial progress, political reform and educational and social advancement, in a material, intellectual and moral sense. It will depend for support upon the intelligence and appreciation of an earnest people, who represent many and deserving interests. It will aim to promote the growth of intelligence, enterprise and good will among men, and the co-operation and harmony of true business interests, while at the same time it will oppose all evils and evil designs, and especially such as bear upon industry. With a broad field, and urgent work before us, we invite the aid and good fellowship of every one.

THE SEMI-TROPICAL.—The July number of this interesting Southern Magazine contains a pleasing variety. "On a Semi-Tropical Sea Island," is an interesting portrayal of a summer in Florida, by Dr. D. H. Jacques. Rev. Chas. Beecher, who now resides at Newport, on the Gulf Coast, in an article entitled "Florida a Hundred Years Hence," shows the probable results of the development of the State. The veteran Southern horticulturist and author, D. Redmond, commences a descriptive catalogue of "The Trees of Florida." Dr. Z. H. Mason suggests some of the "Sources of Florida's Prosperity," and Dr. Benjamin extols the great healthfulness of Tampa and vicinity. There are valuable original contribution on "Florida Internal Navigation;" "Grape Culture;" "Gardening All the Year Round;" "Mounds of South Florida," together with several selected articles. The Editorial Department is specially varied and interesting, containing information on fruit-culture, stock-growing, poultry-raising, bee-keeping, floriculture, etc. Chas. W. Blew, Jacksonville, Fla. Terms, 30 cents a number; $3 a year.

COLORADO BUSINESS DIRECTORY, and Annual Register for 1877, containing a classified list of all the business and professional men, officers, societies, schools, churches, &c., in all the cities and towns in Colorado, together with post-towns, offices, expresses and telegraphs, railroads and stage offices, &c., in the State. Denver, Colorado, J. A. Blake, Publisher. A handsome 12 mo. of 247 pages, together with 26 pages of advertisements, and 4 pages of tinted covering, arranged alphabetically by counties. To which is added a list of the banking institutions, hotels, mines, &c., officers of the State government and lists of all the county offices in the State, besides many other matters, "too tedious to mention."

Colorado is the youngest State in the Union, about which too, there was a doubt, as to whether it ought to have been admitted into the Union at all. This is a better arranged Directory, and easier to be referred to, than any work of the kind we have yet seen, and is invaluable to those residing there, or who propose to locate there.

IT will be a matter of interest to all our readers who are desirous of adorning their homes, to know that there has been incorporated in New York a Stock Company with a cash capital of a quarter of a million of dollars, for the manufacture of Pianos, which will be sold direct to the people at factory prices. Its name is the MENDELSOHN PIANO CO., office No. 56 Broadway, New York.

These Pianos made one of the finest displays at the Centennial Exhibition, and were *unanimously* recommended for the *Diploma of Honor and Medal of Merit*.

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We would recommend any of our readers who have any idea of ever buying a piano, to send for their Illustrated and Descriptive Catalogue, which will be mailed free to all.

ON THE VALUE AND CULTURE OF ROOTS, for stock feeding, by David Landreth & Sons, Philadelphia, 1877. We are under obligations for an "advanced copy, with the respects of the publishers," of this valuable little work on an interesting and useful subject, and shall not hesitate to lay it under contribution. This is a royal octavo pamphlet of 48 pages, full of well executed illustrations, and treats of root crops alone, including the turnip, the beet, the carrot, and the parsnip, and all their most approved varieties; giving their uses, their mode of culture, and their yield and pecuniary value. To which is appended an excellent article on "Beet Sugar," from which we learn that the product of Europe in 1875 amounted to 1,317,623 tons, equal to 61 per cent. of all the cane sugar manufactured in the whole world; the internal revenue tax on which, for 1874 and 1875, amounted to over $40,000,000.

THE BREEDERS' MANUAL, and descriptive catalogue of blooded stock (second edition for 1877 and 1878), including cattle, sheep, hogs, poultry, pigeons, &c., &c.; the best imported and homebred strains, owned, bred and for sale by *Benson & Burpee*, 223 Church street, Philadelphia, is a handsomely illustrated book of 56 pages, in paper covers and royal octavo size. The illustrated, thoroughbred Southdown sheep, in this number of the FARMER, is only a fair sample, but by no means the best that the book contains. It is particularly full in poultry and pigeons, which these gentlemen have made a specialty for years. The book may be obtained at the above address, or by mail for 25 cents, postpaid. As it contains much that is useful to the stock grower, it might be an advantage to him in treating his stock on hand. See advertisement in another column.

RAND'S NEW YORK CITY BUSINESS DIRECTORY FOR 1877.—The second volume of this valuable and indispensable work has just been issued by the Publishers, Messrs. Walter Heugh & Co., of 3 Park Place, New York. No pains or expense has been spared in the production of the present volume, to make it complete and reliable. In typographical appearance and binding, certainly it is a fine specimen of bookmaking. It contains over one hundred pages more matter than the last year's volume, which has added largely to the cost of the production of the work, and compelled the publishers to issue hereafter only the full cloth bound edition at *one dollar* per copy, upon the receipt of which sum they will forward the work to any address in the United States or Canada, by mail, postage prepaid.

WOMAN'S WORDS.—An original review of what the sex is doing. Mrs. Juan Lewis, publisher, Philadelphia, Pa. $1.00 a year postpaid. This is a royal quarto of 16 pages, on tinted paper and in fair type. This is a new enterprise, No. 2, Vol. 1 of which is on our table, and contains a biographical sketch of Mrs. Clarence S. Lozier, M. D., and a portrait of that lady engraved expressly for the work. The contributions are mainly those of distinguished and intelligent women, and are of marked literary ability. It seems to us that there is an opening for just such a work, and women who do not encourage it and avail themselves of its advantages, the fault will be with them.

REDEEMED, BY O. GERARD.—This is the title of the most successful temperance song published. It is now being sung nightly at the temperance meetings held in Cincinnati. Everybody should sing *Redeemed*. Price 35 cents per copy. Can be played on the Piano or Organ. Address all orders to the publisher, F. W. Helmick, 50 West 4th St., Cincinnati, Ohio.

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All communications intended for publication should be addressed to the Editor, and, to secure insertion, should be in his hands by the first of the month of publication.

All business letters, containing subscriptions and advertisements, should be addressed to the publisher.

THE LANCASTER FARMER having completed its eighth year under various vicissitudes, now commences its ninth volume under, it is hoped, more favorable auspices than attended its former volumes. When the publishers of the last two volumes assumed the responsibilities of its publication, it was with a determination to make such improvements as would place the farmer's organ of this great agricultural county in the very front rank of agricultural journalism. That this has been accomplished we think our readers will bear cheerful testimony. If reasonably sustained our aim is to make it still more interesting and instructive under its new proprietorship. In this, however, we need the co-operation of every friend of the enterprise.

The contributions of our able editor, Prof. RATHVON, on subjects connected with the science of farming, and particularly that specialty of which he is so thoroughly a master—entomological science—a knowledge of which has become a necessity to every successful farmer, are alone worth much more than the price of this publication.

THE FARMER will be published on the 15th of every month, printed on good paper with clear type, in convenient form for reading and binding, and mailed to subscribers on the following

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CONTENTS OF THIS NUMBER.

The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., AUGUST, 1877. Vol. IX. No. 8.

STRIKES RIOTS.

Strikes and riots have occurred in our country during political convulsions, financial disasters, commercial depressions, and trade reverses, almost from the foundation of our republican form of government; but we cannot recall a single instance in which the farmers of the country, by preconcert banded themselves together, and in defiance of law and order, have struck for higher prices, and have threatened or coerced those who saw fit to sell lower than they. And more, much more than this. Through high or low prices in the products of the farm; through drought or flood; through insect devastations, rinderpest or hog-cholera; through storms and blights; through "pestilence and famine," indeed, through all the vicissitudes of time, and health, and tide, the American farmer still "pursues the even tenor of his way." The large manufacturing establishments, the machine shops, the railroad companies, the iron furnaces, and the rolling mills, may either close their doors to their workmen, or curtail their number and their wages, because the future prospects do not manifest a large enough margin of profit, or the surplus on hand cannot be "realized" as it should. But it is not so with the farmer. Whether he realizes six per cent., three per cent., one per cent., or no per cent—whether his toil is rewarded by twenty bushels, ten bushels or five bushels to the acre, or whether his labor proves an entire failure, he never for a moment relinquishes his occupation, but goes on with renewed energy, year in and year out, the same through adverse seasons as he does through prosperous ones.

Well may the "great expounder of the constitution" have written "*The Farmer is the founder of civilization.*" Whoever heard tell of a farmer, with sacrilegious hands, applying the incendiary's torch and destroying "fifty thousand bushels of wheat" by lurid flames, to gratify a diabolical feeling of revenge?

Whoever heard of a band of lawless farmers visiting their brother farmers, and compelling them to withdraw their plowshares from the soil, and leave their fields run fallow? It is true, that when they felt themselves to be the victims of extortion, by railroads, by exorbitant middlemen, and by "corner" operations in produce and farming implements, they formed peaceful organizations, by way of the *Grange* and co-operative establishments, as a means of domestic protection; but all was conducted "in decency and in order;" for, being the founders of civilization, in all their relations to their fellow-men they subordinated themselves to the dictates of that civilization, as a living principle of their domestic life.

It would be well for our country and her people, if a few hundred thousands of the elements that compose strike-riots were to become industrious farmers, and avail themselves of the civilizing influences of the farm. It would be well for our government, and our civil and social institutions, if she would devise means to set up the deserving poor men on farms, and give them an opportunity to work out their own domestic and social salvation. There is room enough for all; we are too much concentrated. We must become more diffused among the great vacancies of the west.

Perhaps farmers themselves do not realize as they should, the vast difference in circumstances and social condition that exists between them and the rest of mankind, taken as a class; else there would not be so many of them yearning after the sometimes tempting, but always dubious, occupations of the town. It is true, farming has its drawbacks, even when everything seems to be prosperous on the farm. The farmers are exposed to the annoyances, to the dangers, and the devastations of that pernicious element which is the fruitful source of riot, of pillage, of conflagration and of bloodshed, in the cities and the towns. The *tramp* has become a formidable barrier to the safety and tranquillity of the farmer; not on account of the contributions levied upon his larder, for these he is always willing to give to the worthy, weary wayfarer; but on account of their robberies, their burglaries, and their incendiarisms. When the country becomes relieved of these, it will mark a glorious epoch in the history of the farm, as well as in the entire country. The late wide-spread turbulent, and destructive strike-riots which have occurred, exhibit a humiliating aspect in initiating the second century of American independence. They show that a climax has been attained which is a disgrace to humanity, and especially that portion of humanity, which, *par excellence* claims to be politically and socially free. But, whatever may have been the inciting causes—whether just or unjust—it was not the work of farmers, either as actors, abettors, or as sympathizers. They cheerfully subordinate themselves to "the powers that are ordained," even though they should endure present suffering;

> "In hopes that they'll be righted
> By Him who rules on high."

"WAR UPON INSECTS."

In an editorial of the *New Era* of Tuesday, July 24, the editor was pleased to refer to me in relation to the subject involved in the caption of this paper—a subject by no means of as easy a solution as the "Eastern question." In many respects the "war upon insects" involves many complications, especially with those who are not able to discriminate between the species, or between the different developmental changes of the same species. Take as a familiar example, for instance, the "Colorado potato-beetle," which has some fifteen or twenty parasitic or predaceous species, which prey upon it in its various transformations, from the egg through its larval and pupal periods, up to its adult development. *Paris green* of a proper quality, and systematically applied, is now regarded as a sovereign remedy for the destruction of this insect, and indeed the only external application that is at all reliable in most cases. But in the application of this poison there is a liability of also destroying our parasitic and predaceous auxilaries which prey upon it; and this liability is only increased when we resort to the various traps that have been invented for the capture of this insect. "Hand-picking," with the discrimination above allnded to, is the only system upon which an intelligent warfare against the potato-beetle can be waged, because our *arms* are then only pointed against our foes, and we save our friends.

Another complication in using the weapon of Paris green in a warfare against the Colorado potato-beetle, is the exposure to death of other and larger animals which may happen to prey upon it after it has been treated with this poison. A report came up only a few days ago, of a great mortality among sparrows and other birds that had been feeding upon these insects after they had been charged with Paris green; and only a month ago, a farmer in this county lost three or four valuable cows that happened to have access to a mixture of Paris green and shipstuff, which he had prepared for the beetles. I do not mention these things to discourage the use of this remedy, or any other remedy, nor to arrest any form of warfare that may be waged against them; but to admonish people to be careful and act intelligently in their systems of warfare, just as any discreet General would act who expected to conquer his enemies. Now, this state of things, to a greater or a less extent, exists in reference to a warfare against any of our insect enemies. Nightflying insects, for instance, are attracted by luminous bodies, and therefore it is recommended to kindle bonfires in infested districts into which those insects will fly and be destroyed; but this implies an indiscriminate slaughter of "all ages, sexes and conditions"—friends as well as foes. On one occasion, at "Shenk's Ferry," I captured about one hundred insects—attracted by a globe lamp—between candlelight and 12 o'clock at night, and nearly three-fourths of them were insect friends.

On another occasion, a former president of the Pennsylvania Horticultural Society sent me a large number of insects which he had captured in bottle traps hung on his trees to catch "codlings" and "curculios," more than one half of which were either friends or entirely innoxious; and among the whole number (between 800 and 1,000) there was but a single "curculio," and not half a dozen that could be recognized as "codling moths." True, there were a goodly number of *Arctions* and *Agrotians*, the parents of various species of cut-worms. The only redeeming characteristic of such non-discriminating remedies is that, if we can succeed in destroying our enemies at the sacrifice of our friends, there will be little need of the presence of the latter; but this is rebutted again by the fact that human efforts are spasmodic, and often ill-timed; whereas the operations of our parasitic and predaceous friends are constant, and guided by an instinctive intelligence that never fails them.

The safest plan to contend with insects is to acquire a specific knowledge of them—their times and places of appearance, disappearance and reappearance—their transformations and developments; the injuries they inflict and the benefits they confer; and if these things are deemed beneath the dignity of human study, then we must learn to submit with as much resignation as we can to their various infestations; but it must ultimately come to this, regard it with as much contempt or indifference as we may.

As to forestalling insects by discontinuing to cultivate such trees and plants as they seem partial to, the thing would be quite impracticable in most of the very worst cases. Take for instance the "Striped apple-tree borer," which originally confined its operations to the common hawthorn, and, fifty years ago, was so destructive to the hawthorn hedges of the Eastern States. Now, it rarely attacks the hawthorn at all; but instead thereof, it prefers the various kinds of apple, the pear and the quince, simply because these trees afford it a wider field for its multiplied development and more abundant and agreeable aliment. And then the "curculio," which, in its early history was content with wild cherries, vegetable excrescences, and perhaps wild plums; now it prefers the cultivated plums, the peach, the apricot, the apple, the nectarine, and the cultivated cherry and pear. It is the same with the "codling," an introduced species, which originally must have infested the wild crab apples of Europe; but now it infests all our cultivated apples and pears, as well as the peaches; and some days ago I took numbers of them out of apricots. The famous Colorado beetle, in emergencies, will feed on at least a dozen different kinds of plants, even night shade, hen-bane, thistle, and mullen. It would be difficult to circumvent these insects by non-cultivation, and the same may be said of several scores of others, to particularize which would extend this paper to a

greater length than any reader at this peculiar sensational period would care to read, and which, we fear, has already exceeded the limit of a daily paper.

What shall we do then? Shall we throw down our arms, and let the insects riot in and on the productions of our labor; or, shall we buckle on our armor, and "at the head of our remaining troops attack the foe?" I would reply, by no means succumb, but "whatsoever your hands find for you to do, do it with your might;" for "neither repentance nor forgiveness" will avail anything in the grave dug by insect devastation.

You may have often seen the picture of an "old fogy" coming down stairs in great alarm, with a lighted candle in his hand, and the pendant tassel of his night-cap ignited by his own candle, protesting that there must be a fire in the house, as he smells something burning. There are insect infestations as obvious as this, and as easily extinguished, which people never apprehend, because they will not condescend to make the observation. In destroying one *gravid* female potato beetle early in the spring you destroy the developmental possibility of twelve hundred, and so on of an almost infinite variety of other insect pests. Birds and other insectiverous animals perform an immense amount of labor of this kind, but because they do not do *all* of it, and also appropriate a little fruit occasionally, they are voted as humbugs.—*R.*

A MUDDLED "TOBACCO LEAF."

The Horn Worm—Facts Concerning it which Every Tobacco-Grower Ought to Know.

"DEATH AND DESTRUCTION: A wail comes up from the tobacco-fields in the Clarksville and Hopkinsville, Tennessee, districts. It is the despairing cry of the horn-worm, as the news is imparted to him that war is declared and proclamation hath been made. All the forces are under arms, but upon the infantry will be the task of bearing the brunt of the battle. Into the fields pour the soldiery (male and female Grangers of all ages) ready for the fray. The junior cohorts are armed with the paddle—whose potency they may have learned by parental application—and the seniors with a seductive compound of honey and cobalt. There is no hope for the horn-worm or his progeny. Let him turn as he may, death meets him on all sides. Let him climb the Jamestown weed, and within its blossoms he finds a delicious morsel of honey; but alas! under its sweetness is the sting of destruction. Perhaps he has escaped the dangers of the chrysalis state and has assumed his wings, and then comes the danger of meeting the noisy boy or sunburnt maiden his direst foes—armed with the paddle, and his chances are small indeed. Verily, the horn-worm's existence is in great peril.

"The cause of the conflict is the announcement that our valued correspondents, Messrs. M. H. Clark & Brother, of Clarksville, Tenn., have announced that they will give to the Grange, who, through its members and others, causes to be killed the largest number of tobacco flies this season, two hundred and fifty dollars ($250.) To the Grange who, as above, causes to be killed the next largest number of tobacco flies, one hundred and fifty dollars ($150). To the third Grange on the list seventy-five dollars ($75). To the fourth Grange twenty-five dollars ($25.) Over and above these premiums the planter (Granger or not) who shall kill or cause to be killed the largest number of tobacco flies, shall ride in a fine saddle at their expense, made to his measure. The premiums will be paid the first day of next November, the judge being the Hon. M. D. Davies, Master State Grange of Kentucky. These gentlemen are to be commended for their public spiritedness, and we hope their example will be followed by other members of the trade in other parts of the country.

"Messrs. Clark & Brother offer another premium—a handsome silver cup, to be given to the editor of the newspaper that shall insert their notice the greatest number of times. Do these gentlemen cater to any little peculiarity of taste that our brothers in their section may have? We admire their judgment in selecting for the delectation of the fortunate scribe that masterpiece of Virginian art, the mint-julep. But we shall advise the editor to beware of the fate of the Georgia innkeeper, whom a Virginian, while traveling, taught the science of compounding mint-juleps. A few years after the traveler stopped at the same inn, but found the son of its former proprietor installed in his place, and on inquiring what had become of the old man, received the reply that 'a feller from Virginny had come along and taught the old man how to take grass in his licker, and the durned old fool never let up until he drank hisself to death.'"

We clip the foregoing from the editorial columns of the 4th of July number of the *Tobacco Leaf*, not only as a suggestion to our tobacco growers as to the course they might profitably pursue in order to destroy the "horn-worm," but also to show how exceedingly muddled the writer is in regard to the history, the habits, and the transformations of that same horn-worm, about which he so wittily discourses. Who ever heard tell of (we feel sure no one ever saw it,) a horn-worm (tobacco-worm) climbing up a Jamestown weed, and finding within its blossoms that delicious morsel, under whose sweetness is the sting of destruction; that "seductive compound of honey and cobalt?" That seductive compound was never intended to trap the horn-worm, but the parent of it. If the trumpet flowers of the Jamestown weed are charged with the poison alluded to, there is little use in resorting to the paddles in the hands of "noisy boys and sunburnt maidens;" the poison itself will be an effectual extinguisher, without expending so much physical labor. It is only in the "fly" or moth-form, that this insect could or would extract the poisoned honey; and for the purpose of probing the flowers to the bottom it is provided with a long tube, which it can roll up like the main spring of a watch and conceal between its *maxillæ*, a pair of appendages on the lower side of its head, in front. The fact that these large moths (commonly called "hawk-moths") are partial to the honey in the flowers of the Jamestown weed, first suggested the idea of poisoning it, and thus destroying the moth. For noisy boys and sunburnt maidens to be standing around these plants with paddles in their hands, after the flowers had been charged with poison, would only have a tendency to prevent them from sipping the poison. The paddle plan is no doubt a good one, but it would be a waste of time and labor to do that which if left alone would do itself without a peradventure.

"There is no hope for the horn-worm or his progeny." Although this is very desirable to the growers of tobacco, it involves a misapprehension. The horn-worm is not capable of begetting a progeny while it is worm. That procreative function is only acquired after it becomes a fly, or moth, which is its adult state. People seeing different sized worms on the plants at the same time imagine them to be old and young, or parent and offspring, and although the larger ones may be older than the smaller ones, they are all mere youths—the offspring of the same mother, perhaps—in their various stages of worm or larval development. Now these things are, or ought to be, well known to any practical tobacco-grower, and therefore such reflections as those in the foregoing article must be valueless to them, except as a witticism or an amusement. The tobacco-worm, or horn-worm (although seldom used in books, we consider *horn-worm* not inappropriate, because it has a conspicuous horn projecting from the top of the hind end of the body) is not noted for feeding on the honey, the flowers or the leaves of the Jamestown weed (*Datura stramonium*,) if ever it has been seen so occupied at all. While it is a worm it is provided with jaws, and is a masticating animal; and although it may occasionally be found feeding on the potato and tomato when no tobacco is near, we have never known it to feed on the Jamestown weed. But when it makes its final metamorphosis, and assumes the moth form, its tastes undergo the same change that all belonging to its order—Lepidoptera—do. It ceases to be a masticating animal, and becomes suctorial, and then it would naturally resort to some honey-bearing plant. Down in Tennessee the predominating species, if not the only species that infests the tobacco, is the Carolina horn-worm (*Sphinx Carolina*), but up in the North the predominating species, if not the only species infesting the tobacco, is the five-spotted horn-worm (*Sphinx 5-maculata*), but here in the Middle States we have both species, the northern and the southern territory seeming to overlap each other.

Before we conclude, we would suggest to tobacco-growers that if they would destroy all these worms that remain in their fields when they take in their crops, they would save a great deal of labor the following season. Many of them merely shake them off the plants and let them lie on the fields to mature themselves on the young shoots that spring up from the stumps that are left standing, and go into the ground, and are thus carried over to the next season. We *know* this to have been largely the case in Lancaster county, and we presume it is also the case elsewhere. The fields are never so clean but what they will find enough to feed upon until the young shoots grow up. This is suicidal and ought to be abated at once.

THE ICHNEUMON FLY.

We find the following, says the Clarksville *Tobacco Leaf*, in the question and answer column of the *Courier-Journal:*

MONTEREY, OWEN CO., KY., May 21, 1877.—I saw an article in the Weekly *Courier-Journal* November 15th, 1876, concerning the Ichneumon fly and tobacco worm. Please give name and address of the party writing upon the subject in answers to correspondents in Weekly *Courier-Journal*. A SUBSCRIBER.

NOTE BY EDITOR.—The writer of the article will please respond, as we possess no information at this late date, except what has been printed in the issue referred to. We require name and address of our correspondents, but we do not preserve them unless on special occasions.

The article referred to first appeared in this paper and was written by Mr. Joshua M. Rice, of Clarksville, Tennessee. Mr. Rice has experimented a great deal with the ichneumon fly, and finds that they are a certain destroyer of the tobacco worm. Farmers should know this and preserve every worm found with the eggs of the ichneumon fly on it.

Mr. Wm. M. Drane and several other farmers have observed Mr. Rice's experiment and found great benefit from the few flies raised by preserving the worms. The flies are very numerous on Mr. Rice's place from a few years cultivation, and last season they destroyed the eggs of the tobacco fly before hatching. At least late in the season Mr. Rice noticed a great many tobacco flies depositing their eggs and could not find a single worm from the result, and he is confident that the ichneumon fly destroyed them. The tobacco worm is entirely harmless after attacked by the fly. It lies perfectly dormant, never moving or eating, and dies after the flies are hatched from the pretty little white eggs deposited on its back and sides. A number of farmers might stock their farms with the ichneumon fly by cultivating a few plants of tobacco in Mr. Rice's garden and bringing in worms to receive the eggs, and carrying them back to the farm before hatching.

We are glad to see that tobacco growers are beginning to attach some importance to economic entomology, although it makes us smile when "The Ichneumon fly" is referred to by those who attempt to enlighten them on the subject; especially since there are certainly not less than fifty distinct species that belong to the genus *Ichneumon*—as at present restricted—all of which are parasites, and the one that infests the tobacco worm don't happen to belong to it. At least one of the species of the parasites that infest the tobacco-worm is *Microgaster congregata*, but that which infests the eggs of the tobacco moth, is doubtless a species of *Chalcis*.

Although for all practical purposes the results given in the above extract are correct enough, yet in point of fact, the writer is entirely mistaken when he says "the flies are hatched from the pretty little white *eggs* de-

posited on the back and sides" of the worm. What he calls eggs, are larger than the eggs of the tobacco moth. The little parasites or "Ichneumons" deposit their very minute eggs in or on the body of the tobacco-worm, and when they are hatched the little grubs bury themselves under the skin, and feed on the substance of their host; and when they are mature they come out and spin the little white cocoons, (not eggs) and in due time the little flies emerge from the same.

The family ICHNEUMONIDÆ is an exceeding large one. It has numerous genera, and a much larger number of species; but, few, very few of them, have received common names; and therefore, for the sake of convenience, and for the purpose of avoiding those technical names, for which so many people have such a horror, it may be allowable to call them all "Ichneumon Flies," but, in doing so, it is by no means allowable to say *the* Ichneumon fly, as if there was only one species of that name; but *an* Ichneumon fly, implying that only one among the many is referred to, when treated of specially.

The lesson we desire to inculcate by these comments is, that the tobacco growers of Tennessee are on the right track when they direct their attention to the Ichneumon flies, and encourage their increase and protection. We have frequently called the attention of our readers to these little insect friends, and especially so in our essay published in the March number of the *Farmer* for the present year. And we would again admonish them, that whenever they find a worm covered with the little white cocoons of these flies, that they pass it by and let the flies develop, for there is no danger to be apprehended from a worm so infested. They may overlook worms in their hunt for them, but these little flies will surely find them out, and deposit their eggs upon them, when the proper time arrives for that work to be done.

REMINDERS FOR AUGUST.

Celery may be planted up to the 20th. Sow turnips, fetticus, bush beans for pickling, onion seed to stand the winter, lettuce for autumn use, and spinach for an early crop. Onions will be ripe this month, and should be pulled and dried.

FETTICUS.—This vegetable is chiefly grown as a winter and early spring salad, although it is sometimes used boiled, as greens or spinach. It requires a rich soil. The seed may be sown towards the end of August or beginning of September, in drills six or eight inches apart and half an inch deep, rolling them after sowing. When the plants are well up, thin them out to three or four inches apart. Keep it well hoed and clear of weeds, and when severe weather sets in, give it a slight covering of straw or salt hay, as is done with spinach, removing it in March or April. It can also be sown early in spring, as soon as the ground is in working order, and will be ready for use in six or eight weeks afterwards.—*Dick's Garden.*

DOES IT RAIN TOADS.

This question, prompted by the appearance of myriads of these infant reptiles immediately after a storm, is one which has been frequently asked. Many theories have been advanced to account for the strange phenomenon, but none that we have heard, as yet, are entirely satisfactory. Our already crowded space will not allow us to give any hitherto advanced theory in this issue, but we invite those who have given this matter their consideration to give their views to the public through our columns.—*Harrisburg Independent.*

"Water-spouts" might possibly draw up, and rain down, *tadpoles*; but, when tadpoles become toads, they immediately leave the water. They might possibly be "caught up" by a "spout," at the moment of transition. We have seen multitudes of toads on the bars and flats, or beaches, of the Susquehanna after a shower of rain, many a time. We always found them hopping away from the water, and we always supposed they had merely secreted their tender skins from the sun, and after the rain, had ventured forth again, reinvigorated and refreshed.

GRAMMAR IN A NUTSHELL.

The following anonymous rhyme, brief as it is, contains the substance of fifty pages of the best school grammar extant:

Three little words you often see
Are articles, a, an and the.

A noun's the name of anything,
As school or garden, hoop or swing.

Adjectives show the kind of noun,
As great, small, pretty, or brown.

Instead of nouns the pronouns stand—
Her head, his face, your arm, my hand.

Verbs tell us something to be done—
To read, count, laugh, sing or run.

How things are done the adverbs tell,
As slowly, quickly, ill, or well.

Conjunctions join the words together,
As men and women, wind and weather.

The prepositions stands before
A noun, as in, or through, the door.

The interjections show surprise,
As oh! how pretty! ah! how wise!

The whole are called nine parts of speech;
Which reading, writing, speaking, teach.

Many of our (naturally)) intelligent farmers, have most excellent and practical ideas and thoughts, but they lack in common grammatical construction, when they attempt to reduce them to writing and place them on paper. They probably have had little or no education, and what little they may have had, did not include grammar; or, the methods of teaching it in their youth may have been so defective and so discouraging to them, that they were deterred from making an attempt to acquire a knowledge of this useful branch of education. And yet, it is scarcely possible for any one of ordinary intelligence to construct a sentence without making use of some of the rules of grammar, whether they are conscious of it or not. But still, many violations of the most obvious rules of grammar occur in their compositions, which a little careful thought and common observation ought to correct. The above "Grammar in a Nutshell," is in such a pleasant form, that the younger members of the family may readily commit it to memory; and once permanently fixed in the memory, it may become forever theirs.

It is true, it can only teach them the names of the "nine parts of speech," but when these are thoroughly recorded, it will be a great assistance in learning how to *use* those parts of speech, in conversation and composition—when and where a capital letter ought to be used—how to begin a period or sentence, and when they are ended. Take, for instance the *article*, of which there are only three in the whole language. They never should begin with a capital, unless they begin a period or sentence.

THE State Board of Agriculture has prepared two laws which at the very next legislative session will be offered for passage. One of them is "to prevent deception in the sale of butter." All "oleomargarin" and other substitutes for butter are to be stamped as such, or the offender will be fined $100. The other proposed act is to "regulate the manufacture and sale of fertilizers." All such manufactures sold at over $20 per ton are to be accompanied by a certified analysis of their composition. All persons dealing in these goods are to be licensed and the State Agricultural Chemist is to analyze them. But why stop with fertilizers? A great many other bogus articles are sold. Why not compel the jeweler to mark his goods solid, plated or counterfeit; and let the milkman tell us how many quarts of water he adds to each one of milk?

The *Board of Agriculture* is a new institution in our State. It has been but recently organized, and is therefore yet in its infancy. Like the children of Israel when they reached the land of Canaan, and found it occupied by the Jebusites, the Hittites, the Perrizites, the Hivites and the Amorites, whom they were admonished could not all be driven out in one day, but "little by little;" even so this new organization found many evils to correct on their plane of operation, and they felt that a beginning must be made somewhere, and we regard it as an uncharitable criticism, to open upon them the batteries of censorship because they cannot accomplish all that ought to be accomplished in a single day, a week, a month, or even a year. All true reformation is and must be gradual. It is sometimes necessary to let wheat and tares grow together for a time, lest in pulling up the tares the wheat be destroyed; we therefore ought to wait and *see* before we disapprove or condemn.

IN an article in *St. Nicholas* Prof. W. K. Brooks denies the commonly taught theory that each species of birds goes on generation after generation building its nest in precisely the same manner as its ancestors. They do not follow instinct alone, and marked improvements are visible among successive generations. They take advantage of new and more eligible places and material as these present themselves, and improve even in nest architecture. Barn and chimney swallows were found in America long before there were any barns or chimneys for them to be as comfortably quartered as they now are. The oriole, which builds its nest according to the dangers which threaten its young, now selects kite strings, fish lines and carpet yarn instead of the stringy fibres in a natural state, which it used to have to put up with. Martins have shown great progressiveness in their plan of nest building in a half century.

We never knew that any professional ornithologist claimed "that each species of birds goes on generation after generation building its nest in the same manner as its ancestors." It may be the general rule, but there are too many exceptions to it to constitute it a universal rule. In addition to the exceptions mentioned in the above extract from the *Daily Intelligencer*, we may mention a very marked instance which came under our own observation. A pair of "American Barn-owls" (*Strix pratincola*) for many years took up their residence in the top of the steeple of Trinity Lutheran church, in this city, and reared many broods of their young there; and we obtained specimens of the eggs, the chicks, the young and the adult birds, from that owlery, while it continued; all of which are in the museum of the *Linnæan Society*. Of course, before there were church steeples in Lancaster county—or barns either—they must have been domiciliated elsewhere—perhaps in hollow trees, or rocky recesses.

THE LOCUST.

The devastation caused by grasshoppers and potato bugs in various sections of the country has been so great that there is little wonder the whole insect tribe should be looked upon with suspicion, and ways and means devised for the extirpation of almost every creeping thing. So far as the grasshopper is concerned, his exploits have been almost entirely confined to the west, and in that part of the country he has engaged the attention of Senates and Legislatures, who have offered rewards for his capture, and have schemed to provide immunity from his ravages. When, therefore, it was learned that the locust had made his very numerous appearance in New Jersey and along the Hudson, it was only natural that farmers and others associating him with the grasshopper, should become alarmed at his approach and indulge in sad reflections as to the danger which threatened their fields and orchards. The locust proper, undoubtedly, belongs to the tribe of grasshoppers, and is of a most destructive nature, but it would seem that the species which has put in an appearance now is positively harmless, and that no danger need be apprehended from its presence. Naturalists are united in believing that those in New Jersey are the genuine seventeen-year locusts, which appear only once in that time, and after a very short but extremely noisy life disappear. At present they cover the trees, shrubs and grass in Eastern and Northern New Jersey for miles, and their combined voices almost drown the song of the birds. Their eggs are laid in the holes of trees, and when the larvæ begin to show signs of life they drop to the ground and burrow themselves into the soil about a foot beneath the surface. When warm weather comes they work themselves to the surface, climb up a tree or shrub, throw off their outer covering or shell and receive their sustenance from the dew and honey in the leaves. Farmers in the open country are not troubled with them, as they almost invariably seek the grove and woodland. Were they to hollow out resting places for themselves in the valleys the plowshare would probably leave them open to the same fate which the early worm receives from the early bird. Their sole end seems to be to lay their eggs, sing their own funeral dirge,

and then die. Whether they remain in the ground for seventeen years or not is purely conjectural. Some have supposed that the doctrine of evolution could be verified in their case, that their offspring becomes either a grub, a caterpillar, or a beetle, and that the change of form goes on for seventeen years, when the original locust reappears. It is to be presumed, however, that even Mr. Huxley himself would consider life too short to attempt to prove his theories by devoting such a long period to the habits of one insignificant insect, and so their growth still remains a mystery.

The old proverb as to giving a dog a bad name is exemplified in their case. History, both sacred and profane, teems with so many instances of the desolation caused by locusts that it is not surprising when a harmless individual of the same name comes along that the sins of his namesake should be laid at his door. The only danger to be apprehended from those which have now made themselves known, is that if the female cannot discover a place in which to deposit her eggs, she may dig out a hole and kill the branches of trees thus bored. But those who associate them with the armies which sweep over Eastern countries, destroying all vegetation, may at once disabuse their minds of such a belief. An insect that lives only on dew, that comes out of a seventeen years' sleep, climbs up a tree, sings his matin song and then dies, murmuring

"If so soon that I was done for,
I wonder what I was begun for,"

is not much to be dreaded. There are, of course, individuals superstitious enough to believe that their presence presages, plague, famine or pestilence. If they were to eat up every green thing, a famine would undoubtedly follow, but outside of this, men need not be under any apprehension that fixed and immutable laws will be set aside by an insect which lives a summer day and then either dies or disappears.

The foregoing was put in type for our July number, but was crowded out for the want of space; and now, on reading the revised proof, we find it contains several statements that need correction and qualification; and feeling too poor to throw it into *pi* without using it, we have concluded to let it pass, merely to show how wide of the mark those people shoot who have no *sight*. In the first place the female locust (*cicada*) does not lay her eggs in "holes of trees," that had previously existed. She goes to work mechanically and makes a series of longitudial incisions, in a branch just large enough to grasp and give her the proper "purchase," or fulcrum power, and into these incisions, at an angle of about forty-five, she deposits from 20 to 30 or more eggs, and these eggs are hatched during the months of July and August, when the young locust either runs down the branch and trunk of the tree to the ground, or it drops down. We have bred them out of infested branches, and found they always dropped down. They are then yellowish-white, as nimble as an ant, and about as large as the neuter of the black wood-ant. This insect never deposits its eggs in dead wood; it must be living; otherwise we doubt whether they would ever incubate; they need not only heat but some moisture. Those branches the ends of which we kept in water, the eggs incubated, but in those without water, they "shriveled," or dried up, and never hatched. The perforated branches eventually die and are broken off by the winds —or many of them are—and this pruning is sometimes beneficial to large trees. It is only in young trees that any injurious effects usually follow, or in the smaller kinds of trees. In the second place, the above notions about their "evolution" are not only exceedingly fabulous, but they are exceedingly *fib*ulous. There is nothing better established than that their larval development requires from thirteen to seventeen years—according to species (17 *decim or* 13 *decim*). We have dug up the *larva* when five, nine, eleven, and fourteen years old, and in the spring of their septendecennial appearance we have traced their burrows to a depth of three or four feet. We have witnessed their appearance in this part of Lancaster county four times; namely, in 1817, in 1834, in 1851 and in 1868, and we have always found seventeen years between their appearances, almost to a day. It appears to us that there must be thousands of people in the country who have better opportunities to make and record observations than we have, and yet at each occurrence of these insects, the most stupid things, in reference to them, are published.

COLORADO BEETLE IN ENGLAND.

In the House of Commons, on Thursday, June 28, Mr. M. Stewart asked the Vice President of the Council if his attention had been called to a statement in the *Pall Mall Gazette* announcing that the Colorado beetle had made its appearance in Germany, and if precautions would be taken to prevent its introduction into England. In reply, Lord Landon said: "I am not surprised that my honorable friend should have addressed to me a question on this subject, owing to the great interest felt in it. I have to inform him that since I saw that announcement in the papers I have communicated with the Foreign Office. They at once telegraphed to certain ports, and this afternoon, I am sorry to say, they have received a report confirming the statement. The telegram says indications of these insects in the shape of numerous larvæ were found in the field near Mulheim. The field was fired with sawdust and petroleum. One beetle was seen on the wing. [Laughter.] It is a very serious matter, because it was feared the beetles might spread. [Cheers.] Upon receiving this information, the Privy Council at once wrote to the Customs, requesting them to instruct the officers at the various ports to keep a lookout for the arrival of these destructive insects. The Commissioners of Customs, I may state, have long been alive to the importance of this subject. So far back as March, 1875, they issued a circular to their officers to examine carefully into all their cargoes of potatoes coming from America, and destroy by fire all particles of potato stalks, as well as all loose soil. In November, 1876, again the Commissioners of Customs issued an engraving of the insect, and we have thought fit to republish and to circulate throughout the country a memorandum published last October by the Minister of Agriculture in Canada, describing the habits of the insects, and showing the best means of getting rid of it. If my honorable friend would like copies of these papers, I shall be glad to lay them on the table." [Hear, hear.]

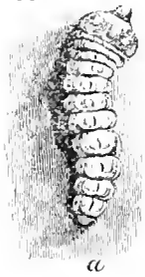
THE potato bug, whose arrival at Cologne, Germany, was reported a few days ago, has gone on to Bucharest as a war correspondent of a Colorado paper.

Perhaps never since the world began has there been any other insect, that has created so profound and so widespread a sensation as the "Colorado Potato-beetle." The Egyptian, the Asiatic, and the Rocky Mountain Locusts, may have been more destructive within certain limits, but none of these have been so cosmopolitan in their geographical range. If they once locate themselves permanently on the continent of Europe, we can not see why they may not overrun all of Europe, Asia and Africa, within a certain belt of latitude. Just now they seem to be exercising the English Parliament, the German Diet, and the French Assembly, quite as much as does the "Eastern question," and their discussions on the subject are likely to be as "wise and otherwise," as other grave deliberative bodies. When they expect to "head off" the potato-beetle by the non-importation of potatoes, we certainly do not think they are acting very wisely, for there are ninety chances for the Colorado-beetle to reach Europe by some other cargo, where there are ten for their reaching there in a cargo of potatoes. They are fond of riding eastward, just for the love of the thing, whether in a cargo of wheat, potatoes or stone-coal. We consider the issue of good engravings of the beetles and its larva, as among the best of its preventive measures. It came to Pennsylvania on the railroad, but not in a cargo of potatoes.

APPLE TREE INSECTS.

The following article on the insects that infest apple trees is by Professor A. J. Cook, of the Michigan Agricultural College, and is extracted from the report of the Michigan State Board of Agriculture for 1875:

Apple Tree Borer (Saperda Candida—Fab.)



a

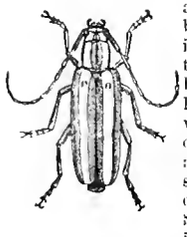
a, larva.

This pest, which has been so long in our country, is widely distributed in our State. Very few, if any, orchards are exempt from its attacks. Not that it always, or generally, totally destroys the trees; still those suffering from its attacks are always lessened in vitality, and it not unfrequently happens that the trunks become so riddled with their tunnels that the tree becomes a prey to the hard winds, which are sure to come with each returning year.

Natural History.—The beautiful brown beetle, with its two stripes of white, appears early in June, and thence on through July. So the egg-laying is principally done in these two months. The grub, whitish, with a round black head, eats through the bark, and then usually passes in and up, frequently eating through the branches far out towards the extremity. I have frequently found apple tree limbs no larger than my thumb with a tunnel as large as a pipe stem. These larvæ push their sawdust-like particles back of them and out of the hole where they first entered, so that it is not difficult to find them. They live and feed on the wood of the tree for three years; hence we see how that a single larva may bore, if left undisturbed, for a distance of several feet. They finally bore a hole to exit, fill it slightly with their sawdust, and a little back of the same make a cocoon of their own chips, in which they pupate. Soon after, in June and July, the beetles again appear.

b

b, pupa.



c

c, imago of *Saperda candida*.

Remedies.—Soapy mixtures are found to be noxious to these beetles, so that in their egg laying they are found to avoid trees to which such an application has been made. Thus we may hope to escape all danger by washing the smooth trunks of our trees early in June, and again early in July, with soft soap, or a very strong solution of the same. T. T. Lyon, now of South Haven, whose judgment is very reliable in such matters, urges that we always use the soap itself.

We should always examine the trees carefully in September, and wherever we find this pernicious grub's sawdust shingle out, we should give him a call. Perhaps we may reach him with a wire thrust into the hole, and by a vigorous ramming crush the culprit. If we have doubts about the crushing, we should follow him with the knife; but in cutting out the borers too great care cannot be taken to wound the trees just as little as possible. This heroic method is sure, and requires very little time, and no person who takes pride in his orchard, or looks to it as a source of profit, can afford to neglect this September examination, or the previous application of soap, to which it is supplementary.

Flat-Headed Borer (Chrysobothris Femorata—Fab.)

At the present this borer is quite as ruinous in our State as the preceding one, and I should not think it strange if in a well-balanced account it was found even to surpass the other in the evil which it works to our fruit interests. I have seen young orchards nearly ruined the first summer after setting, by this devastator. Not long since a nurseryman came from a distant part of the State to consult me as to the ravages of this pest. He said that during the past summer, in some regions of the State, more than half the trees he sold were killed by this scourge, and of course he was unjustly blamed. At present no nurseryman should sell trees without throwing in advice in regard to practicing against this devasta-

tor; for, as we shall see, such trees are peculiarly liable to attack.

These borers are not confined to the apple tree, as I have found them working in oak, maple, and other trees of our forests.

Natural History.—This brownish beetle, with a coppery lustre, is found from May till August, though I have found them more common in June and July. As with the striped *Saperda*, the eggs are laid on the bark. The whitish grubs, with their enormous front, brown head and curled tail, usually bore only superficially, eating the inner bark and sap-wood; yet I have seen, and have now on exhibition here at the college, sections of young trees over an inch in diameter bored completely through by these big-headed rascals. They eat but a single season, pupate as in the preceding case, and come forth as imagos early in the spring. They usually work on the trunk, though sometimes in the branches, almost always on the south, the west, or the southwest sides of the tree; and their whereabouts may be ascertained, not only by the sawdust, but also, and more certainly, by the black color of the bark. When the black color offers the suggestion of the presence of this borer we can quickly become assured by striking a knife into the same. If the blade pierces the bark and goes on still a little farther, we may be sure of the enemy's presence.

This borer is far more liable to attack feeble trees. Anything therefore which serves to diminish the vitality of the trees, promotes the ravages of this borer. Hence, after such a winter as we have just experienced, or after having the growth of our trees interrupted by the removal from the nursery to our orchards, we are in special danger of harm from these destructive borers. Hence the coming season, when loss will be inevitable, we should more than ever be on the alert to mitigate the damage by our vigilance and care, and by the timely application of remedies.

The remedies for the flat-headed borer are the same as those given for the old borer, soap in June and July, and a knife in September; though the grubs may be found in July and August, and so to delay the cutting out in September would often be fatal, especially to trees in newly set orchards. I have known cases where labor of this kind in July would have paid more than $100 a day, besides saving a great amount of vexation.

Apple Tree Bark-Louse (Mytilaspis Conchiformis- Gmelin.)

This old enemy is less destructive than formerly, probably because of the parasites and mites which prey upon it, so that, like the Hessian fly, wheat midge, and many other insects, it has probably done its worst work; yet to leave it to itself at the present time would be to yield the strife prematurely.

Natural History.—The bark-colored, oblong scales, so harmless in appearance, serve, from August to May, only for protection to the sixty or seventy wee white eggs, which are found underneath. About the first of June the young lice appear—so small that, though clad in yellow, they can hardly be seen without a glass. Coming forth from under the scale, they roam about for a few days; are sometimes blown to other trees, thus spreading their evil work; but very soon settle down to earnest business. This consists in inserting their tiny beak and sucking the vitality from the trees. Very soon a scale commences to form around them, from an exudation, which is a secretion from the general surface. By August the impervious scale is complete. The eggs are then soon deposited, and the parent louse dries up and shrinks away to nothingness.

Remedies.—As the scale is impervious to most fluids, though oils will penetrate it and destroy the eggs the best time to fight these insects is just after the eggs hatch. At this time soft or strong soap-suds are sure death to the young lice. Hence the trees should be washed the first week of June with soft soap, not only making the application to the trunk, but also to the main branches and limbs so far as possible.

Important Fact.—We thus see that an application of soft soap to our apple trees, made in the first week of June, is of exceeding value. It not only exterminates the sappers (bark lice), but banishes the miners (borers). We thus understand why our fruit trees which are thus treated seem fairly to laugh, as if grateful for such timely aid in banishing their enemies. I have no hesitation in affirming that the apple-grower will find the above one of the most paying operations that he can undertake in his orchard. Let all then scrape their trees early in spring, apply soft soap—not lye—the first of June, and again the first of July, not forgetting to adjust cloth bands by the last of June.

"Frequently eating through the branches far out towards the extremity." This is certainly a new character given to the "Striped apple-tree borer," (*Saperda candida*) and knocks all the wind out of those remedies based upon the location of this insect in the lower portion of the trunk. We know that the "Linden-tree borer (*Saperda vestitta*) perforates the branches of that tree, not "far out towards their extremity," however, all the larger branches but we always looked for the *larva* of the striped species in the trunk, not far from the base, and have often found it there. It would take a dreadfully long, barbed, steel wire, to reach them in their burrows, "far out towards the extremity" of the branches. As this comes from a college professor, we are bound to receive it with respect, and wait patiently for a fuller confirmation. On the whole, the article contains some useful suggestions.

"DOES THE SHAD BITE OR TAKE A BAIT.

Yesterday Capt. S. S. Nagle, while fishing for mullets in the Susquehanna, at Marietta, with muscle as bait, received a vigorous bite, very different from that of a mullet. After a lively tussel he landed a fine large male shad, in good condition; the fish was fairly hooked in the mouth, indicating that it had gone for the bait.

This is not the first recorded instance of shad being taken with the hook, but it is the best authenticated case on record, to our knowledge, of a shad making a "vigorous bite" at a "bait." We have often examined the contents of the stomachs of these fishes, but we never found anything in them that had the appearance of being either animal or vegetable—simply a dark colored or grayish slime—and we supposed that being mainly bent on finding a proper place to cast their spawn, they took no food, except perhaps such floating *algæ* as might be easily appropriated on their upward way.

QUERIES AND ANSWERS.

Mr. H. M. E., Marietta, Pa.—Your larger insect, enclosed in the small paper-box, is a very odoriferous carabidinous beetle, technically called *Cychrus viduus*, and very rare too. I have never been able to take a single specimen in all my entomological experience. The only specimen, to my knowledge, ever having been taken in Lancaster county, was captured by Mr. Edwards, near Quarryville, about a year ago, which he sent to me alive, and in good condition. I regret very much the injury your York county specimen has sustained. I hope you will keep a sharp lookout for others. The smaller beetle is a chrisomelan, technically called *Chrysochus auratus*, and although some seasons, and in some localities, it becomes very common and abundant, yet it is always a very pretty insect. It varies very much in appearance. Sometimes it is simply a glossy green; at other times like a drop of burnished gold, and then again the green and gold are beautifully blended. Its relation, however, to the "Colorado potato beetle," discredits it.

Prof. T. R. B., Millersville, Pa.—The "worms" and their cases, which you found under a cedar tree near the permanent exhibition building, are those of the common "Drop-worm" or "Sack-bearer" (*Thyridopteryx ephemeraformis*) which are particularly destructive to the foliage of the cedar, the arbor vitæ, and other coniferæ. It, however, does not confine itself to these, for we have found it abundantly on the apple, the pear, the quince, the apricot, the cherry, the locust, and on other trees and shrubs. Its generic name is from the Greek, and relates to its habit of occupying its own solitary house. Its specific name relates to its form, which is likened to that of an *Ephemera*, or "Day-fly," an insect better and longer known to the entomological world, than the drop-worm. This insect was first noticed by Mr. Rembrandt Peale, on the banks of the Wissahickon, about the year 1812, but it was not described and scientifically classified until many years thereafter. We first noticed it here in 1850.

Wm. H. H., Esq., Lancaster, Pa.—In reply to your query in regard to "Heath," we would say, that although we have many shrubs in this country that belong to the Heath family, ERICINÆ, we have none that belong to the restricted genus *Erica*. Heath is a flowering evergreen shrub, and perhaps the nearest thing we have to it in this respect, is our common Laurel (*Kalmia*), but the family also includes the rhododendron, the whortleberry, the wintergreen, the barberry and many others. Three species belonging to the restricted genus *Erica*, are indigenous to England, and perhaps the same number will be found in Asia and Africa. The common European heath, especially that of Ireland and Scotland, is used for fuel, for thatching, for bedding, for cordage, for goat feed, and several species of fowls the heath-cock, for instance, feed on its seeds and buds. Some species of the family are cultivated and are beautiful flowering plants.

Mr. K., Salisbury.—The insects that punctures the young leaves of your tobacco are a species of "Soldier-Bug," (*Euschistes pustulatus*,) and is nearly allied to a species that destroys the larva of the "Colorado potato beetle."

STATE AND DISTRICT FAIRS FOR 1877.

We give below a partial list of State and district fairs for this year. We desire to complete the list as soon as possible, and will be obliged to any reader who will give us information as to time and place of holding State or prominent district fairs not mentioned below:

TITLE.	WHERE HELD.	TIME.
Am. Institute	N. Y. City	Sep. 12 to Nov. 12.
Am. Pomological	Baltimore, Md.	Sept. 12 to 14
California	Sacramento	Sept. 17 to 22
Central Ohio	Mechanicsburg	Sept. 5 to 7.
Central Ohio	Orrville	Oct. 10 to 13.
Chicago Expos'n	Chicago	Aug. 29 to Oct. 13.
Fremont, Neb.	Fremont	Oct. 3 to 5.
Georgia	Atlanta	Oct. 15 to 20.
Industrial Exp'n	Kansas City, Mo.	Sept. 17 to 22
Indiana	Indianapolis	Sept. 24 to 29.
Illinois	Freeport	Sept. 17 to 22.
Iowa	Cedar Rapids	Sept. 17 to 21
Kentucky (N'th.)	Florence	Aug. 28 to 31.
Michigan	Jackson	Sept. 17 to 21.
Minnesota	Minneapolis	Sept. 3 to 8.
Nebraska	Lincoln	Sept. 24 to 28.
Nevada	Reno	Oct. 15 to 20.
New York	Rochester	Sept. 17 to —.
New England	Portland, Me.	Sept. 3 to 7.
New Jersey	Waverly	Sept. 17 to 22.
Ohio	Columbus	Sept. 10 to 14.
Oregon	Salem	Oct. 8 to 13.
Southern Ohio	Dayton	Oct. 1 to 6.
St. Louis	St. Louis	Sept. 24 to 28.
Texas	Austin	Oct. 9 to 13.
Wisconsin	Janesville	Sept. 10 to 14.

Although the above list, from the *Practical Farmer*, is the most complete one we have yet seen, it does not include our own Pennsylvania Fair, which will be held at Erie on the — of September, 1877, and as a matter of news in which all parts of the country are interested, we repeat the request of the *Practical Farmer* for the necessary information on the subject.

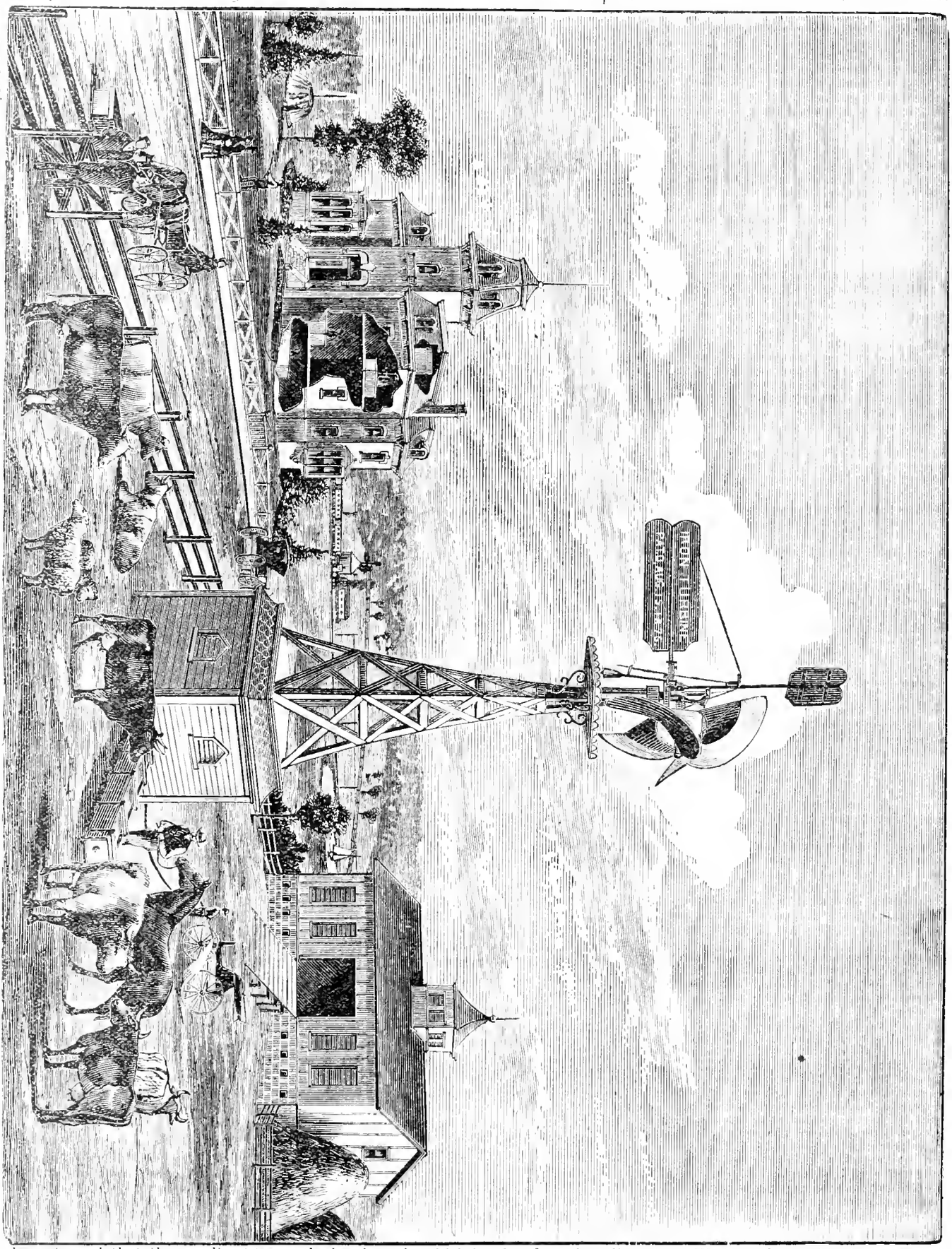
BUDDING.

Now is the proper time to bud fruit trees, and will be in season up to the 1st of September. Take this summer's growth to bud on, and the eyes, or buds, from the same year's growth. Take a sharp knife and make a perpendicular and a transverse incision in the smooth bark, in the form of the letter T, then insert the prepared buds under the bark, by lifting up the corners, after which tie it up closely with woolen yarn, only leaving the bud exposed. Cherries will do as well by side grafting with a graft containing three buds. Cut them very slender and smooth and slip them in the T incisions under the bark. Tie them up the same way as in bud grafting. Apples, pears, peaches, apricots, plums, and cherries may all be thus inoculated. Also English and German walnuts, on our common black walnut, the Spanish chestnut on our common chestnut—including the Mulberry and persimmon, on their kinds. In grafting cherries I generally do side grafting; by slipping down the graft, and using a little wax and woolen yarn, it seldom fails for me. But the main thing is to ascertain when the sap is in the right condition, so that the bark is loose enough to facilitate the operation.—*L. S. R., Oregon, Aug.*, 1877.

THE TURBINE WIND ENGINE.

"Wind mills are being greatly improved, and this fact is adding much to their popularity. The one we illustrate below is manufactured at Springfield, Ohio, by Mast, Foos & Co., and is called, from the peculiar shape of its wheel, the "Iron Turbine." The mill is constructed entirely of iron, thus differing from others in the market in there being no slats or reeds. The wheel is made of heavy sheet iron, constructed on the *turbine* principle. Its construction is simple, having but few parts, and these well put together.—There are but few joints. The turn-table works easily and freely. It has a rear or tail vane which holds the wheel facing the wind, except when operated upon by the governor, which regulates it automatically. The regulating vane, which is a part of the governor, stands upright over the wheel, and is held in position by the adjustable weight on the lever, and can be regulated to suit the power required. This vane is turned downward with a very strong wind, and serves to turn the wheel more or less out of wind, and during storms or violent winds, throws it entirely out, throwing the wheel edgewise to the wind, so that the mill is at rest until the storm ceases, when it will quietly resume its work again. It is claimed that the peculiar shape of the wheel gives this machine a large increase of power over any other now manufactured, while the discarding of all wood in its construction prevents any swelling or shrinking, and renders it the most durable mill in existence. This is a point about which a good many manufacturers have been too careless, and the result has been a feeling of discouragement among those who have purchased their machines. The manufacturers of the Turbine Wind Engine say:

"The very best materials are used in the construction of these engines; polished shafting and babbit lined boxes, with cavity between the bearings, in which is placed packing to hold oil to prevent the necessity of very frequent oiling. A hardened steel wrist-pin and pitman of malleable iron, with adjustable brass boxes, so that all wear or slack can be easily taken up to keep the engine running smoothly, and prevent knocking and unnecessary wear. The quality of workmanship is equal to the best steam engines. Experience has taught us that good, substantial work is appreciated, and though it costs more, it pays in the end, for both manufacturers and purchasers. The unique and peculiar form of the wheel, causes it to give more power than any other wheel in the market, of the same diameter. We have thoroughly demonstrated that our eight feet wheel gives more power than any ten feet reed, or slat wheel, besides it is much more durable, there being no wood about it to swell, shrink, rattle and be torn to pieces by the wind. We are well aware that many persons who have been using wind



mills, have become discouraged, because their mills were so short lived, and so expensive to keep in working order; but an examination of this iron turbine will soon convince any one of its durability and efficiency. Though comparatively a late invention, it has been thoroughly tested, and we can confidently assert that no other wind engine has won for itself such high reputation, in the same length of time. Of the large number put in operation in Ohio, Indiana and Illinois, during the past year, not one has blown down, although subjected to the severest storms, and not one has failed to give satisfaction to the purchaser. This certainly cannot be said of many others. They have received the highest commendations from persons using them, and from the best mechanics in this country and in Europe."

[The foregoing from the *Michigan Farmer*, located in a State where "The Turbine Wind Engine" has been introduced and is in practical use, illustrates more fully the qualities and popularity of this engine than anything we could say, experimentally, on the subject. Independent of a merely utilitarian view of the subject, the wind-mill is associated with time-honored memories, and we believe if *we* possessed a farm, we should have one of these "rural, rustic and romantic" structures erected on it, whether we had any special use for it or not. But this practical age has improved and invested it with an interest it never had before, and we hope to see the *Turbine* introduced into our county on an enlarged scale, because we believe it will meet and satisfy a constantly increasing want.

CORRESPONDENCE.

Letter from Florida.

Dear Sir: Your letter of 30th ult., reached me a week ago. I was pleased to hear from home, and that all are enjoying health. Health is only fully appreciated when one loses it. To me it used to be secondary, but now becomes of primary importance. Over four months ago when I arrived at Key West, I was delighted with the mild climate and its effects, but it is only about a month ago since I have become fully acclimated and feel its full effect. At present I mostly enjoy my sleep and meals, and gain, I think, some strength and weight. This country is one of primitive appearance, and more wild in its vegetation than in a more northern latitude of the State. Of course as elsewhere in this State, one sees little but pine forests and hummocks, which are almost impenetrable jungles of vines and shrubbery, although the vegetation is dense and luxuriant, the soil is mostly shallow, and the ragged and quartz coral rock crops out everywhere on this coast. These rocks, usually level with the surface, are so numerous that it would be difficult to find a plot of ground of several acres in extent, in which a plow could be used. No open fields—there are no farmers here, in a sense, no pasture or grain fields. Prior to the war, there were some planters setted here who raised the shrubby Sea Island cotton, but labor must have been effected by means of slaves and horses. These plantations are now all grown over with trees and shrubs, so that it is difficult to realize that they were once under cultivation. But history with the monumental remnants of a few weather stained and moss-covered stone walls, broken down chimney stacks, and a few ornamental shrubs, with lemon and lime trees run wild, point to this former occupancy. Although the mild climate and luxuriant vegetation captivates the immigrant, but in a short time becoming better acquainted and more fully realizing the drawbacks, soon emigrates again for a more substantial home. Counting all the settlers on this bay and its feeding rivers, I find most have come in since the war, and show no indication of a permanent residence here. The inhabitants along this bay are a mixed people, as regards character and wealth. All have land from a quarter section, eighty acres, or less, to several thousand acres, but the land is not worth much; although some have the face to ask ten to twenty dollars per acre for unimproved land. The people, as a class, are poor, and many make a bare living in the manufacture of starch out of the coonti root (*zemia integrifolia.*) some grow a few vegetables for a living, others in keeping a small country store, or post-office. The family with whom I am staying have come here from Ohio five years ago, and are in better circumstances than most of them through this county. Most of these people are of an irritable temperament, and are with the least provocation rendered permanent enemies, yet to strangers they are very kind and hospitable on first acquaintance, and with careful intercourse and approval of their views on all subjects, may be retained in good friendship, but woe to him who offends, because they will not forgive.

The Seminole Indians constitute quite an important element of the population, yet absolutely they are not many; perhaps several hundred would comprise all the living of a once powerful tribe. They are a fine specimen of physical development. In their intellectual and moral culture they are much like Indians elsewhere, but they are of a friendly disposition, and show better taste and judgment in their mode of living and intercourse with the whites, than the red men of the plains. I have met and conversed briefly with a number of them. At my first introduction to them they appeared very reserved, but on longer acquaintance, and especially when they are under the influence of spirituous liquors, they become quite free and talkative. They live on hunting and fishing, and growing some vegetables and corn. They come here every few days trading with this family with whom I am staying. They supply us with venison. They are expert hunters—carry whistles to decoy the deer, or burn prairies to drive them out—or pass through dense hummocks apart and produce various noises to attract the animals. They also, like the "poor whites" here, engage in the manufacture of starch. Of liquor they are very fond, and will, by its abuse, probably, in course of time, destroy their tribe. The men as a rule are barefooted and without breeches, wearing merely a long calico shirt, ornamented cape and belt, with a turban. The women are better clad, and usually ornamented with many strings of beads around their necks, and rows of hammered silver coins over their breasts. They are very fond of silver coins for ornaments, but will as readily accept currency in trade.

The climate here is mild and very pleasant, except when the wind is from the south, which makes the atmosphere very humid, and depressing to some extent. For three months now that I have spent here (up to 1st of May), I have observed the course and regularity of the local winds. Winds blow here almost constantly—indeed a few hours is the exception. These winds move around in circles in the direction of the hands on a dial plate of a clock—making one circuit in a week. Every Sunday or Monday since I have been here, they blew from the north and then in a day or so came from the east, then from the south, then west and north again—never have shifted in the opposite direction. The hurricanes to which this country is subject in the fall of the year, pass in the same direction. It is probable that both are influenced in their course by the belt of calms, so near this latitude, or the hot winds meeting the belt of calms near the equator. The early mornings are to be enjoyed by the lover of nature, usually of light, hazy winds or calms, with a novel aspect of the beautiful. The dense wild growths come near the house, the red birds hopping around on the green shrubbery, and with the mocking bird sing their sweetest melodies or morning songs. The hot rays of the sun are not yet felt, and one thinks among the great variety of flowers, gaudy colored butterflies, insects and birds, with the placid waters of the bay in the foreground—of the finest June morning of a water scene in the north. The temperature is equable here; one who was born and always lived here, could form no correct idea of the sudden and extreme changes in the cold northland. I have read in papers and letters of the great snow falls, extreme cold and sudden changes north, the past winter, and to me it seemed like a dream.

roving about daily in the Forests in my shirt sleeves. Scarcely a day but the sun shines, and occasionally thunder showers, just sufficient to keep the ground moist. The highest and lowest range of the thermometer for the months of February, March and April, was as follows:

	Morn.	Noon	Ev'g
FEBRUARY.			
Highest	65	74	68
Lowest	49	60	59
MARCH.			
Highest	70	76	74
Lowest	53	60	55
APRIL.			
Highest	72	80	75
Lowest	55	67	65

Highest daily variations ..... 71° in February
" " " ..... 8° in March

—*A. P. C.*, Imanta, Florida, May 1st, 1877.

Salisbury, N. C., July 30, 1877.

Editor Farmer:—*Dear Sir:* The wheat crop turned out well here, in quantity and quality. The early potatoes did not turn out a full crop. Apples and peaches are abundant, as well as other fruits, such as gages, prunes and plums. Damsons and C. O. C. grapes also bid fair for an abundant crop, if nothing hereafter happens to cut them off. Your paper, the *Farmer*, frequently treats of various things, among the rest, grapes and their culture and management. I have tried different experiments with grape vines, and without success for years past. Until the last three years past, I have pruned vines down to within one and one and one-half inches of the main runner, in January of each year, and they have borne abundantly each year since in quantity and quality. I made it a point to prune just before the sap runs up. Pruning in January may not suit all climates, therefore persons growing grapes should exercise judgment according to climate wherein cultivated. I see in the *Farmer* for July, that some person from West Chester, Chester county, Pa., has sent you some root, which he says is a sure cure for diarrhœa and cholera infantum, in two hours. Will you be so kind as to give me the *botanical* as well as *common name* of said root? By so doing, you will much oblige me, as I desire to benefit the human family, and with which diseases this community is more or less afflicted. The corn crop so far this season, though a little late, promises a good yield, and from what I have seen and heard, I would not be surprised if this year's yield would be larger than it has been in any one year in twenty-five years past. So far as I have seen and learned from planters of tobacco and cotton the crops look well but not so good a stand, and acreage not so large, hence the yield will reasonably not be so great in quantity. Though the tobacco and corn crops may come short, in comparison to past years, yet we are blessed with a bountiful crop of wheat and oats, now garnered, and present prospects of a good crop of corn are fair, as well as fruits of all kinds grown in this section, and the health of our city and county around pretty good, so that I do not think we ought to complain but do the best we can and trust to a kind Providence, who always helps and provides for those who try to provide for and help themselves. Yours truly.—*M. R.*

Adulteration of the Necessaries of Life.

The subject of the adulteration of articles of food, &c., intended for human consumption, has engaged the attention of the German press for some time, and has had as an immediate result the introduction in the German Parliament, of a bill aiming to put a stop to the evil by inflicting heavy penalties upon those who engage in the nefarious business. As may be supposed, a question of so much moment to the welfare of the people, has had the effect to bring out a great number of excellent articles by eminent writers, who have

given their opinions and suggestions for the benefit of their fellow-beings on this important question.

Among the large number of this class of articles, I find one in the *Strasburger Zeitung* of to-day, which, owing to the fact that it handles the question of the adulteration of milk in a manner somewhat new compared with those of other writers, I have thought of sufficient interest to your readers to translate it entire. The author is Dr. Rohwosky, staff-surgeon of the Pioneer Battalion, stationed at Strasburg, a gentleman of high medical authority, and an excellent writer. Dr. Rohwosky goes behind the adulteration of milk, after it comes from the cow, and tells us how milk is adulterated before the cow yields it. Should you agree with me as to its acceptability, it is at your service. Yours truly.—*J. J. Sprenger.*

Dr. Rohwosky says: "Not only the adulterated milk of which we have cause to complain here in Strasburg, but even that brought direct and untampered with from the cow, is in most instances very bad, and simply for the reason that the cows from which it is obtained are not properly treated and cared for. In their treatment the essential matters of light, air, feed, and a proper attention to the cleanliness of the pen are entirely lost sight of by those possessing this useful animal, and who will dispute the necessity of these things to the health of either man or beast? What is the consequence? Bad milk. I venture to assert that out of 100 cow-stables 99 are illy lighted, where the animals inhale an impure atmosphere, whereby their blood oxydation suffers, and as a natural consequence their nourishment also; further, instead of good clover, meadow hay and chopped feed, they are fed on swill or slops, grain offals, &c., &c., and another natural result is bad milk. Such milk has not the right flavor, will only keep about 30 hours instead of two to four days, readily turns sour, and if given to children cannot be digested, thereby occasioning dyssentery, bowel complaints, vomiting, leads to scarcity of blood, sickness, and finally to death; and the direct cause of all is bad milk—not because it has been adulterated, but because the cows from which it came were not properly fed or treated.

"That the milk of a mother who has not the proper care and nourishment herself, works deleteriously upon the health of the infant at her breast, is a well known fact, and excites attention where it exists, but if the nourishment be by means of cows' milk, we do not ask whether the animal is properly fed, healthy or sick! Where is the logic?

"Notwithstanding this, the milk of the cows continues to be the only substitute for mother milk, and is the principal nourishment for children, and the health of these children depends on the quality of that milk. Among the many diseases of the stomach and lungs which prevail among infants, good pure milk is the acknowledged best remedy, as well as it is a valuable nourishment to those in good health, and a blessing in our household economy.

"Properly estimating the true value of pure milk, a number of intelligent and wealthy citizens of some of our larger towns, have established dairies constructed by men whose knowledge and experience could be relied upon; which are conducted on strictly hygienic principles. Such a dairy has been in existence at Stuttgart one year. It contains 41 cows of the best breeds, which are all housed in roomy, light and airy compartments, which are kept as faultlessly clean as a parlor, while the animals themselves are treated with the utmost care as regards the cleanliness of their bodies as well as in their nourishment. The demand for the milk at this establishment is so far beyond its capacity of production that several other establishments of a similar kind are in contemplation, of which one will soon be in operation. And this, notwithstanding the milk is only sold for the nourishment of infants and invalids, and that in consequence of the expense of conducting the dairy the price is only eight and ten cents per litre above the usual price.

"In conclusion, I hold that the providing of good pure milk should be the aim of all good citizens, and should be aided and encouraged by the entire community, as well as by the municipal authorities of every city in the land." It may be here added that according to the death reports of the city of Berlin for the last week of June, 700 children died, whose death in most cases is traceable to a want of good milk nourishment.—*Ludwigshafen, Bayern, Germany, July* 1877.

MANHEIM, Pa., July 30th, 1877.

MR. S. S. RATHVON—*Dear Sir:* I saw in the July number of the *Farmer*, that Mr. Satterthwait would like to know something cheaper than land-plaster to mix with Paris green, for destroying "Coloradio potato beetle." Also that you think the adult beetle will not eat the Paris green.

I have destroyed the Colorado potato beetle, both adult and larvæ successfuly with Paris green mixed with water. I took one tablespoon full of Paris green to one large bucket full of water, and sprinkled that on the vines. With two applications to each patch, I had them clean, up to the present time. One day, this spring, I went out to see one of my potato patches; the vines were then from three to four inches high, and I found from one to eight beetles on a stalk or vine, some at almost every vine, and they were eating, too; and full, or many eggs on the leaves at that time. I made a mixture as above described, sprinkled them shortly before noon, and in the middle of the afternoon. I went to see how it worked. I found all the beetles on the ground dead, and it also killed all the young ones, as they came out of the eggs. This patch was clean then, until the vines came into blossom, then I gave them the second sprinkling, which kept them clean to the present. Some of my neighbors have used the same, with good success.—*M. G. M.*

We did not intend to convey the idea that the adult Colorado potato beetle could not be killed by Paris green, but that they were not so easily killed by the dry mixture as the larvæ are. There is some doubt, however, whether either the larvae or the adult beetles are killed so much by what they actually eat, as by what they inhale and absorb through their breathing spiracles, and through the pores of the skin. From the moment the poison falls on the larvæ (on account of the moist or clammy surface of their bodies) they begin to sicken and soon thereafter die—indeed we have seen them dead as door nails, within five minutes after the application. They doubtless also eat of it, for it cannot be repulsive to the taste, or cattle would not eat it—nor children either. But, the softer parts of the adult being covered by a coat of mail, they are not so vulnerable as the larvæ.

NEW YORK, July 26, 1877.

LINNÆUS RATHVON, ESQ.—*Dear Sir:* Of the many good things which distinguish your paper, the best of all, considering the difficulty of that kind of writing, is your pleasant and inestimable appeal to your delinquent subscribers. As one of them I hasten to respond by inclosing $2.50 as payment to January 1, 1878, at the same time begging you to believe that it is a case of sheer inattention, and by no means intention on my part.

Your journal is uniformly interesting and instructive, and I cordially wish it the greatest success. Very truly yours,

HENRY R. WORTHINGTON.

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*WHAT CAUSES RUST IN WHEAT.

This is one of the referred questions propounded at the July meeting of this Society, and although not referred specifically to me, yet I presume I may be allowed the privilege of offering some remarks preparatory to the discussion of the question—one of those questions too, which, in the long lapse of time that has intervened since "rust in wheat" was first discovered, has never yet been satisfactorily solved, and probably will not be for as long a time to come.

Anterior to this question, however, is another query, legitimately involving the problem: *What constitutes?*—or rather, *What is rust?*—and although the solution of this may be easy enough, yet it may be as difficult to illustrate clearly what *causes* it, as it would be to demonstrate in detail, What causes a blade of grass to grow? or, What causes the sun to shine?—and yet it is impossible that these phenomena should exist without a cause.

Waiving all discussion on the question of "spontaneous production," let it suffice for the sake of brevity, to assume that *rust* is a *plant*, as much as corn or tobacco are plants; and that plants are primarily produced from *seeds* or *spores*. Secondarily, they may be produced from buds, from cuttings, from tubers, and from roots, but this has necessarily no particular connection with the question of *rust*, which belongs to the *fungoid plants*.

Systematic botanists divide the vegetable kingdom into two great CLASSES, namely: *Phænogamous* and *Cryptogamous*. The, first includes flowering plants; that is, those that bear a distinct flower and fruit, or seeds. The second includes flowerless plants; that is those which do not bear distinct flowers, but which are provided with cells of various forms, containing a prolific dust called *spores* or *sporules*.

To this second class called *cryptogamia*, belong the ferns, the mosses, the liverworts, the lichens, the sea-weeds, and the fungi or mushrooms; and among these last named are classed the blight, the mildew, the smut, and the rust. Although these bear some relation to each other, and are often confounded, they are nevertheless distinct. The common mold, which is found under so many circumstances, and in so many places, is a *cryptogamous* plant—is only another form of mildew, and belongs to the *fungi*. The number of these plants is legion, and their proper classification and description would form an immense volume; therefore, I will confine myself to the single variety or species, which is legitimately included in the question—"What causes rust in wheat?" Let me premise by saying that the earth and the air are full of the minute spores of these fungoid plants—so minute that they are invisible to the naked eye, when they are separated into single sporules. The whole animal creation are almost constantly drinking or inhaling them, and whenever or wherever they find the conditions favorable to their germination and growth, there they will germinate and grow, whether it is inside or outside of a loaf of bread, the seed cavity of an apple, the cells in cheese, inside or outside of an old book, or on any animal or vegetable decay. But like the seeds of *Phænogamous*, or flowering plants, they will not germinate and grow in times and places unfavorable to their development; and the species called *rust* has a special penchant for such plants as have become enerated, or laid open to attack from other causes.

Another premise is this; there is found upon most of the graminaceous plants, or grasses, and particularly upon wheat, a certain shining varnish absolutely of the same material as glass. Most commonly this vitreous material terminates the edges of the leaves by little teeth resembling a saw of extreme fineness, but always capable of scratching the fingers of those who carelessly amuse themselves by frequently rubbing these leaves in the direction of their length, especially when they take the leaf at the apex and draw their fingers towards the base. The greater then the thickness of this glassy layer, and the stronger the stalk, the greater will be the resistance of its surface to the moisture of the atmosphere, or other like influences, which might cause it to crack, and present false issues of the sap, upon which the rust attaches itself. And it is conceived that this layer of vitreous material will be stronger in proportion as the soil itself contains it, or as it is furnished artificially with the elements of its composition. It is well known that to produce glass, a silicious mineral sand is used, with lime and pearl, or potash, which are melted together by heat, although each one of these substances is difficult to fuse if heated alone. If then, by mixing with the soil silex, lime, and ashes, there be placed at the disposition of the plant a greater abundance of the vitreous materials which enter into the composition of the vitreous material with which it is covered, it will necessarily absorb a greater quantity, and thereby place itself in a better condition to resist the rust. The sea weeds, which, by their decomposition produce soda in quantitity—which also enters into the the composition of glass—will produce the same effect. Thus too, it has been observed, that the rust has shown itself much more rarely in silicious or sandy grounds.

These premises then afford a plausible solution of the question—in theory at least—"What causes rust in wheat?" namely, the absence, or partial absence, of the external vitreous coating of the plant, exposes the inner tissues to sporific development—it furnishes conditions favorable to the attachment of the

*Read before the Lancaster County Agricultural and Horticultural Society, August 6, 1877, by S. S. Rathvon.

rust sporules—their germination and their growth. Wherever the surface of a stalk, a leaf or a fruit, from any cause, becomes abraded or scarified, there decomposition will begin, and where decomposition begins there also will be the conditions favorable to the development of rust. Rust may also be developed on plants that have become enervated or weakened through diseases, which have been produced by other causes, and under those circumstances mold and rust will be engendered. But, these fungoids may also be developed upon the most rank and healthy looking plants. When graminaceous plants grow very rank in a rich soil, that has not its due proportion of the vitreous or silicious elements, the vitreous coating will be so exceeding thin that the rapid expansion of the leaf or stem may fracture it, and thus exposed, the rust will find a congenial element for its development. The spores of rust, of mildew, of smut, of mold, and various other fungous plants, are everywhere, and it is impossible to guard against their presence. The only thing that can be done, is to guard against furnishing conditions favorable to their growth. Under certain circumstances our bread and other articles will mold, but we have ways of arresting it or preventing it, by altering the surrounding conditions—by ventilation, or removing them to a dryer atmosphere. But, this is dead matter and cannot help itself. Wheat, whilst it is growing, is living matter, and can protect itself, if we but furnish the material for its protection. To illustrate how penetrable the minute spores of rust and mold are, I may mention the case of the "Seventeen-year cicada," or *locust*, that appeared here so plentifully in 1868. Many of these insects died prematurely, and their death was caused by a species of fungus which was developed in the internal cavity of the abdomen. Now, insects do not breathe through the mouth, but through *trachæ* or breathing holes arranged along their sides, and through these they inhale the fungous spores. Dr. Jos. Leidy, of Philadelphia, by the aid of a powerful microscope, discovered that these "locusts" contained trees with roots and branches, bearing capsules or cells; and he could even see them burst open and scatter their spores abroad.

"Rust" belongs to the genus *Uredo*, the family UREMACEÆ, and is generally confined to the *graminæ*, the grain bearing plants, or grasses. A subdivision of the family includes the UREDINES, of which the genus *Uredo* is the type, and these usually attack the wheat, oats, rye, barley, &c. The particular species which attacks the wheat, according to authors on the subject, is the *Uredo rubigo vera*, of DeCandolle, which literally indicates a red blasting blight, or rust, on trees and plants. It is developed on both sides of the leaves; upon the stalk, or stubble, and upon the ears, or "heads," as we usually call them. It has the appearance of little oval points projecting like grains of dust; at first yellowish, then redish, but afterwards becoming dark or black. The little streaks which it at first forms, in parallel lines, at the sides of the fibers, finally spread, and joining each other, form large patches. When the rust attacks the grain only feebly, it does not appear to be very injurious to it, but when it is considerable it often occasions severe losses. It is alleged that among all the graminæ wheat appears to be the special favorite of rust.

Mr. Klippart, of the State Board of Agriculture of Ohio, whom I have mainly consulted in preparing this paper, says: "If the streaks formed by the rust be attentively examined upon the stalk, but particularly upon the leaf of the wheat, the vitreous epidermis will be found split in every instance, and it will not be difficult to perceive that the sap, extravasated or forced out of their proper vessels through these splits, gives birth to the fungus, known as rust; or at least, that they serve as receptacles to the spores of the fungus, which are either carried through the air by the winds, raised from the ground by the rains, or are absorbed in the earth with the nourishing juices of the plant. It has often been observed that rust ordinarily shows itself when very hot sunshine suddenly succeeds rains, which have been somewhat prolonged. It is at this time, when the evaporation from the stalks and leaves goes on too rapidly, that the cracks in their vitreous epidermis occur, permitting the sap to deflect from its ordinary course, and thus the circumstances favorable to the fungus are presented to its spores, and their germination is developed, whether they come from the interior or exterior. The tenacity of these fungivorous spores is very remarkable. Take, for instance, the spores of the common mushroom, which are sold in square masses called "bricks." I once read an account of one of these bricks being used as a wedge in a pipe hole that was too large for the pipe, and after remaining there all winter it afterwards germinated and produced mushrooms. They require heat, moisture and air for their germination, and if these bricks sometimes will not produce fungi, it is because they either did not contain any spores, were not healthy, or were not surrounded by the proper conditions. It is the same with those taken up in the circulation of plants; they may have moisture enough, but not enough of heat and air to vitalize them. The more then that heat and moisture permit the sporules, or germs of rust to attach themselves to the stalks of grain, and to develop themselves there, the greater will be the damage it will cause. From the time that a stalk of wheat is seriously attacked by rust it begins to languish, its leaves soon dry up; and when rains are frequent, the malady proceeds from the stalk to the head, which also soon turns red, and afterwards black. Rust is least injurious to grain the nearer it has arrived at maturity before it is attacked. Therefore, early ripening grain stands the best chance of escaping it, for it does not ordinarily show itself until later in the season.

Wheat, somehow, has a good many contingent perils to encounter. If sown early, it stands a good chance of being attacked by the "Hessian Fly;" if sown late, it may encounter the "Midge," or the field "Weevil," in the early following summer, as well as the rust. No immediate remedy for rust seems to have been yet developed. In places where rust is most complained of, after all necessary care of the ground has been taken by proper drainage, as before stated, and more as a prevention than a cure, lime, ashes and silex should be freely used as a manure. But the necessary judgment as to when and how much of these elements should be used, involves some knowledge of agricultural chemistry—the analysis and composition of soils.

It is also recommended that a field that had been infected with rust, should not be sown in grain liable to rust the following season. And, as the earth is almost everywhere charged with the spores of rust, and that the wheat is infected as well by internal as by external appropriation, the seed wheat should first be soaked in a solution of blue vitriol—in the proportion of one pound of the salt to as much water as will cover five bushels of wheat. It should then be thoroughly mixed with finely pulverized lime, so that each grain is coated over with it, like a sugar-coated pill. If fine wood ashes are mixed with the lime it is thought it would still be better. Seed prepared in this way may be sown immediately, or it may be kept for a number of days.

In conclusion, gentlemen, I have not attempted to teach you how to raise wheat. I have only attempted to give you the opinions of scientific men, as to "*What causes the rust in Wheat?*"

For The Lancaster Farmer.

POTATOES WITHOUT PARIS GREEN.

It has been said by some one that Paris Green is the best and only reliable remedy to destroy the Colorado potato-beetle, &c. I think otherwise. I never use it and then I run no risk in any way from the poison, and I always get a fair crop of potatoes when the season is favorable. But it requires considerable attention for awhile to save the plants. This season and last season I planted between three and four acres in potatoes each time, and although it looked as if the bugs would eat them all before they got above ground, yet we mastered them before they done much harm. We don't trouble ourselves much about the first bugs that make their appearance, but we begin to work our potatoes as soon as we can see the rows, so as to get the rows in shape for our plan of operations. Then being prepared with a small broom and handle about two feet long, and a good sized tin wash boiler with a spade handle attached to the middle of one of the broad sides, somewhat like a dipper, so that when I am standing at the row the mouth of the kettle will be in proper position to receive the bugs, which I send in with a slight rap of my broom. I don't stop to pick up any bugs that fall beside the kettle, I leave them for the next time. Every few days I go over the patch again and keep them thinned down so that they don't do much harm. About four times going over the patch at the right time will save the crop. I was about one and one-half days going over it each time, making in all about six days at bug catching for three and one-half acres of potatoes. I always kept an old lard can with a lid on at the end of the patch, to empty the bugs into until I went home, and then I scalded them and buried them in the manure pile. I think sometimes we caught nearly a bushel of bugs at one going over the patch. I would not be bothered with handpicking since they can be so easily caught with a kettle and broom. In this way children can easily save a common potato patch for family use. One man could manage ten acres and save them from the bugs, but could not be expected to do much else while keeping down the bugs. The rows must be ridged close up to the stalks so that the kettle will fit up while the plants are small, or else many bugs will drop in the middle. A little practice will soon enable a person to pass along the row at a pretty smart gait. If our experience is worth anything you can have it freely.—*J. B. Erb, Lime Valley, Aug.*, 1877.

For The Lancaster Farmer

THE CROPS WE RAISE. HOW DO THEY PAY?

With the majority of farmers the raising of any crop is done with the expectation that it will pay in a pecuniary sense, and with the exception of experiments purely made to advance agricultural knowledge, this is the only sensible view that can be taken. And yet there are thousands of farmers who raise crop after crop that does not pay, but which they have an idea is profitable; the error being that they do not charge certain things against the crop that ought by rights to be.

There is some difficulty in keeping a strict account with crops, as in the matter of fertilizing materials. It is not right that the amount of such materials applied with the crop be charged, but the amount taken up, and this can in most cases be only approximately determined.

The difference in amount between the application of fertilizing materials and their removal determines whether a farm is improving or running down—if the application is greater than the removal, the farm is improving; but when the crop takes up more than is applied, then that farm is on the downward scale.

There are some items in the raising of any crop that are always the same, or very nearly the same, be the yield large or small, and these are taxes, interest on investment, and the labor necessary to grow the crop and get it ready for market. Of course a light crop will not cost quite as much to harvest, &c., but the difference in most cases is very little.

For the first example let us take corn, which is by most farmers considered, outside of tobacco, as one of the crops in which there is more money than nearly any other crop that can be raised.

To get at the true cost of any crop we must know the value of the fertilizing materials used.

Now a crop of seventy-five bushels of corn and the stalks (two hundred bundles of fodder) remove about 105½ pounds nitrogen, 67½ pounds phosphoric acid, and 92½ pounds potash, costing $35.50. At the same rate, sixty bushels and one hundred and sixty bundles fodder, would remove $28.35; fifty bushels and one hundred and thirty-five bundles would remove $23.63; and forty bushels and and one hundred and twenty bundles would remove $18.90 worth of fertilizing materials.

The expenses in raising the crop and to be charged against it would be,

Taxes and interest on investment	$ 9.00
Labor, seed, &c., about	12.50
	$21.50.

This amount, added to the value of the materials removed, will now give us the real cost, but our object is to find how much the grain costs, and to find this we will suppose that the farmer can sell the fodder at six cents per bundle.

By a little calculation we now arrive at the result that seventy-five bushels of corn would cost $45.00, or 60 cents per bushel; the crop of sixty bushels would cost 67½ cents per bushel; fifty bushels, 74 cents per bushel; and in a crop of forty bushels, 83 cents per bushel.

It is barely possible that the fodder might bring two cents more per bundle, but even in this case, in the seventy-five bushel crop the corn would cost about 55 cents and in the forty bushel crop, 77 cents per bushel.

As there will probably objections arise in the reader's mind, I will endeavor to meet some of them in advance.

Some may perhaps say that the manure being a waste brought about by keeping cattle, horses, &c., does not cost anything, but this is not really true, for the waste costs time and money as well as the product; and even should it be so that the waste does not cost anything, he still might have sold it, and it was worth therefore, so much money to the producer.

But perhaps the manure was all taken for tobacco, which is now a very common case, and the corn raised without manure. If this was the case and the corn was sold, then part of the farm, or, at least a part of the strength of the farm was sold, and it was worth just as much less to the farmer as the value of the fertilizing material removed. This is a very common case, and in no section more so than the great West, which is every day sending parts of its farm to the Eastern States and to Europe.

Wheat is the next crop to which we will turn our attention. This is also one of the principal crops on which western farmers rely, but which is regarded by many eastern farmers as not very paying, and by some regarded as a losing crop throughout, but which they must continue to raise for the sake of rotation and the straw for bedding purposes.

The expense of raising a crop of wheat and getting it ready for market, is about as follows:

Taxes, &c.,	$ 9.00
Plowing, seed, &c.,	16.50
	$25.50

The fertilizing materials removed by a crop of thirty bushels wheat and two and one-fourth tons straw are about 52 pounds nitrogen, 23 pounds phosphoric acid, and 38 pounds potash, the commercial value of which is $16.00.

Supposing that a ton of straw is worth $8.00—the market rates in cities now is $10.00 to $16.00 per ton—we would have $23.50 as the cost of thirty bushels of wheat, or 78 cents per bushel. With a yield of straw in the same proportion, twenty-five bushels of wheat to the acre would cost 96 cents per bushel; twenty bushels would cost $1.20 per bushel, and a yield of fifteen bushels would run up the cost to $1.63 per bushel.

From the above it will appear that wheat is not so much of a necessary evil as some would have us believe, and that a real good crop pays better than the much vaunted corn crop, however good the latter may be.

The fact that wheat is so extensively raised on the high-priced lands of Lancaster county is of itself sufficient to show that farmers consider it as paying, or they would soon find some other crop to help rotation, and find something else than straw as a litter for their stables.

In oats the showing is not so good as in wheat. The expense of raising this crop, with interest and taxes, amounts to about $19.50. In a yield of fifty bushels and one and one-half tons straw there will be removed about $13.00 worth of fertilizing materials, Allowing $8.00 per ton for the straw, the cost of the oats would be 41 cents per bushel. In a crop of thirty bushels, and a proportionate quantity of straw, the oats would cost about 67 cents per bushel.

This is not a very encouraging showing for this crop, and it seems that even with a good yield it can hardly be made to pay in a year when oats is plenty, and the only hope of making it pay a profit in a long run is to raise extra crops every year.

A crop of rye yielding the same as wheat will cost less per bushel, as the straw brings a higher price, and the fertilizing materials are less costly, as is also the seed. This is somewhat counterbalanced by the greater cost of thrashing, but in spite of this the grain in a crop of the above yield will cost ten cents less per bushel than wheat would, but the market price of the grain is also very much less. Where the yield of wheat is twenty bushels or more per acre, it is not advisable to raise rye for the sake of the grain.

Potatoes are a crop that must be raised year after year to be profitable. The commercial value of the fertilizing materials removed by a bushel of potatoes is only 7½ cents, and from this it can be seen that if there is anything like a yield, the profit is all that can be expected from the outlay.

We must touch tobacco very lightly, as it is the crop of crops to upset all the most careful calculations, as many a man has found to his sorrow. The amount of labor which it requires is very great and varies much with different years. One year "worming" may not cost more than a few dollars per acre, and the next year from five to eight times as much. A full crop of 2000 pounds removes about 92 pounds nitrogen, 61 pounds potash and 9½ pounds phosporic acid, the whole worth about $25.00. The stems probably take up one-half as much as the leaves do, but as these can be returned they need not be taken into consideration. There is a special manure prepared for tobacco, but there must be more than twice the amount of fertilizing materials in that it is needed as the charge is $60.00 for what is intended to be applied to one acre.

Hay we will bring in last of all, and then only to inquire into the amount of fertilizing matter removed, and leave the reader judge for himself as to the amount of profit there may be in it.

A ton of timothy hay removes about 36½ pounds nitrogen, 41 pounds potash, 14½ pounds phosphoric acid, worth $12.12; a ton of meadow hay removes 28½ pounds nitrogen, 26½ pounds potash, 8 pounds phosphoric acid, worth $8.86; a ton of mixed timothy and clover (if in equal quantities) removes 39½ pounds nitrogen, 39 pounds potash, 13 pounds phosphoric acid, worth $12.44; and a ton of red clover hay removes 42½ pounds nitrogen-36½ pounds of potash, and 11 pounds of phosphoric acid, worth $12.75.

It is proper to remark here that Prof. Ville claims that more potash and more phosphoric acid has to be added to the soil than is removed by the crop, but that in nearly all crops only about one-half the quantity of nitrogen need be supplied—the balance being supplied by the air and rain—and in the case of clover and other related *leguminous* plants, not more than 6 per cent. If this is really the case, all the foregoing calculation would be a little too high, except in clover hay, where the calculation may be as much as $6 too high, thus bringing the cost of the fertilizing materials in the latter to about $6.75 or $7, and in mixed timothy and clover to $9.50.

In the Western States where land is very cheap, grain can be raised at a price that would ruin eastern farmers, as the interest on their investment is not a fourth of what it is with us; and the farming being done on a large scale can be done cheaper, accordingly. If the Minnesota or Nebraska farmer does run out his land, it does not matter to him, all he wants is to be paid for his labor—investment and some profit on the investment. He perhaps bought the land at ten dollars per acre; he raised wheat, sent it east, and got paid for his labor, and say thirty dollars besides. He bought a farm, sent it east in the shape of grain, and made a profit of twenty dollars per acre. He made money, and who can blame him for it, for what becomes of the farm. He can buy another farm and do the same.—*A. B. K.*

TOBACCO FERTILIZERS.

In allusion to the late discussion on the subject of fertilizers before our local society, the editor of the *Tobacco Leaf* thus discourses in the 4th of July number of that paper, which we publish by request, on account of its valuable statistics:

"Our own views are entirely in accord with those of the gentlemen above quoted, who acknowledge their preference for stable and barn-yard manures. Whether for tobacco or any of the products of the field requiring heavy manuring, there can be no question but that these are in every way the best that can be used. That they are especially valuable in the production of tobacco is made manifest by an analysis of the ashes of the excrement of cattle and horses and a comparison of the results obtained with the results of a similar analysis of the ashes of tobacco. The annexed tables respectively show the constituents of tobacco ashes and the ashes of horse and cow manures:

ASHES—TOBACCO.

Potash	19 55
Soda	0 27
Magnesia	11 07
Lime	48 68
Phosphoric acid	3 66
Sulphuric acid	3 29
Oxide of Iron	2 99
Chloride Sodium	3 54
Loss	6 95
	100 00

HORSE MANURE.

Silica	62 40
Potash	11 30
Soda	1 98
Oxide of Iron	1 17
Lime	4 63
Magnesia	3 84
Oxide Manganese	2 13
Phosphoric acid	10 49
Sulphuric acid	1 89
Chlorine	0 03
Loss	0 14
	100 00

COW MANURE.

Phosphate	20 9
Peroxide of Iron	8 8
Lime	1 6
Sulphate of Lime	3 1
Chloride of Potassium	trace.
Silica	63 7
Loss	2 0
	100 00

From these tables it is readily seen how rich are these manures in the elements of which the earthy part of tobacco is composed. Cow manure is richer in phosphates than guano.

An analysis of the solid matter in the urine of different animals is shown in the following table:

URINE—SOLID MATTER.

	Organic.	*Inorganic.*	*Total.*
Man	23.4	7.6	31
Horse	27.	33.	60
Cow	50.	20.	70
Pig	56.	18.	74
Sheep	28.	12.	40

"We believe larger and better crops of tobacco could be raised in Pennsylvania and elsewhere by the use of what is known as barn-yard manure, than by the aid of any other fertilizer known to agriculture. We hope, too, the time will again come when very little reliance will be placed upon other varieties. Much of the imperfection of late years complained of in tobacco, is directly traceable to the excessive use of commercial manures, and this imperfection will continue and augment until growers return to the custom formerly in vogue among them, and on

their own farm is produced the bulk of the manure with which their farms are enriched. Already, as will be observed in some of the remarks quoted, there are evidences of the same want of foresight—or perhaps it may be called wisdom—among the Pennsylvania farmers that has been shown in the case of those in the Eastern tobacco-growing States. 'If we should have,' says Mr. Reist—an experienced and skillful grower, by the way—'a poor piece of ground and could not get barnyard manure with which to enrich it, it would be well to know what kind of manure is next best among the commercial manures in use.' It is true, as Mr. Reist observes, that barnyard manure failing, it would be well to know what is the next best kind. But it would be better far to see to it that there is no failure of this incomparable fertilizer. Have the acres of grazing land in Pennsylvania become less than they were, so that stock can not be raised to make manure as formerly? Or are the profits of tobacco culture in that State rendering farming in the old-fashioned way unpopular, as has happened in Connecticut? The remark quoted makes the latter inference possible, and if it be warranted by the facts, the facts are to be regretted. 'Gentleman farming,' in the sense in which the expression has come to be understood when applied to tobacco culture, is an exceedingly expensive and risky avocation. Defined, the phrase signifies the abandonment of almost everything that once gave occupation and independence to the American farmer. It means the concentration of all efforts on a single crop, and that failing, having nothing, comparatively, to fall back upon, as in the days when cotton was king. Wheat, corn, rye and potato fields untilled; pasture and meadow lands choked up with weeds, trees and bushes; stock, swine and fowl bought instead of raised for consumption; a few of the choicest acres devoted to tobacco, the rest of the once fruitful farm a wilderness or waste. This is 'gentleman farming' in the older tobacco-growing sections of our country. It is not a pleasant picture.

"Tobacco growers in the old and new sections will find it to their interest to be farmers as well as producers of tobacco. They should again commence raising stock, and produce enough to keep what they raise. If they will do this, there will be no scarcity of barnyard manure, provided further they take proper care of what is made by their stock. Some of the money they have heretofore expended in commercial fertilizers may be advantageously spent in mechanical improvements about their stables, pig-styes and hemneries for preserving the fertilizing properties of manures. Stop all waste of the precious material; let every ounce of dung and urine be kept from exposure to the sun, compost the gleanings of the stable, stye and hemnery with muck and turf—which are abundant—and a little Peruvian guano, and manure enough of the best kind will be made to meet all the wants of all the tobacco fields in the Union."

THE TOBACCO FLY.

Some Sure Methods of Destruction.

The North Carolina *Times* holds forth as follows on the tobacco fly: Mr. Read, the manager of Major Sutherlin's "Sunnyside" farm, in Halifax county, Virginia, has been planting tobacco for thirty years and has never had trouble with the tobacco fly. He banks pine poles and lays them across the plant beds, and, like the old hare in the tar trap, the flies get stuck in the turpentine. Another sure remedy he has tried is fresh stable manure well dried in a wagon body, and then sift it fine and add to it a little guano and ashes and sprinkle well on the plants. The stench is strong as hartshorn; in fact, the fly cannot get at the plant. This is plain plantation talk we give from a practical farmer.

A Mecklenberg man has at last found out a sure recipe for destroying tobacco fleas or flies, as they are more familiarly known, and at the same time failing to injure the plants in the least. The plan is a very simple one and easily tested, and costs but little. It is this: One-sixteenth of an ounce of strychnine dissolved in two buckets of water and sprinkled over the plants. The application does not in the least interfere with the growth of the plants, but rather seems to be beneficial to them, and a large quantity of the solution was tried upon a small space of plant bed and found to be perfectly harmless to the plants. We think the experiment worth a trial by every planter, should the bug appear again. Perhaps the same remedy would be good for potato bugs, and other insects that prey upon garden vegetables.

THE GRAPE LEAF-FOLDER.

BY PROF. C. V. RILEY.

Among the numerous and varied foes of the grape vine, the above-named species (*Desmia maculalis*, *West.*) is one of the most constantly recurring and wide spread. It seems equally at home amid the tropical luxuriance of the Southern States, and on the dwarfed and sparsely foliaged vines of the far North. It occurs not only on choice cultivated varieties, but feeds with the same apparent relish on the various hardy, wild species, and is often found on the Virginia creeper (*Ampelopsis quinquefolia.*) Mr. T. G. Hull of Croom Creek, Barton county, complains of it in a recent letter to the *Journal and Farmer*, and remarks that "three weeks after it appeared last summer, the leaves on nearly all the vines were as dead as if severely frosted." The field of its most serious depredations is between latitude 35 and 40 where its defoliations frequently cause considerable loss and annoyance to the vine grower.

The perfect insect is a very pretty little moth, expanding about an inch. The general color is black with opalescent reflections, but the sexes have many points of difference in ornamentation. The wings are fringed with white, the upper pair in both sexes being ornamented with two conspicuous white spots. The under wings of the female have also two white spots, or one very much constricted in the middle, while those of the male have but one large spot, which is never either divided or constricted. The body of the female is marked with two transverse white bands, that of the male having but one transverse stripe, while the tip of the abdomen has a longitudinal dash on the upper surface. The antennæ of the male are elbowed and knotted in contrast with the smooth, thread-like antennæ of the female. The body is slender, extending beyond the wings.

In southerly latitudes there are two or three broods of this insect annually—the latest brood hibernating in the chrysalis state. Sometimes when affecting vines in a green house, the larvæ will hibernate among the fallen leaves on the top of the ground. The first moths appear early in June, and lay their eggs in small clusters all over the vine. The development of the moths and time of oviposition being somewhat irregular, the larva may be found in all sizes throughout the season. They change to chrysalides in 24 to 30 days from hatching, and the moths issue about a week thereafter. The habits of this insect were recorded in my third report as follows:

"The worm folds rather than rolls the leaf, by fastening together two portions by its silken threads, and for this reason, in contradistinction to the many leaf-rollers, may be popularly known as the "Grape Leaf-folder."

It is of a glass-green color, the head and thoracic segments marked with variously shaped black patches. It is very active, wriggling, jumping and jerking either way at every touch. If left alone these worms will soon defoliate a vine, and the best way of destroying them is crushing suddenly within the leaf, with both hands. To prevent their appearance, however, requires far less trouble.

The chrysalis is formed within the fold of the leaf, and by going over the vineyard in October or any time before the leaves fall, and carefully plucking and destroying all those that are folded or crumpled, the supply for the following year will be cut off. This should be done collectively to be positively effectual, for the utmost vigilance will avail but little if one is surrounded by slovenly neighbors. The natural enemies of this insect consist of spiders, wasps, a small *Tachina* fly, to which I have given the name of *desmiæ*, and at least one small Ichneumon.

DUCKS SETTING EGGS AND REARING YOUNG.

If possible, set duck eggs under hens, as they make better mothers and will find food for the ducklings something a duck will not do. After the hen has set four weeks the ducklings will appear. Perhaps it will be necessary to help some of them from the shell, as they are not as lively as chickens, and sometimes are unable to get out alone. A pen should be made with boards eight or ten inches high and five feet square, or large enough to contain the number of duckings you may have.

The hen should be confined in a coop in one corner of the yard so as not to wander away. Keep your brood confined till they are a month old and not allow them to follow the hen, for if you do they will stray away, and one by one your flock will grow numerically smaller. When they are sufficiently large and have their body feathers, less care may be bestowed upon them, and they may range for themselves.

As for food, for the first three or four weeks we would recommend a variety. The week directly after they are hatched give them soaked bread, coarse bread being preferable as it is less pasty, potatoes, boiled and mashed, with bran or shorts. As they become older do away with the former feed and use meal and bran, equal parts, scalded, and occasionally mix with boiled potatoes, chopped onion tops or lettuce. This has been our bill of fare for our web-footed pets for some years and we have met with great success.

Last but not least, beware of water. You may think this a strange suggestion, but there are more tame ducks lost on account of too much water than any other cause. A shallow dish with water, say two or three inches deep, is enough till they are a month old. If allowed free access to a pond or stream, they will get water-logged and invariably die. And if they escape, this cramp is most sure to attack them, and after a few days tumbling and twisting death relieves them from any more such actions. We know of no variety easier to rear than the Rouens, and we have a young flock of fifteen or twenty that are sprightly as so many kittens. They all look as near alike as peas and are the admiration of all who see them.—*Rural Press.*

TRANSPLANTING EVERGREENS.

The September number of the *Gardener's Monthly* for 1871 contains an article by W. C. Strong, of Nonantum Hill nursery, Brighton, Mass., giving four reasons for transplanting evergreens in late summer or in the early autumn, from August 10th to September 20th. The fourth reason, viz., that there is greater certainty of success in planting than at any other season of the year, induced me to try the experiment the following year. On the 20th of August I planted, for Mr. J. W. Sprague, of this place, thirty Norway spruce trees. A few days since I examined the trees, and found every one living and growing finely, the increase the present season thus far being about ten inches in diameter and eight inches in height. I do not assert positively that August is a better month than May for this work; but I would unhesitatingly advise those intending to plant evergreens to do it this season rather than wait for another May. But whether in fall or spring, let these three things be attended to: 1st. Select small trees. 2d. Preserve as many of the fibrous roots as possible. 3d. Cover the roots so that they will not become at all dry. Perhaps I should add, put whatever manure you use on the top

of the ground. Josiah Hoopes, in his Book of Evergreens, says:

"Men of experience seldom desire large trees, knowing full well the baneful effects of transplanting large evergreens. The lower branches shed their foliage and are apt to die, and forever after they present a pitiable sight. Young and healthy plants, when carefully taken up and properly replanted, are never subject to this disfigurement, and are almost certain to form handsome specimens.—*Cultivator.*

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The Society met in their rooms, in the City Hall, on Monday afternoon, August 6th, at 2 o'clock, President Calvin Cooper in the chair.

The following members were present: Calvin Cooper, president, Bird in-Hand; Johnson Miller, secretary, Warwick; M. D. Kendig, Manor; Harry Myers, East Hempfield; Israel L. Landis, Manheim; Henry Kurtz, Mount Joy; Levi W. Groff, Earl; Alexander Harris, city; Henry M. Engle, Marietta; W. J. Kafroth, West Earl; Levi Pownall, Sadsbury; Casper Hiller, Conestoga; William McComsey, city; Prof. S. S. Rathvon, city; Levi S. Reist, Manheim; Peter S. Reist, Manheim; Prof. J. Stauffer, city; Jacob S. Garber, Manor; C. L. Hunsecker, Manheim; Jacob Bollinger, Warwick; J. H. Landis, Millersville; J. H. Brackbill, Strasburg; Simon P. Eby, city; Henry Reist, Manheim; John Miller, W. Lampeter; A. W. Russel, city; Frank Landis, East Lampeter; J. Witmer, E. Lampeter; E. Hershey, E. Lampeter; John B. Erb, Strasburg twp.; J. B. Garber, East Hempfield.

The minutes of last meeting were read, corrected and approved.

Ambrose Pownall, of Sadsbury, and J. H. Landis, of Millersville, were proposed and elected members of the society.

Average Crops.

Mr. Engle, from the committee appointed at last meeting to report the average of the several crops in this county, read a report, stating that after investigation the committee had come to the conclusion the average crops in Lancaster county were as follows: Wheat, per acre, 21 bushels; corn, 52 bushels; rye, 30 bushels; oats, 35 bushels; potatoes, 75 bushels; hay 1½ tons; tobacco, 1,300 pounds. The report goes on to state that many farmers produce more than twice as much per acre of some of the above staples, and others not half as much. The committee thought the figures given above a very fair average.

Casper Hiller said he thought the committee had placed the average of the rye crop too high. He had raised twenty-five bushels to the acre, and all his neighbors said he had the best rye in his section of the county.

Mr. Engle and President Cooper said they had frequently known of 40 bushels to the acre being raised in the county. They believed 30 bushels a fair average.

Henry Kurtz thought the committee in making their average should have included only such farmers as knew how to farm. It is not fair that good farmers should have a low average because poor farmers raised poor crops.

Mr. Engle defended the committee's report and said the average must be made in accordance with the whole acreage of each crop.

Mr Kurtz thought the farmers should be classified into at least three grades—good, bad and indifferent—as mackerel is classified as Nos. 1, 2 and 3. Then the average of first-class farmers would not suffer by being pulled down by those who did not know how to farm and who ought to have an average of their own.

The report of the committee was accepted, and a vote of thanks tendered by the society.

Mr. Engle stated that the committee had not been able to attend to all the duties assigned them—the making out of premium lists, &c. He asked that the committee be continued. Agreed to.

The Sowing of Wheat.

Johnson Miller, appointed to report on the quantity of wheat to be sown to the acre, reported as follows:

As a member of the committee in regard to the cultivation of wheat last summer by this society, I would report that I made a test as regards the quantity of seed. I sowed from one bushel to two and a-half on five acres, varying a half bushel on every acre. I found no marked difference, but by close observation it was noticeable that where I sowed one and a-half bushels was the finest wheat, as one bushel was the one extreme, and two and a-half the other. In regard to the early or late plowing, I plowed my wheat stubble for a number of years as soon after harvest as possible, but last year I did not plow it until the latter end of August, and had an excellent crop of wheat, and that without manure. This convinces me that early plowing, as well as early sowing, is the cause, to some extent, of our short wheat crops. From my experience, I would sow one and a half bushels of wheat to the acre, and from the 20th to the last of September, for a good crop of wheat. Another thing in connection with this wheat cultivation in preparing the ground, I would say prepare it very fine and sow shallow. Half an inch of ground to cover the grain is amply sufficient; and I know that farmers spoil the crops just by sowing too deep.

This is my report; whether my fellow-members of the committee agree with me or not I cannot say, but I do believe with these directions a good crop of wheat can be raised on our good Lancaster county farms.

Henry M. Engle said that he had come to the same conclusion as Mr. Miller, that wheat was cultivated too deep. Drill shovels are run down so deep that the grain cannot come up. Any crop planted deep will be very backward. He agreed with Mr. Miller that one-half inch was plenty deep enough.

The Groff Farm.

The report of the committee appointed to visit Levi S. Groff's farm was called for, but H. M. Engle, chairman, said they had reported all they had to say in the daily papers, and he did not see that they had anything else to say.

Crop Reports.

Johnson Miller reported for Warwick that corn was growing finely and will be a very large crop. The late rains have refreshed everything wonderfully, and the prospects from an agricultural point of view were never more encouraging. Tobacco is growing finely, and some will be cut this present week. Potatoes are large in size and the yield will be large. Grass fields never looked better, and pasture is splendid. Fruit is very scarce, particularly apples. Of peaches and pears there will be a few, but the grape crop will be pretty full.

Henry Kurtz, reporting for Mount Joy, said Mr. Miller must live in a Paradise, as nowhere else had there been such favorable weather. He thought that the crops should not be reported better than they really are, for this report is not for the society alone but is printed and read by consumers, who, thinking that the crop was so good, would not offer a fair price for things because, as they thought, they were so plenty. For his section he would report that, unless there was rain soon, the tobacco crop would not be a half crop. There would be a tolerable crop of corn, and the grass needs rain very much.

I. L. Landis said that, notwithstanding Mr. Kurtz's indignation at Mr. Miller's favorable report, he could give one just as good for Manheim township. The hay crop would be a fair one; the wheat full; oats unusually good, and tobacco just equal to any he had ever seen. The indications are the crop will be as good as ever, and it does not appear to have been much cut up by the worm. There was some cut. Fruit crop is short. Potatoes are flourishing.

Levi S. Reist, from Warwick, reported that the weather in that section was very favorable. Sunday, July 30, they had a soaking rain, and ever since the rain had come just as it was wanted. The tobacco was neither too wet nor too dry. One patch on the banks of the Cocalico was overflowed, and now is dying off. Fruit is very poor; no apples worth mentioning—what there are being very knotty.

Casper Hiller, of Conestoga, said he very rarely reported, but now he wanted to say something about the southern part of the county. If these men that were talking about the favorable weather in the northern part of the county wanted to see a dry country, all they had to do was to go into the southern part of the county. They have had no rain since April that has gone deeper than deep plowing. Tobacco is poor, and in order to have half a crop of corn we must have a heavy rain within a week.

Mr. Kurtz agreed with Mr. Hiller; it is not best to make the crop reports too rosy. If the tobacco buyers hear that the crop is as large as some represent it they will not offer two cents a pound for it.

Johnson Miller replied that the crops in Warwick were good, and he was not afraid to report them so. He believed the object of the "crop reports" was to arrive at a true condition of the crops, and not to influence the market.

Mr. Engle hoped there would be no controversy in the matter; all the reports made were no doubt equally true; as is usual almost every year, the local rains are apt to follow each other over the same sections of the county. Rain has fallen plentifully in some sections while there has been a drought in others. There are, therefore, some good and some bad crops. From his own township he would have to modify his former reports; the apple crop is dwindling down, and instead of there being an average crop as was at first supposed, there would be very few apples—the codling moth has punctured and almost destroyed everything. Peaches, which in the early summer were expected to yield a full crop, and later at least half a crop, will not now yield a quarter crop. He saw some excellent fields of tobacco, and some that were poor. His observation was that those who tilled their soil well were rewarded with good crops, and those who did not, had to put up with poor ones. The rainfall during the month of July was 2 13-16 inches. In June there were five days in which the mercury rose to 90 degrees and upwards; in July there were 14 days in which the mercury rose to 90 and upwards. Notwithstanding several very hot days, the average heat during July, 1877, was no greater than during July, 1876.

M. D. Kendig, of Manor, said the corn and tobacco need rain; with it there is a prospect of a very heavy crop. Apples are all falling off and there are few peaches. The rainfall last month was 2.1 inches. The hottest day, last Friday week, the mercury rose to 102 in the shade.

Levi Pownall, of Sadsbury, said the season had been unusually favorable; the corn and potato crops were very large; the fruit crop was a failure; grass better than usual; wheat not so good; oats heavy and pastures never before looked so well at this time of year.

President Cooper said that East Lampeter would yield a full average of everything except fruit.

Mr. McComsey, who had traveled through West Lampeter, had never seen a finer prospect for abundant crops.

Mr. Kafroth, of West Earl, reported corn, clover, grass and potatoes all good, and tobacco remarkably fine.

Levi W. Groff's Experiments with Wheat.

Levi W. Groff, of Earl, presented the following report of his experiment of cultivating wheat:

To the Lancaster County Horticultural Society:

I have threshed the wheat grown on one acre, and it made 61 bushels and one peck. It is of the "champion amber" variety. The seed was obtained from Mr. Heiges, of York, at $5 per bushel. One and a half bushels were sowed on the acre reported.

Mr. Heiges succeeded in raising of this variety 71 bushels to the acre. I cultivated this wheat in the spring of the year three times, between the drills.

The cultivated "Clauson" variety sown by me last fall and now threshed yielded 36½ bushels per acre. The same variety side by side, not cultivated, yielded 25 bushels and two pounds per acre.

It is my opinion that the "champion amber," if raised under quite favorable conditions will yield from 75 to 90 bushels per acre. Mine this year stood on ground too low, and it was sowed a little too late. I have no doubt but such yield is quite possible and probable; and if all the grains in my reported crop were plump and full, my yield would be at least 75 bushels per acre this year. Levi W. Groff.

The committee appointed at the July meeting of the Lancaster county agricultural and horticultural society to visit Mr. Groff's farm made the following report:

We, the undersigned, visited the farm of Mr. Levi W. Groff about harvest-time and fully concur in his report so far as we could judge at the time.

H. M. Engle,
Calvin Cooper,
Levi S. Reist,
Peter S. Reist.

The thanks of the society were tendered to Mr. Groff.

Mr. Groff exhibited a bunch of wheat heads of the "champion amber" variety, which were examined and much admired, and at the request of Mr. McComsey, briefly explained his manner of cultivating wheat as it has been already printed in the daily papers. His plan in brief is to drill the wheat in rows twice as far apart as is usually done. This he does by removing from the drill every alternate seed distributer. Attached to the drill he has an equal number of shovels, and these are placed so as to run between the rows of wheat, and cultivate it much the same as the ordinary cultivator runs between the rows of corn. There is room enough between the rows to permit the horses to walk without injuring the grain. After cultivating his wheat in this manner three different times, he sowed the ground with clover and timothy, and although it is too soon yet to tell, he believes he will have a very superior crop of hay.

Mr. Engle said he had examined Mr. Groff's clover and timothy, and believed it would be very superior. He trusted that not a few of our farmers would adopt Mr. G's plan of cultivation. He would do so himself on a small scale, and from his observation he was sure it would pay.

Mr. Pownall said that on a former occasion he had objected to cultivating the wheat crop in the way adopted by Mr. Groff, on the ground that it would injure the grass that was to follow the wheat; but from an experiment of his own he was now convinced that it would not.

Oleomargarine and Phosphates.

The rules were now suspended in order to take up the discussion of some matter proposed by Thomas J. Edge, Secretary of the State Board of Agriculture at Harrisburg. Mr. Edge calls attention to the objects for discussion, which were two acts, and writes as follows:

In regard to the proposed act to regulate the manufacture and sale of fertilizers, it has been claimed by some that it is not just to levy a direct tax on the manufacturer, and that to a certain limited

amount the State should pay the cost of analysis. On the other hand, it is urged that such a license tax gives the honest manufacturer a protection, which is worth far more than the amount of the tax.

In conclusion he asks for the opinion of the society on these points. The acts proposed are as follows:

An Act to Regulate the Manufacture and Sale of Fertilizers.

SECTION. 1. *Be it enacted*, &c., That every package of commercial fertilizer sold, offered or exposed for sale within this Commonwealth shall be accompanied by an analysis, stating the percentage therein contained of nitrogen or its equivalent in ammonia, of potash in any form soluble in distilled water, of phosphoric acid soluble in a neutral solution of citrate of ammonia at a temperature of 100 degrees Fahrenheit, and the percentage of phosphoric acid not thus soluble: Provided, That no analysis shall be required for packages of fertilizers which are sold, offered or exposed for sale at a less price than twenty dollars per ton.

SEC. 2 Every manufacturer or importer of commercial fertilizers, as specified in section one, before offering the same for sale in this Commonwealth shall take out a license as a manufacturer or importer, and pay into the Treasurer of the Commonwealth the sum of ——dollars annually as a license fee for each kind of fertilizer sold or imported by him, and shall at the same time file with the Secretary of the State Board of Agriculture a paper giving the names of his principal agents, and also the name and composition of the fertilizer manufactured or imported by him.

SEC. 3. Any person selling, offering or exposing for sale any commercial fertilizer without the analysis required by section one, or with an analysis stating that said fertilizer contains a larger percentage of any one or more of the constituents mentioned above than is contained therein, or for the sale of which all the provisions of section two have not been complied with, shall forfeit fifty dollars for the first offense, and one hundred dollars for each subsequent offense.

SEC. 4. It shall be the duty of the chemist of the State Board of Agriculture to analyze such specimens of fertilizers as may be furnished him by the Board or its agent, and he shall report to the State Board of Agriculture the results of the analysis made by him, and shall furnish the Secretary of the Board with such important information relative to fertilizers as he may from time to time obtain.

SEC. 5. The fee of the chemist of the State Board of Agriculture for such analysis shall not exceed the usual and regular price for such services, and shall be payable from the Treasury of the Commonwealth on the certificate of the Secretary of the Board of Agriculture: Provided, That the total sum paid in any one year for such service shall not exceed the amount paid into the Treasury as license fees during the same period. This act shall take effect from and after its passage.

An Act to Prevent Deception in the Sale of Butter.

SECTION 1. Be it enacted, &c., That every person who shall manufacture for sale, or who shall offer or expose for sale, any article or substance in semblance of butter not the legitimate product of the dairy, and not made exclusively of milk or cream, but into which the oil or fat of animals not produced from milk, enters as a component part, or into which melted butter or any oil thereof has been introduced to take the place of cream, shall distinctly and durably stamp, brand or mark upon every tub, firkin, box or package of such article or substance the word "oleo-margarin," and in case of retail of such articles or substance in parcels, the seller shall, in all cases, deliver therewith to the purchaser, a written or printed label bearing the plainly written or printed word "oleo-margarin," and every article or substance not so stamped, branded, marked or labeled, is declared to be unlawful, and no action shall be maintained in any of the courts of this State to recover upon any contract for the sale of any such article or substance not so stamped, branded, marked or labeled.

SEC. 2. Every person who shall knowingly sell or offer to sell, or have in his or her possession with intent to sell, contrary to the provisions of this act, any of the said article or substance required by the first section of this act to be stamped, marked or labeled as therein stated, not so stamped, marked or labeled, or in case of retail sale, without delivery of a label required by section one of this act, shall, for each such offense, forfeit and pay a fine of one hundred dollars, to be recovered with costs, in any of the courts of this State having cognizance thereof, in an action to be prosecuted by the district attorney in the name of the people, and the one-half of such recovery shall be paid to the informer, and the residue shall be applied to the support of the poor in the county where such recovery is had.

SEC. 3. Every person who shall knowingly sell or offer or expose for sale, or who shall cause or procure to be sold or offered or exposed for sale, any article or substance required by the first section of this act to be marked, branded, stamped or labeled, not so marked, branded, stamped or labeled, shall be guilty of a misdemeanor, and on trial for such misdemeanor, proof of the sale or offer or exposure alleged, shall be presumptive evidence of knowledge of the character of the article so sold or offered, and that the same was not marked, branded, stamped or labeled as required by this act.

WM. MCCOMSEY said that as far as the Lancaster market was concerned there was no necessity for such an act concerning butter.

H. M. ENGLE was of the same opinion as to Lancaster county, but in the large cities there is a great quantity of this stuff made. It seems very near the true article, and many who would not eat it from choice might do so by chance. Let it stand on its own merits, and if it becomes popular under its own name, all right; but do not let the stuff be sold as butter. He was in favor of passing the law.

A. HOLLINGER was not prepared to discuss this subject, as he had given it no thought, and wished it to be postponed until next meeting.

H. M. ENGLE said it was true that as yet it had not affected Lancaster county, but as it was made so cheap, might it not come here in competition with our own butter?

CASPER HILLER was in favor of postponing the question until the next meeting, and between this time and that the members will have more time to look up the question. Next meeting will be time enough for the State Board to receive their answer, as the Legislature does not meet until January. He moved that the subject be postponed, and the motion was carried. Both acts were held for discussion at the next meeting.

Noxious Weeds.

CASPER HILLER presented specimens of three noxious weeds which he advised farmers to exterminate as soon as they appear. The first is a good deal like the ground cherry, and was recommended to him some years ago as a good "pie plant;" it is not only worthless, but a very troublesome customer to get rid of; it spreads rapidly, each plant contains millions of seeds, and the smallest particle of the root is capable of sending up a new plant. The second weed was a "Mexican potato," which had been sent him all the way from Mexico. It is utterly worthless and hard to get rid of. His third "pet" was the ox-eyed daisy—very troublesome in permanent pastures, but may be destroyed by cultivation.

Rust in Wheat.

PROF. S. S. RATHVON read a learned paper on "What Causes the Rust in Wheat?" (See page 120.)

An interesting discussion of the subject followed, participated in by J. H. Brackbill, J. Stauffer, Peter S. Reist, William McComsey, Henry Kurtz and C. L. Hunsecker.

How to Treat Lawns.

The question: "Should the grass be taken from the lawn when cut by the mower?" was answered in the affirmative by Levi S. Reist, who favored cutting it with a scythe, rather than with a lawn mower. When well done it makes the lawn look like a fine meadow. In the fall the lawn should be manured.

MR. KENDIG did not exactly agree with Mr. Reist. He preferred the lawn mower to the scythe and would generally leave the cut grass on the ground, taking it off occasionally.

PROF. STAUFFER said many lawns were dying out; too frequent mowings and removal of the grass exhausted both the soil and the roots.

S. P. EBY had frequently killed weeds by piling cut grass upon them. The same course would kill the grass.

MESSRS. J. H. BRACKBILL, C. L. Hunsecker and President Cooper would mow frequently, but not too close, and allow the cut grass to remain on the ground.

A Fall Exhibition.

LEVI S. REIST made a motion that a committee of five be appointed to consult on the expediency of the society holding a public exhibition this fall. The motion was agreed to, and the chair appointed the following gentlemen said committee: Levi S. Reist Henry M. Engle, Levi W. Groff, J. Stauffer and [illegible] Pownall.

A New Corresponding Secretary.

ALEXANDER HARRIS, corresponding secretary, tendered his resignation as corresponding secretary, and asked that it be accepted. The resignation was accepted, and W. J. Kafroth, of West Earl, was elected by acclamation to fill the vacancy.

Agricultural Reports.

JOHNSON MILLER laid before the society ten bound volumes of the proceedings of the State Agricultural Society and stated that they were presented by Senator Roebuck for distribution among the members, and that members who did not now receive a copy could obtain one by addressing Dr. Roebuck.

Testing the Fruit.

CASPER HILLER having laid before the society specimens of apples, pears and lilies, Messrs. M. D. Kendig, S. P. Eby and Levi Pownall were appointed a committee to test their merit. The samples consisted of the "all summer" apple; "Manning's Elizabeth" pear; the "Olt" pear; the "Kirtland" pear; the "auratum" and "double tiger" lilies. The committee made a favorable report of all the fruits and flowers.

The Centennial Diploma.

A communication was received from an officer of the late International Exhibition, stating that a diploma had been awarded the society, and asking whether it should be framed or not framed before sending it to the society.

On motion the secretary was directed to inform the holder of the diploma to forward it to the society without a frame.

Questions for Next Meeting.

The following questions were referred for discussion at next meeting:

How shall a Lancaster county farm be managed to produce the best pecuniary result? For general discussion.

What is the best mode of constructing cisterns for farming purposes? To Ambrose Pownall.

TOBACCO GROWERS' ASSOCIATION.

The Tobacco Growers' Association met on Monday, July 23, in the Athenæum rooms at 2½ o'clock. The following members were present:

M. D. Kendig, Henry Kurtz, I. L. Landis, A. Eshleman, A. K. Long, Silas K. Eshleman, Sylvester Kennedy, George A. Urban, C. M. Hostetter, Harry Mayer, H. Shiffner, B. W. Garber, Wash. L. Hershey, Michael More, Adam Long, Hiram Garber, Andrew Garber, Andrew Brubaker, Mr. Bailer, Adam Bear, E. Huber, Jacob Fuhlman, Henry Wolf, Samuel Erb, S. Fleckenstein.

The regular Secretary being absent, Silas K. Eshleman was elected Secretary pro tem. The minutes of the last regular meeting were read and approved.

Next in order were

Crop Reports.

I. S. LANDIS, Manheim, reported the crops in his section as looking remarkably well, and fully equal to last year's crop. Some patches look very irregular, and the cut-worm has committed some depredations. In the early part of the season the green worm, it was thought, would do some damage, but it has disappeared. He had a few cases of old tobacco yet. A larger acreage was planted this year than last.

SYLVESTER KENNEDY, of Salisbury, said their crop was a medium one, owing partly to cut-worms and partly to dry weather. The cut-worm is doing more injury than the green worm. Nearly double the usual number of acres was planted this year.

HENRY KURTZ, of Mount Joy. Their crop looks tolerably well, but was planted too early, and some of it is shooting into a head, and will not amount to anything. Old tobacco is pretty well sold off, but he had about ten acres yet.

C. M. HOSTETTER and Henry Kurtz, both of Mt. Joy, were elected members.

HENRY MAYER, East Hempfield. Crops look pretty well in this section, but of course need rain. Cut worm has been troubling them. Acreage somewhat larger than last year.

MR. LANDIS here called the attention of the members to a tobacco leaf measuring 33x19 inches, presented by Mr. Hostetter.

M. D. KENDIG, of Manor. Their tobacco is not so large as some have reported, but large enough to make a good crop with fair weather. Worms were plenty in the early part of the season, but one or two pickings cleaned them out. Old tobacco nearly all sold, except one or two lots, both in case and out, but these do not amount to much.

HENRY KURTZ spoke of a little black bug that bothered the tobacco. It is something like the potato bug and cuts holes in the leaf like a pin hole.

S. KENNEDY described the manner in which he lessened the number of worms on his tobacco. The fly that breeds this worm settles on the Jamestown, or as it is commonly called "Jimson" weed, and at night he kills those flies. It was his opinion that every fly is equal to about a thousand worms, and this method saves a vast amount of picking.

REUBEN GARBER, West Hempfield, said they had a fair average crop.

MR. COPENHAVER, West Hempfield. Crops look very good, better than last year at this time, and about Marietta and East Donegal exceedingly well. Cut-worm bad at first but not now. More acreage this than last year. Tobacco is better looked after than usual, as the farmers find it pays better when it is well attended.

CHARLES RHODES, Safe Harbor. The thread or heart worm is ravaging fearfully in his section and in parts of York county, and between them and the crows, which feast on the worms, the crop is being killed. Some of the farmers laughed and rejoiced when they got their tobacco out earlier than others, as they thought they would come in ahead of their neighbors, but now the rejoicing is on the other side. That set out earlier is now very irregular, but that planted later is growing finely. Old tobacco, some fine small lots lying around, but buyers are fast gathering it up.

There was some discussion about the thread or heart worm, as to whether it began in the heart of

the plant or on the outside. There were members who had seen both kinds, and it was decided that there must be two varieties of the same worm. Prof. S. S. Rathvon was consulted on the subject, but he could not classify it until he had seen a specimen.

WASH. L. HERSHEY reported the crops in his section as being in a good condition.

Referred Questions.

What is the proper time and height for topping tobacco? This question had been referred to Mr. A. Shiffner, but he not being able to attend the meeting sent in his answer. It was as follows:

As the question of topping tobacco was referred to me I shall make a few brief remarks on the question. As the time for topping is at hand I would first say that every grower ought to be acquainted with the soil he has planted. Rich, loamy soil will bear higher topping; to the best of my knowledge twelve to fourteen leaves is sufficient for any stalk, and in soil that is not enriched eight and ten leaves will be plenty. Tobacco stalks should not all be topped one height.

In a patch some are more strong and growthy than others. The small or backward ones should be topped lower than the vigorous or growthy ones. The time for topping tobacco, to the best of my judgment, is about the time the seed bud makes its appearance. Care should be taken in pinching off the bud not to scratch or tear the small, tender leaves. We should all be sure to top low. If we do not we cannot get in the high grades. It matters not how nice and clean a lot of tobacco is if it don't come in to triple and double A. We cannot get the highest price for it without having that grade, and we can reach it only by low topping and good attention.

HENRY KURTZ endorsed the views of Mr. Shiffner. If tobacco is topped low it is of a better grade, and brings a better price. He would advise all to top low.

HENRY MAYER agreed with the gentlemen who had spoken, but did not believe that tobacco should be topped too low. An ordinary sized leaf of good quality will bring a better price than a large leaf of poor quality.

S. KENNEDY thought it would be a good idea to have a good cigarmaker give his views on the subject. He thought a large leaf was preferable to a small, as more wrappers could be cut out of it. The cigarmakers always follow the veins in cutting wrappers, taking the leaf between two veins for a wrapper.

HENRY MAYER denied this, and said only the point of the leaf was used, therefore a small leaf was as good as a large one.

HENRY KURTZ said that he had a new kind of tobacco, which took a prize at the Centennial. It grew to the length of 48 inches and would bring at least 30 cents. If of a fine quality a big leaf is preferable, but if coarse it is not.

M. D. KENDIG said that it was his experience that jobbers always look for long tobacco and do not pay much attention to the quality. It is useless to try to convince them that a small leaf is better than a large one, as it certainly is. To get long leaves, top low.

HARRY MAYER thought that a great deal depended on the season. The last two weeks should be very favorable.

Discussion closed.

Is there any advantage in scaffolding tobacco in the fields? For general discussion.

This was the next question, but the proceedings were interrupted to allow Prof. Rathvon to read a very interesting account of a new species of worm. The account was clipped from a Marietta paper, and is as follows:

"The tobacco growers in this section have found a new worm at the plants this season, which is more troublesome than the cut-worm. It is a little over half an inch long, of a brownish hue, and does not operate like the cut-worm. It commences underground, just at the top of the root, and bores into the centre, and then eats out the heart of the stalk until it reaches the top of the ground. The plant thus hollowed out will remain green for a week or ten days before it begins to wilt, but the presence of the worm can be detected by the smallest leaf withering before it has long been at the root. The plant once attacked by this animal, it becomes worthless and might as well be pulled up. Messrs. John and Calvin Sultzbach, who have three acres in tobacco have had one-third of them destroyed by this new pest. It was supposed that the growers had as much to contend with in the cut-worm in the early stages of its growth as they could handle, but this wire-worm, as it is called, promises to give them a good deal of trouble."

The discussion was then resumed. Henry Kurtz said that it was his opinion that scaffolding in the field was not of much account. If tobacco can be housed without scaffolding it is much better. If it can be scaffolded in the shade it is not so bad, but he did not favor it.

MR. COPENHAVER had scaffolded for twenty years, and was strongly in favor of it. He said that the tobacco wilted and was much easier to handle, and could be hung up in half the time that it could while green. Besides this it did not break as easily as it did while green. Always let tobacco hang out a few days.

HENRY KURTZ said that although he was in favor of shedding immediately, he was not in favor of putting tobacco in its place at once. He first hung it low down in the shed, and in a few days hung it up higher.

HENRY MAYER was of the opinion that it should be hung in its place at once. If it was hung on scaffolds it wilted and then when hung up it was placed too close together. The consequence of this was that in damp weather it swelled and rotted. All growers should have a gauge by which to hang tobacco. He hung about six stalks on a lath, placing them about eight inches apart.

PETER S. REIST thought it depended on the season as to whether it should be scaffolded or not. If taken off when the weather was hot like at the present time it should be housed immediately, or it would scorch. If cut late it might be hung on scaffolds for a week or ten days.

E. HUBER preferred housing it immediately, as did also M. D. Kendig, who thought then there would be no danger of getting it too close. It might not be out of place to wilt it down a little, but then there was danger of frost.

S. K. ESHLEMAN wanted information on the subject of transporting tobacco. He said that buyers complained that it was injured by being hauled in wagons, and told of several places where he had seen wagons fixed specially for hauling tobacco, with places to hang it as it was cut. He wanted to know if this was general.

HENRY KURTZ answered that he knew of a large number of such wagons, and it was becoming general.

Discussion closed.

New Business.

Under this head I. L. Landis introduced the subject of butterflies that breed worms. Growers are much annoyed by them. In the South the cotton planters are likewise annoyed by a cotton fly, which they rid themselves of by building large fires. The flies are attracted by these fires and flying into them are burned to death. He had a plan, of which he read in some paper, that he thought would be successful. It was to take a tub of water into the field, and place a strong light into the tub. The light would attract the flies, and getting their wings scorched they would fall into the tub and be drowned.

PROF. RATHVON exhibited some specimens of this fly, and gave the Latin name for it.

PETER S. REIST heartily endorsed Mr. Landis' plan, as he had tried it and found it completely successful.

E. HUBER told of the manner in which they cleared their apple orchard of flies by building large fires at the edge of the orchard.

The following

Referred Questions

were adopted for next meeting.

How soon after stripping should or can tobacco be cased? Referred to Henry Kurtz.

Which is the best method to put tobacco on the lath, by splitting, spearing, pegging, or stripping the leaves off the stalk? For general discussion.

How should sheds be managed after hanging the tobacco, in order to have it cured properly? Referred to W. L. Hershey.

Prof. S. S. Rathvon, and the members of the press who reported the meetings of the society, were elected honorary members of the society.

THE LINNÆAN SOCIETY.

The Linnæan Society met on Saturday, July 28, with nine members present and President J. S. Stahr in the chair. After the collection of dues and the consideration of the minutes of the last meeting, a few

Additions to the Museum

were examined and found to consist of the following:

A small coleoptera found infesting the Sumac, per J. B. Eshleman. It belongs to the family "Chrysomelidae;" the "*Blepharida rhois*," the only species we have of this genus.

MR. BOLTON captured night-flying moths, which proved to be the "*Dryocampa rubi cunda*."

MR. JOHN DUFFY found a circular body shaped like a lady's small watch, in a tortoise-colored case, and black band. He was fearful it might be a torpedo, but it proves to be one of those curious sea-beans, that grows on nobody knows what tree, and yet are so common on the Southern seaboard. Sir Hans Sloane notices it in his catalogue of Jamaica plants, as found both in the West and East Indies, known as hose-eye, from the ebony colored hilus surrounding the edge of the bean, the upper and lower side of which is slightly convex; called also sea lentil and saragossa; but this gives us no clue to the tree or plant that yields them. Who will give the desired information?

Several abnormal growths, one in a grape vine, (Hartford Prolific) in which a second crop of flowers came forth to bloom and set fruit—a simple suspension and subsequent action in the necessary juices.

An umble of a *Pelargonium*, in full flower; one of the peduncles, however, having an excess of vital action, prolonged itself into a stem and formed a second umble of flowers out of the first. Laid on the table by our worthy President, Rev. J. S. Stahr.

MR. BOLTON also left some neatly mounted ferns, *Camptosorus rhizophyllus*; the walking fern, that is, the leaf elongates its terminal point and again strikes root—found on rocks in shady places. Also the pretty little *Asplenium trichomanes*.

To the historical collection was added a rare ancient coin of Licinius Senior, A. D. 307–324, per Rev. J. H. Dubbs. Also two envelopes of clippings of historical interest, per S. S. Rathvon.

Additions to the Library.

American Philosophical Society, vol. xvi. Jan. 9, to May 1877, No. 99.

Printed circulars and two pamphlets of book catalogues. THE LANCASTER FARMER for July. The published address of Rev. D. W. Gerhard, A. M., delivered at New Holland, to the Reformed Church.

An address by Geo. F. Bear, delivered at the dedication of Palatinate College, Myerstown, December 23, 1875.

An oration delivered at Reading, June 19, 1876, by Hon. Daniel Ermentrout—"Our People." Donated per Mr. A. F. Hostetter, member.

A copy of the annual report of the Secretary of Internal Affairs, Part III., Industrial Statistics, through Wm. McCandless, per Wm. H. H. Grier.

Papers Read.

The neat and sharply marked fossil presented at the last meeting by Rev. Mr. Houpt, is described as the *Pentremitis gordonii*, otherwise florials—belonging to the crinoids, and its relation, by S. S. Rathvon—paper No. 568. Appended to this paper was a resume on the former article "Matzabaum," which he finds, according to Dr. Ruttgers, an intelligent German citizen, should be written "Martzipan" (pronounced Marr-tsee-pahn) or "Mareusbread," a Venetian sweet bread, (*panis Marcius*.)

Rev. Jos. H. Dubbs read a highly interesting paper in reference to the coin donated, an excellent specimen of the Roman third bronze. The inscription (IMPCVALICINLICINIVSPFAVG) which translated, per Mr. D. reads, "The Emperor Galenius Valerius Liconianus Licinius, High Priest, Augustus." This is on the obverse with the usual bust of the reigning monarch. The reverse represents Jupiter standing, with an eagle at his side, and in his right hand a figure of Victory, holding a chaplet with the legend—"JOVICONSERVATORY," that is "To Jove, the Preserver." In the exergue are the letters SMN. i. e. "Sacra Moneta Narbonensis—no doubt struck in the mint in the city of Narbonne, in Southern Gaul. The interesting history about those times must be given in a special notice of the article published at length.

A slip cut from an Easton, Pa., newspaper was read, which states that on the farm of Dr. W. P. Kistler, near Scheeksville, is a chestnut tree that is a great curiosity. The trunk is perfectly straight and shoots to a great height, while the branches, instead of stretching outward, run perpendicular w th, or spirally around it, making it impossible to climb it. In appearance it looks more like a Lombardy poplar than a chestnut tree, which promises this season to yield an abundance of nuts, as usual, of a large size. This came up under scientific gossip, with the other sports found in the vegetable kingdom, in which the botanist took a part. Darwin was referred to, facts admitted, but theories questioned. After all, as regards the chestnut tree, a playful trimming of the lower branches of a chestnut sprout and spirally turning the upper branches might simply verify the old adage—"As the twig is bent the tree is inclined." There are wonderful trainings on record.

The committee to fill the bottles to preserve specimens, reported having attended to that duty, at an expense for alcohol and parafline paper of 50 cents, which was on motion ordered to be paid. Said committee was continued and authorized to have the rooms cleaned up. Although very warm, the society enjoyed the meeting and discussions, and on motion adjourned to Saturday, August 25, 1877.

Manure for Fruit Trees.

The Western New York Horticultural Society lately discussed the question of manure for fruit trees. One member said that he had used super-phosphate of lime with good results. Another member said he had seen more benefit resulting from super-phosphate the second year than the first, especially when the first was a dry season. Another member preferred wood ashes. He once used 1,800 bushels of leached ashes on the sand soil of his orchard and vineyard with very great advantage, applying it at the ratio of 300 bushels per acre. The quality as well as size and yield of fruit was very much improved. Another member considered barnyard manure as the most profitable fertilizer for fruit trees, as it furnishes all the elements required for growth and fertility. Fruitgrowers should therefore manufacture all the manure they can, by keeping horses, cattle, pigs, poultry, and gathering up all the litter, &c., for the manure pile. Some people are liable to make mistakes in using stimulating manures as fertilizers for fruit crops.

AGRICULTURAL.

A Bountiful Harvest.

The reports which have hitherto appeared in public press, concerning the excellent crops in prospect, have not been premature or exaggerated. The wheat crop, now almost secured, is undoubtedly the largest ever harvested in this country. Stimulated by the prospect of better prices, farmers exerted themselves last fall and spring to get in as large an acreage as possible, and the result is that the total area exceeds that of any previous year, while the average yield per acre is without doubt the best on record. Some writers put it at twenty-five bushels for the entire country, but this is evidently an exaggeration; if it reaches eighteen bushels, and from all reports we think it will, it will exceed the average of any previous year, and will make a magnificent crop in the aggregate. E. D. Mansfield, the well-known statistical writer, places the average yield of Ohio at eighteen bushels or more. The acreage he puts at 2,100,000, making a grand aggregate of 37,800,000 bushels of wheat—the greatest ever raised in the State, both in acreage and average. The fourteen counties of the Miami valley produced 6,500,000 bushels in 1874, and this year he says they will produce 8,000,000 bushels.

Ohio is scarcely ahead of other States in this crop, as our reports from all points are equally encouraging. Fair estimates place the increase of this year over that of 1874, at about 62,000,000 bushels, which would bring the aggregate up to 371,000,000 bushels, and at $1.50 per bushel, will be worth $556,500,000. At present prices the bulk of this crop will be marketed at once, and the effect upon the business of the country can not help being good. Whether it will bring about an active revival of business or not, one thing is certain, it will remove the farming class beyond the influence of the depression that exists elsewhere.

But wheat is not the only "big crop" of the year. The hay crop is unusually large, and oats never promised better. Late reports also place the corn crop among the bountiful ones of the year. Localities have been injured by wet weather, but they are limited, and will have little effect upon the general result. Take all crops together, grain and vegetable, and the aggregate yield will undoubtedly exceed largely that of any previous year—for which men of all occupations will be thankful, but especially will the farmer rejoice, as it places him in a most enviable position. Those who are able to hold their wheat will have but one thing to worry about—and that is, whether to sell it or hold it for better prices. It is a question we are not going to decide, but we would suggest that it is best, always, to "let well enough alone."

Cultivating Wheat.

In perusing the various agricultural journals, I see it is claimed by some that wheat sown in drills, 18 to 24 inches apart, and cultivated in spring with a plow similar to other hoed crops, will increase the yield from one-third to one-half more than without cultivation. As we have no experience in this matter in this part of the country, and being desirous of experimenting to some extent next autumn with winter wheat, I would ask as a favor that you and all your contributors, who have had any, would give their experience, that those who may desire to experiment next season may have the benefit of it to begin with. Harrowing wheat in the spring has been practiced to a limited extent here for some time, which it is claimed benefits the crop, but it does not meet with general favor.—*F. M. R., Rockmart, Ga.*

[It would be difficult to "plow" wheat, as you propose, without covering the plants, and it would not be economical of labor unless an implement were employed which would take several drills at a time, as is practiced in England. Wheat, like corn, would grow more vigorously for mellowing the surface and breaking the crust. The experiments we have tried have given quite favorable results, the work, if thoroughly and repeatedly done, increasing the crop from six to ten bushels per acre in most cases. In the experiments you mention, the harrowing may have been imperfectly performed, and with an unsuitable instrument.]—*Country Gentleman.*

Treating Manure with Unslaked Lime.

Some years ago I knew a farmer who undertook to improve the manure in his barnyard by spreading on it unslaked lime. The yard was sheltered, most of the manure being in a basement to his barn, to which the cattle had free access. Returning one night from a visit to town he observed an unusual light under his barn, and on going to the spot to ascertain the cause, he found a pile of manure actually sending out a small flame which would soon have reduced the barn and contents but for his timely discovery. He put out the fire and abandoned the use of lime in the manure heap, for the lesson satisfied him that burning would not improve manure.

It is stated that more wheat was raised in North Carolina this year than during any one year since 1855.

HORTICULTURAL.

Varieties of Late Turnips.

While the number of varieties of turnips given in our seedsmen's catalogues are frequently more confusing than instructive to the farmer, still we may count the really distinct and valuable without going beyond the limit of a baker's dozen, and perhaps the half of this would be abundantly sufficient for both the early and late sorts. Our preference for the late, or what is generally termed flat turnips, is the Golden Ball, or, to give it a more high-sounding name, Robertson's Golden Ball. It does not grow so large as some of the white-fleshed sorts, still it is large enough for convenience in handling and storing, while the roots are smooth and solid, the flesh of a rich orange yellow, and very nutritive and sweet. Golden-fleshed turnips, like golden butter, look richer than the white, even if they are not; but we are inclined to think they are so in fact as well as in appearance, and for these reasons we prefer them. The yellow Aberdeen is an older variety, similar to the last and a most excellent sort. Both of these yellow-fleshed sorts retain their good qualities until late in the spring, if kept in a cool place during the winter. The Cow-Horn is a remarkably large turnip; that is, it contains a large amount of pulp or flesh, and grows very long instead of round, as is usual with this class of roots. The shape of this root admits of a greater weight being produced per acre with the flat or round sorts, as the plants can stand nearer together, a portion being buried in the soil and the remainder rising above it. A turnip of this form, a foot long and four inches in diameter, will of course contain four times as much substance as one of the same diameter and only three inches in depth. The Cow-Horned turnip is a white fleshed sort, and grows as freely as any, and quite as rapidly; the flesh, however, is not quite so solid, nor will they keep quite as well as the more firm and yellow fleshed varieties. Still, it is an excellent turnip, succeeding well on light, rich soils. These are, on account of their shape, very easily handled, especially in gathering and preparing for storing in winter, and we believe would become more popular if better known.—*Rural New Yorker.*

Value of Early Apples.

The remarkable fact that the Red Astrachan apple is popular over the whole United States, and which fact has heretofore received considerable attention in the *Telegraph*, is again receiving notice at the hands of our contemporaries; one of them suggesting that for all this it is hardly a fruit that any amateur would care to put on his dessert table. But then is not this the case with all popular early apples? When we have an abundance of pears, peaches, grapes, &c., table apples are not anxiously sought; but for cooking purposes the early apples are always popular. Thousands of bushels are annually sold for kitchen purposes at the early season for every bushel of table fruit. Of course a good apple is a good thing at any season, and an amateur who wants everything nice will find a place for an early Joe, an early Strawberry, or some other early kind really good to eat; but the real value of an early apple to the world at large, which means all who want to make money, as well as those who want a good fruit to eat, depends on how it takes to pies and sauce, dumplings, &c., and how it bears and otherwise behaves.

In this respect the Red Astrachan very well fills the bill. It is a large and pretty apple, a clear white color, and as soft and free from pulp when cooked as frozen cream. In this part of the world it is by no means an over-abundant bearer, but it produces crops every year, and as much as a tree ought to bear to live a long and useful life.—*Germantown Telegraph.*

The Peach Crop.

After all we were told about the abundant peach crop of Delaware, it seems the promise of the spring is not going to be realized. Solon Robinson has just investigated the prospects of a large yield. He declares most positively that instead of 7,000,000 baskets, which was the expected yield, at the outside there will not be more than 3,000,000. The really good orchards are few and far between. Some growers who looked forward to handsome returns, will be able themselves to eat every peach that hangs on their trees. Middletown, Del., has always been known as a "peach centre," and yet it is asserted as a fact beyond contradiction that a single team will be able to haul all the peaches that will this year be sent to market from that point. There are some orchards where not a dozen peaches can be found on a hundred trees. This will be as disagreeable to consumers hereabouts, as to the peach growers themselves. Of late years large amounts of this delicious fruit have been brought from Delaware and sold in our markets, taking the place of the home yield, which has been insufficient to supply the local demand. Our home crop is quite small, and it looks as if we would have to get along on a very limited supply of this, perhaps the most delicious of all the fruits grown in temperate climates.

DOMESTIC ECONOMY.

Household Recipes.

Campmeeting Cakes.—A cupful of sugar, half a cupful of butter, half a cupful of milk, two eggs, a teaspoonful of cream of tartar, and two cupfuls of flour. Sprinkle sugar over before putting in the oven.

Apple Cream.—Boil a dozen apples of pleasant flavor in water until soft, take off the peel and press the pulp through a sieve upon half a pound of powdered sugar; whip the whites of two eggs, add them to the apples, beat them all together till it becomes very still and looks quite white. Serve it heaped upon a dish.

Herbs intended for drying should be picked just before the plant blossoms. Wash them until they are entirely free from dust, and place them on a sieve to drain. Then put them in the oven and let them remain until they are perfectly dry. Afterward rub from the stalk, put in glass jars and cover closely.

To Cook Summer Squash.—Unless very young pare them and take out the seeds. Cut in pieces and boil in salted water until tender. Press out all of the water and mash smooth. Season with butter, pepper and salt, and a tablespoonful of cream, put in a frying pan and let simmer for ten minutes or longer. Serve hot.

Sassafras Beer.—Pour two quarts of boiling water upon two large spoonsful of cream tartar, and add ten drops of oil of sassafras, ten drops of oil of spruce, ten drops of wintergreen, then add eight quarts of cold water and a pint of good yeast, and sweeten to taste. Let stand 24 hours, and then bottle it. This makes a delicious summer beverage.

To Prevent a Bone Felon.—When you find that you have a bone felon coming, apply a fly blister to the affected part immediately, and let it draw to its fullest extent. An early application of this kind will seldom fail to put back a felon. Of course, the remedy is somewhat severe, but it does not compare in this respect to the disease.

Blackberry Wine.—Measure your berries and bruise them; to every gallon add one quart of boiling water; let the mixture stand twenty-four hours, stirring occasionally; then strain off the liquor into a cask, to every gallon adding two pounds of good, clean sugar, cork tight, and let stand till the following October, when it will be ready for use.

Of all fruit conducive to health, to the blackberry is conceded the highest place. Thousands of lives, especially of children, might annually be saved by a free use of this fruit during the summer. The fruit is pleasant and wholesome, and all who can obtain it, should use it freely; can, and put up in various ways, according to taste, a goodly supply for future use. We append a few tried recipes:

Blackberry Jam.—Mash the blackberries, cover them with white sugar, and stand them over night in a cool place. Use one pound of sugar to three pounds of berries. In the morning boil for twenty minutes, stirring well, but using no water. Have the jars hot the same for canning fruit, put in the jam while hot, and screw on the lids immediately—tightening them again, when cool.

Blackberry Jelly.—Take fresh ripe berries, put them in a porcelain lined kettle with a little water; just enough to start to cooking. As soon as the berries come to a boil, remove from the fire and strain out the juice. Measure the juice, put it back in the kettle, and as soon as it begins to boil, add one quart of sugar for each quart of juice. Boil down to suit taste. If you wish to make fine jelly, make a small quantity at a time, and make quickly.

Blackberry Cordial.—Let the berries get fully ripe before they are gathered, then mash them, and let the juice and pomace remain together for eight or ten hours; add to one gallon of juice, two pounds of crushed sugar, half ounce each of finely pulverized cinnamon and nutmeg, and two ounces of powdered allspice. Boil the mixture gently for fifteen minutes; and when cold, add a half-pint of fourth-proof brandy to each pint best rye whisky. Bottle in pint bottles, have the corks cut off even with the top, and cover with wax to exclude the air. It is always better to put cordial up in small bottles. If in large bottles, if not used soon after opening, it is liable to spoil or lose its flavor. This is an excellent remedy for diarrhœa and summer complaint.

Elderberry Wine.—This is an old English winter beverage, always in that country being drank warm and mulled with spices and sops of toasted bread. We have also found it to be an excellent remedy for cholera infantum, and for diarrhœa and dysentery in adults, being more efficacious, we think, than blackberry brandy. From a teaspoonful to a tablespoonful may be given three times a day to infants, according to their age, and to adults a tumblerful three times a day, especially when going to bed. It acts as a carminative and sudorific. We give a receipt for making it: Twenty quarts of elderberries, mashed; twenty quarts of water; thirty pounds of light brown sugar; of ground mace, cinnamon and cloves each one-half ounce. Boil for fifteen minutes, strain and let it stand to cool; then put into a cask, adding more water if there is not quite enough to fill the cask. Place in a dry, sweet cellar, and let it fer-

ment; when the fermentation is over bung it up, and in the following March bottle it if desired.

A Refreshing Drink.—A refreshing drink for the harvest days can be made of jelly—grape jelly preferred—mixed in ice water, one teacupful jelly to a quart of water; stir well and drink directly after it is mixed. A little ginger added, improves the drink for some, and will satisfy thirst better than water alone. Grape jelly is considered very healthy, and is recommended by physicians in many cases of sickness—acting as a cooling stimulant in many cases of weakness and fever; gives strength without consequent debility, or drag of the system.

Preserving Peaches.—As peach time will soon be here, I send you my method of preserving them. Select fruit just ripe, pare, halve, and throw into cold water to preserve the color. After everything is ready, lay them in the cans, putting a little sugar over each layer. Now set the can in a vessel containing water, set on the stove and let it remain until the fruit is thoroughly heated through, which will take half an hour with a brisk fire. The temperature should be 160°. (Every woman should keep a thermometer.) Seal at once, and put a weight on the cover—that is, if you use cement. With self-sealers it is not required. This method makes the nicest kind of preserved fruit.

Tomato Preserves.—I can not make wine—never tried—do not believe in wine—but I can give the readers of The Farmer a good recipe for preserving tomatoes. Take smooth, round fruit, ripe, and scald and peel them. Then add a pound of white sugar for each pound of tomatoes, and let them stand ten hours. Now remove the tomatoes from the syrup which will be formed, and boil the latter, removing the scum. Then put in the tomatoes and boil gently for twenty minutes. Take out the fruit and boil the syrup again until it is quite thick. Put the fruit in jars, and when the syrup is cool, pour over it and add a few slices of lemon in each jar, to give flavor.

Recipe for Butter.

In a small work, describing the method of making butter in Pennsylvania, near Philadelphia, celebrated in the market of that city, I find the following: "Take of saltpeter one part, of loaf-sugar one part, of fine rock-salt two parts; beat the mass to a fine powder, and use one ounce of the composition to one pound of butter. This will give it a peculiar, rich flavor, but it should not be used before two weeks old. Butter is often injured by using too much salt in preserving it; but this composition renders it unnecessary to salt to excess. For immediate use, salt alone is preferable." This recipe is for butter that may be kept perfectly sweet for months. The best salt must be used (Ashton's Liverpool is the most used), or butter cannot be depended on to keep long. The following is a good test before using it: Dissolve a little in a glass tumbler; if the brine formed is clear and free from bitter taste, the salt is good; if, on the contrary, it is of a milky appearance, leaves any sediment or throws scum to the surface, it should be rejected. There are times when the butter comes, that it is soft and warm, and difficult to take out. Then the milk should be removed, and the churn half filled with ice-cold milk or pure ice-water, and churned until the butter hardens. If the ice disappears before this takes place then it must be renewed. If the butter comes rather warm put in twice the salt you usually do, work your butter just enough to mix the salt well through it, and set it away in a cool place for 24 hours, then take it up and work it over; much of the salt will be dissolved and work out.—*Farmers' Friend.*

The Spare Bed.

One rule ought to be invariable with every good housekeeper: That the bed in the guest chamber shall never be "made" except when it is to be directly used. Let it lie fallow between whiles, and turn the mattresses every few days, with all precaution against dampness gathering on them. Then, when put in order, with fresh sheets and blankets, having the dry heat of the kitchen fire in them, there will be small risk of that chill which the travelers dread. We repeat it, a room that is kept undamped, sweet and wholesome, with a dried bed and plenty of well-aired bed clothes, is within the reach of all to give their guests, and is all that sensible visitors ask. It is better than a hot stove in the room, or hot bottles, jugs or india rubber grannies in the bed, and whoso complains of this—let him complain.

LITERARY AND PERSONAL.

The abundant harvests which are everywhere so promising this fall, with a good demand at fair prices, will suggest to our readers the propriety of purchasing a good and reliable piano. To those who would buy a strictly first-class instrument, we would recommend to look into the merits of the Mendelssohn Piano Co., No. 56 Broadway, N. Y., whose advertisement appears elsewhere. This Company is regularly incorporated under the laws of the State of New York, and composed of eminent Piano manufacturers, with the express object of selling Pianos *direct* to the people at *Factory Prices*, without the intervention of agents or dealers, thereby saving them more than *one-half* the prices usually charged.

The Pianos, including Grand, Square and Upright, made one of the finest displays at the Centennial Exhibition, and were *unanimously* recommended for the *Diploma of Honor and Medal of Merit*.

The leading papers of the country speak in very high terms of the Company and their Pianos.

We would recommend any of our readers who have any idea of ever buying a piano, to send for their Illustrated and Descriptive Catalogue, which will be mailed free to all.

Art Publishing.—Few people are aware of the wonderful progress that Art has made in this country during the last quarter of a century. It is but a few decades since, that those who desired to beautify and adorn their homes, were obliged to depend almost entirely on foreign artists. But such a state of affairs in this age of progress and improvement could not last long with the great American people. Genius from the East to the West, from the North to the Gulf of Mexico on the south, answered the demand for beauty, taste and refinement, and to-day our leading artists are not surpassed by the leading modern masters of Art in Europe.

Great Art publishing establishments have sprung up, and by various processes the finest and most expensive paintings are reproduced in all their elegance and beauty, and at a price within the means of the masses. So that no one need be without the refining influences of beautiful pictures at home.

Among the progressive leading Art Publishing firms of the country, we take pleasure in mentioning George Stinson & Co., of Portland, Maine; they were among the first in the business, and we can only understand the colossal proportions their trade has assumed by remembering that this is a great and mighty Nation of nearly fifty million people. We cannot better illustrate the magnitude of their business than to state the amount of money paid by them for postage stamps during the year 1876; we have the figures direct from the firm, or we should think there was some mistake. They paid for postage stamps during the year 1876, thirty-three thousand one hundred and four dollars and ninety-two cents ($33,104.92) and, in connection with this it should be remembered that only the small orders were sent by mail, the larger going by express and freight. George Stinson & Co's., agents are to be found in every State in the Union and Dominion of Canada, and in every county, with scarcely an exception.

Long since, this enterprising firm recognized the value of printer's ink judiciously used in advertising, and they inform us that without it they could never have extended their business as it is to-day, in three times the number of years. A short time since they paid in a single day twenty-four thousand dollars ($24,000) on a contract for newspaper advertising. They evidently long since found the road to success, and have neither turned to the right nor the left. Three things are necessary for eminent success in business. First, standard honest goods that the people generally need and desire—let them be the best, whatever the line of business. Second, let your prices be reasonable—as low as possible. Third, let the people know what you have, and what you can do, by liberal and persistent advertising, and you will find low prices, made known and proved, will bring trade that will give a larger income than can be made in any other way.

Sorrento and Inlaid Work; by Arthur Hope. Price, $1.50. J. B. Lippincott & Co., Philadelphia. Mr. Hope is evidently a veteran in the art of wood carving. He tells us that his first rude attempts at scroll-sawing were made twenty years ago with a roughly whittled saw frame, fitted with a blade made from a watch spring, in which "teeth few and far between had been unevenly and laboriously cut with a common file."

The object of Mr. Hope's book is to furnish a manual for all who are interested in scroll sawing and carving, both beginners and experts, and with this in view, he has treated of every branch of the subject, from woods and their preparation on through the various branches, to overlaying, inlaying, silhouettes, etc. The book is illustrated with full page designs, many of them the choicest silhouettes, the designs alone, if bought at retail, amounting to more than the price of the book. We do not see how anything better than Mr. Hope's little volume could well be prepared. It is remarkably explicit, and yet remarkably full in explaining and describing the very things that the amateur worker most wishes to know, and being himself an enthusiast, he can have little difficulty in awakening a corresponding interest in others. The chapters on overlaying and inlaying are the best we have ever seen on the subjects, and contain instruction to be found in no other form. Altogether Mr. Hope's book is a gem, and no amateur can afford to be without it.

Circular and Price List, for summer and fall of 1877. Those who are engaged in—or who propose to engage in—the cultivation of the Strawberry, Raspberry, Gooseberry, Currant and Blackberry plants, &c., will no doubt be greatly assisted in their enterprises, of this kind, by having on hand and consulting the circular and price list of E. P. Roe, Cornwall-on-the-Hudson, Orange co., New York. We never have half enough of what are usually termed "small fruit," in Lancaster county, and there are never half enough persons engaged in their cultivation, nor ever half enough acres of land devoted to their production. Mr. Roe has the reputation of being very successful in originating new varieties of seedlings, which have been endorsed by some of the best fruit growing names of the country, and therefore it might pay to have his circulars and a copy of his "Manual on the culture of small fruits" on hand.

Ellwanger and Barry's catalogues, Nos. 1 and 2, for fall 1877. We acknowledge the receipt of these descriptive lists of fruit trees, ornamental trees, shrubs, roses, flowering plants, bulbs, &c., &c., now in ample stock at Mount Hope Nurseries, Rochester, N. Y., by these enterprising nurserymen. These two catalogues comprise 186 royal octavo pages, exclusive of title pages and covers, with many fine illustrations, and include all that is good, ornamental and useful in the nursery line, both foreign and domestic; and we are almost tempted to say, that what they have not got, is not worth having. These lists are the most systematically arranged, and the easiest consulted, of any we have yet seen; and we could not imagine a more satisfactory source of information on this subject, except a personal visit to the nurseries themselves.

Butter and Butter Making, with the best methods for producing and marketing it. By Willis P. Hazard, President of the Chadd's Ford Farmers' Club, author of "the Jersey, Alderney and Guernsey cow," &c. Published by Porter & Coates, No. 822 Chestnut street, Philadelphia. Price 25 cents. A royal 12mo. of 48 pages, in paper covers, with four well executed illustrations of imported cows, which took high premiums at the *Centennial*, namely, the Jersey Cow, "Duchess," "Tiberia," "Niobe" and "Milkmaid." The value of the book may be inferred from the subjects it so ably discusses—cleanliness and attention; important rules; chemistry of butter; feeding for milk and butter; coloring butter; method of milking; care of the milk; skimming and care of cream; spring-houses, ice-houses and dairy rooms; churning; working; washing, marketing, &c

Don't Put the Poor Working Man Down!—This is the title of the greatest motto song ever published in America. Written and composed by Bobby Newcomb. Will be sung in almost every theatre in the land. Price 35 cents per copy. If you cannot get it from your regular music dealer send to the publisher, F. W. Helmick, No. 50 West 4th St., Cincinnati, Ohio.

CHORUS.

Let capital shake hands with labor,
Let the poor have the bread that they earn,
For surely they need every penny,
Is a lesson quite easy to learn.
Remember the poor love their children,
So give them a smile, not a frown,
Live, and let live, be your motto,
Oh! don't put the poor working man down.

In the July number of The Farmer we called the attention of our readers to a new and useful cooking utensil recently invented, which is known as the Centennial Cake and Baking Pan, made of Russia iron, and is so constructed that after your cake is baked, you can instantly remove it from the pan without injuring it; and having a raised bottom the cake can not possibly burn. It is also provided with a slide on the bottom, so that when you remove the tube, you can close the hole, making a pan with plain bottom for baking jelly or plain cakes, bread, etc.

Since then we have seen one of the pans, which was shown us by Mr. B. G. Lefevre, formerly of Quarryville, who is agent for this county, and who is now canvassing for the same.

National Agricultural Congress.—The sixth annual session of this body will be held at the *Grand Pacific Hotel*, in the City of Chicago, Ill., commencing at 10 o'clock, A. M., on Tuesday, the 25th of September, 1877, and continuing three days. All agricultural societies, boards of agriculture, agricultural departments, colleges, periodicals, grangers' clubs, and other organizations in the interest of agriculture, in the United States and British America, are requested to send delegates. Specimens of agricultural productions are solicited for exhibition and comparison from all parts of the country. The Chicago Inter-State Exposition will be open during the meeting of the Congress. W. C. Flagg, President; H. J. Smith, Secretary.

We call the special attention of our readers to the advertisement of Mast, Foos & Co., in this number of The Farmer, and to the article and cut, on page 118, illustrating the superior qualities of their "Iron Turbine" wind-wheel.

Attention is called to the advertisement of E. Moody & Sons, Lockport, N. Y. This house is one of the oldest and largest in the nursery trade in the United States.

We would call the attention of our readers to the advertisement of Marsh & Comp, Mt. Joy, Pa., who manufacture a new and improved double land roller.

If you want to be Strong, Healthy and Vigorous, take E. F. Kunkel's Bitter Wine of Iron. No language can convey an adequate idea o the immediate and almost miraculous change produced by taking E. F. Kunkel's Bitter Wine of Iron in the diseased, debilitated and shattered nervous system. Whether broken down by excess, weak by nature, or impaired by sickness, the relaxed and unstrung organization is restored to perfect health and vigor. Sold only in $1 bottles. Sold by all druggists and dealers everywhere.

Nervous Debility! Nervous Debility.

Debility, a depressed, irritable state of mind, a weak, nervous, exhausted feeling, no energy or animation, confused head, weak memory, the consequences of excesses, mental overwork. This nervous debility finds a sovereign cure in E. F. Kunkel's Bitter Wine of Iron. It tones the system, dispels the mental gloom and despondency, and rejuvinates the entire system. Sold only in $1 bottles. Get the genuine. Take only E. F. Kunkel's; it has a yellow wrapper around it, his photograph on the outside. Sold by your druggist. E. F. Kunkel, Proprietor, No. 259 North Ninth Street, Philadelphia, Pa. Send for circular, or advice free. Try my great remedy. Get it of your druggist, six bottles for $5. It cannot fail. It is guaranteed to do as is recommended.

Worms! Worms! Worms!

E. F. Kunkel's Worm Syrup never fails to remove all kinds of worms. Seat, Pin and Stomach Worms are readily removed by Kunkel's Worm Syrup. Dr. Kunkel is the only successful Physician in the country for the removal of Tape Worms. He removes them in 2 or 3 hours, with head and all complete, alive, and no fee until head is passed. Common sense teaches if Tape Worm can be removed, all other worms can be readily destroyed. Ask your druggist for a bottle of Kunkel's worm Syrup. Price $1 per bottle. It never fails. If he has it not, have him get it, or send to Proprietor, E. F. Kunkel, 259 North Ninth street, Philadelphia, Pa. (Advice at office free, or my mail.)

GOLD. Great chance to make money. If you can't get gold you can get greenbacks. We need a person in every town to take subscriptions for the largest, cheapest and best Illustrated family publication in the world. Any one can become a successful agent. The most elegant works of art given free to subscribers. The price is so low that almost everybody subscribes. One agent reports making over $150 in a week. A lady agent reports taking over 407 subscribers in 10 days. All who engage make money fast. You can devote all your time to the business, or only your spare time. You need not be away from home over night. You can do it as well as others. Full particulars, directions and terms free. Elegant and expensive outfit free. If you want profitable work send us your address at once. It costs nothing to try the business. No one who engages fails to make great pay. Address "The People's Journal," Portland, Maine.
9-8-1y

WAR IN EUROPE.

BISMARCK, His Authentic Biography, Private Letters and Memoranda. Introduction by **Bayard Taylor,** Graphic and entertaining. Full of anecdote, wit, romantic incident, and great historical events. **Profusely Illustrated** with actual sketches from Bismark's life—home, student, political and battle scenes, portraits, landscapes, etc. This Life of Europe's greatest statesman is just the book for the times, delineating as it does all the famous Rulers, Generals, and Diplomats—co-actors with Bismarck. SPECIAL CANVASSERS wanted to supply the urgent demand for this *live book*. Good pay. Circular, free. Write to J. B. FORD & CO., Few York. 9-5-6m.

$777 is not easily earned in these times, but it can be made in three months by any one of either sex, in any part of the country who is willing to work steadily at the employment that we furnish, $66 per week in your own town. You need not be away from home over night. You can give your whole time to the work, or only your spare moments. It costs nothing to try the business. Terms and $5 Outfit free. Address at once, H. HALLETT & CO., Portland, Maine.
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SHIRTS!

Half Dozen for - - - $6.00!

SHIRT FRONTS,

Stockings, Suspenders, Handkerchiefs,

Linen and Paper Collars and Cuffs

SHIRTS MADE TO ORDER

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Prof. S. S. RATHVON, Editor. LANCASTER, SEPTEMBER 15, 1877. LINNÆUS RATHVON, Publisher.

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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., SEPTEMBER, 1877. Vol. IX. No. 9.

THE TOBACCO BUG.

The "Pustulated soldier-bug," (*Euschistus pustulatus.*) This insect belongs to the order HEMIPTERA, or "half-wings," so called because the wing covers are more or less both opaque and transparent, from the half or two-thirds of the basal portion being thick and leathery, and half or one-third of the apical portion being membranaceous. Specimens of these insects, their eggs and their young, were given me by Mr. Kennedy, of Salisbury, subsequent to the meeting of the Tobacco Growers' Society in July last. On comparison I find these insects identical with specimens in my collection, which I obtained twenty years ago, and before tobacco became a plant of common culture in Lancaster county. I do not distinctly remember the circumstances under which I obtained them, but I am quite sure I did not find them on tobacco plants. These insects belong to what are properly called "bugs;" the chinch-bug, squash-bug and bed-bug, belonging to the same order. In June last I took two specimens on the young and succulent *Cacalia* plants near McCall's Ferry, on the Susquehanna, and I also observed one on a blackberry bush; and as there are several species of them, some of which I have always found on the blackberry, it is quite probable that the specimens in my collection were found on that plant. It is not at all remarkable that an insect should leave its native plant and show a partiality for a different plant, especially when its last preference is more juicy, and has become a subject of cultivation and solicitude. We have examples of that peculiar characteristic in the "Colorado potato-beetle," in the "codling moth," in the "striped apple treeborer," in the "curculio," and many others. But, it *is* remarkable that the same insect should feed both on vegetation and on other insects; for if we can credit a writer in *Field and Forest*, a scientific journal published in Washington city, a species belonging to this genus (*Euschistes puncticeps*) was found in the very act of plunging its dagger into the soft body of the larvæ of the "Colorado beetle," and sucking its substance, as men would the pulp of the grape. It is well-known that the "spined soldier-beetle," (*Arma spinosa*) which belongs to the same family, and is generically allied to this insect, is in the habit of preying upon the potato-beetle in its larva state, and I have had many specimens sent to me that had been captured while they were so engaged. But these suctorial insects do not only puncture vegetation and animals, and then pump out their vital fluids, but they also secrete a poison and infuse it into the wound, which causes the plants to wilt, and is perhaps more injurious to the plant than the simple punctures of the bugs. On one occasion an individual belonging to this order (a species of *Pirates*, an account of which we have recorded more in detail elsewhere, in an article on the "Stings of Insects") penetrated one of my fingers with its piercer, which for some minutes gave me intense pain, causing the perspiration to stand in drops on my body, followed by nausea, nervousness, and a giddy stupor. On another I captured a ferocious "tiger-beetle" and put it into my collecting bottle with other insects. About fifteen minutes thereafter I captured a small "pirate-bug," (*Pirates*) and on introducing it into the bottle I found that the tiger had torn all the other insects to pieces, and was "master of the situation." As soon as the pirate entered the tiger sprang upon him; but he made no special resistance, merely extending his jointed piercer and introducing it into the soft part of the tiger between the head and the thorax, and in much less time than it has taken me to tell it, the tiger became powerless, trembled a little in his limbs, and was dead as a door-nail.

It would be difficult to suggest a remedy for the destruction of these, and perhaps more difficult to apply one, if it were known. As they absorb the inner fluids of the plants, an external poisoning of them might have little effect on the bugs, moreover, they are tolerably active, and run under the leaves when molested, or fall to the ground, and the mature insects can very deftly manipulate their wings when there is occasion to use them. The eggs are deposited on the tender ends of the plants, but they are too small to elicit easy observation. Perhaps liquid Paris green, a tobacco decoction, or strong soapy solution, thrown on the plants by an atomizing machine might be effectual. I would have more confidence in crushing them between the nozzles of a large pair of wooden forceps, as is done to the "squash-bugs."

THE CUCUMBER.

(*Cucumis Sativus.*)

"A seraph was sick with the colic one day,
And, weeping, leaned over the moon;
The tears, as they fell, floated lightly away
On the gossamer pinions of June.

But one, as it drifted along in the damp,
Sank wearily down to the earth;
As trembling it lay, 'twas embraced by a cramp
And the cucumber blushed into birth."

The two most prominent and most distinguishing characteristics of the cucumber are, its great antiquity and the universality of its dissemination. At what period in the world's history the mythological event occurred which is celebrated in the foregoing stanzas, has perhaps never been chronologically recorded, or if so, no doubt the record was burnt with the great Alexandrian library; and it is just as undoubted that there are some sanitary or hygienic curmudgeons in the world who honestly believe that if all the cucumbers and cucumber seeds in the aforesaid world had been destroyed with the library aforesaid, a greater blessing on the human family would have been entailed than can possibly grow out of their cultivation and use, as popular as they seem to be, unless some other use for them can be devised, than converting them into pickles and salads.

In the Mosaic history it is recorded that the children of Israel made a free use of cucumbers during their sojourn in the land of Egypt, and that they murmured in their journeyings through the wilderness on account of the absence of this edible gourd; and perhaps this was, symbolically, one of the "flesh-pots" after which they so ardently and so religiously longed, during those remarkable peregrinations.

As regards cucumber salad, somebody has facetiously remarked that they should be taken from the vines when they are about six inches long, cleanly washed, pared, sliced, salted, peppered, vinegared and creamed, and then—thrown into the pig-swill, especially in such localities where many indiscreet parents and children and fevers and agues abound.

Cucumbers are supposed to have been introduced into England and on the continent of Europe from the Levant, but the precise date when, has not been carefully recorded. It is known that they were highly esteemed by the Romans, and that *they* were very successful in their culture. But then it does not follow that it would be a special virtue in us, of the nineteenth century, to esteem what the Romans esteemed, because this might be proving more than is desirable in modern economies. The Romans highly esteemed gladiatorial contests, bull-fights, wild-beast victimizations, and many other barbarous enormities ill-suited to modern civilization, but it is hoped we do not.

The Emperor Tiberius is said to have had cucumbers for his table, fresh from the vines, all the year round, by the employment of artificial heat. Now, Tiberius was the second Emperor of Rome, and succeeded Augustus in the fourteenth year of the Christian era; and the significance of this fact, illustrates at what an early period in history hot-house culture was practiced, and with what success. We are sometimes vain enough to think that we know everything, can do everything, and have originated everything; but when we refer to the pages of history, we discover that much of our knowledge is only second-handed.

The cucumber is a very prominent article of food in many of the Oriental countries, but whether they are eaten raw, pickled, boiled or fried, the records do not say. It must be confessed that there is an aroma or fragrance about cucumbers that is grateful to the olfactories and the taste of nearly everybody, even if they do not habitually partake of them as food, but the nutriment they contain is so limited, that no man or animal (except perhaps some noxious insect) could ever get fat eating them.

In England this vegetable has been a great favorite from its first introduction into that country, and at this day large tracts of land are devoted to its cultivation to supply the demands of the market. John Bull loves his beef, his ale, and his cucumbers; and the last named perhaps as an appetizing condiment, in order to enable him to eat more beef; we mean the well-to-do John Bulls, for in England as in American there must be many who cannot get enough of beef to appease their appetites, without resorting to stimulants to increase the demand for "more." The "Oliver Twists" of society surely do not need them.

Even the poet Cowper thought it not beneath the invocation of his muse, to sing the praises of "the green and prickly-coated gourd," and has written some verses on its growth in winter, which in minuteness of detail shows that he had a comprehensive knowledge of the subject that would be worthy of the study of the professed gardener.

Notwithstanding the fruit is pleasant and agreeable to the taste, and "as cool as a cucumber," has become a significant and well understood every day expression, yet, physicians maintain that it has little or no nutritious value, and that to most persons, especially those of delicate constitutions, it is absolutely unhealthful, and is often attended with unpleasant, if not injurious effects. The culture of the cucumber—in season—is too well understood in our own country for us to attempt to venture any instruction on that point at this time. But we question whether much is done in this country in cultivating it out of season; and yet, there is more money in the latter culture than there is the former, especially in London and Paris, and no doubt it would be the same in New York and Philadelphia. As an illustration of this, we may state that in the fruit stalls of London, during the month of March, cucumbers readily bring a guinea a dozen, whereas in the month of August they may be obtained in abundance for a sixpence, and sometimes as low as a penny, per dozen.

We confess that our interest in the cucumber is mainly historical and scientific; not because we don't like them, however, but because they don't like us; and, therefore, these "cucumber cogitations," suggested by a protracted "cucumber time," make a partial approximation to that standpoint, leaving the question of their hot, or green-house culture, to some

future occasion, should it be desirable and useful.

In conclusion, we desire to say that we do not think the popular use of cucumbers is the right use. They come into season at a period when it is most dangerous to partake of them as a salad or a pickle, and therefore, as they will be cultivated, they ought to be prepared for the table by a culinary process. We have heard of them being stewed and fried, and we believe, by a little art in their preparation, they might become fashionable and popular as the tomato has become. But when we think of the long lapse of time since their first cultivation by the human family, and the slow development of their healthful use, we are unable to anticipate for them a future differing very materially from the past.

The genus *Cucumis* contains twenty-one distinct and well-defined species, including the watermelon, cantaloupe, muskmelon and cucumber, and these run out into almost endless variety. The last named alone (*Cucumis sativus*) has many varieties, of which those in the following list are the most prominent :

1. Early short green prickly,..... 4 inches long.
2. Early long green prickly, ... 7 inches long.
3. Most long green prickly,..... 9 inches long.
4. Early green cluster, ... 6 inches long.
5. White Dutch prickly,..... 6 inches long.
6. Long smooth green turkey,.....10 inches long.
7. Large smooth green Roman,.. .....10 inches long.
8. Flanegans,..... .....15 inches long.
9. Russian,.. .....12 inches long.
10. White Turkey, ...15 inches long.
11. Nepaul, ...17 inches long.
12. China fluted, ... 9 inches long.
13. The Snake,.. .....12 feet long.
14. Brownstown hybrid,.....15 inches long.
15. Victory of England,.....21 inches long.
16. Ringleader, ...15 inches long.
17. Pratt's hybrid,..... .....18 inches long.
18. Sion House,..... ..... 9 inches long.
19. Duncan's Victoria,..... 28 inches long.
20. Allen's Victory of Suffolk,.....24 inches long.
21. Victory of Bath,.....17 inches long.
22. Prize Fighter,.....16 inches long.

Besides the long early frame, the Manchester prize, the early white spine, the extra early Russian, and a few others, of which the lengths are not specially recorded. Some of the species of the genus *Cucumis* and their varieties—for instance the watermelons, the muskmelons and the cantaloupes (cantelopes)—are luscious and pleasant summer refreshments, and need no preparation to make them edible; but when we look at the size of many of the varieties of *sativus*, we cannot help thinking they must have been intended for some other purpose than the merely converting of them into condiments.

THE STING OF INSECTS.

Their Nature and Treatment—The Best Remedy of Thirty Years Experience.

BAD BEES, BUGS OR BEETLES: A week or two ago, Rev. J. B. Soule was stung or bitten on the hand by an insect. He brushed it away without seeing it, and paid little attention to the matter until the wound began to swell and become very painful. His hand is now in a terrible condition, and he has been unable to sleep day or night.

Day before yesterday a little daughter of David Roth, West Marion street, was stung on the right forefinger by what she called a "white bumbler." Last evening her hand was more than twice its natural size, and still swelling, the pain continuing to increase.

We clip the above from the columns of a cotemporary, and our object in doing so is to suggest the remedies we usually have applied, with good results, when stung by insects. As a preliminary, we may say that the stings of all insects are more or less poisonous, whether that sting is inflicted by a caudal appendage, as in bees, wasps and hornets, an anterior proboscis, as in those properly denominated "bugs"—squash bugs and bedbugs, for instance—or by their masticatory organs (mandibles or jaws) as in some beetles, spiders, etc. The best remedy—and almost the only one—we have found in an experience of thirty years, during which time we have often been stung or bitten, is the immediate application of *volatile ammonia* (spirits of hartshorn) either bathing the wound or laying on a clean white rag or a piece of paper saturated with the liquid. When out in the fields and ammonia was inaccessible, we have found relief in clay or common earth, mixed with water, or even spittle, to the consistence of of putty.

On one occasion our left index finger was pierced by the proboscis of a Hemipterous insect, (a true "bug") the pain of which was so intense that we almost fainted, the perspiration raised in drops upon the whole upper portion of our body, and we were affected with nausea for half an hour afterwards. We were destitute of both ammonia and alcohol, therefore had to resort to clay and spittle, which removed the pain within half an hour, but a hardened whitish tubercle, with a small red spot in the centre, where the proboscis had entered, only gradually disappeared after eight or ten days. To illustrate the virulence of the poison of this insect, on placing it in a bottle with some living predaceous beetles, it grappled with them, and penetrating a soft part between the thorax and the head, it killed them almost instantly.

These effects, however, do not invariably follow the bites or stings of insects. Something depends upon how much of its poison has been previously voided—as in venomous reptiles—something must be attributed to the physical constitution of the person who has been stung, and something also to the peculiar constitutional state of the same person at the time he or she is stung. It is well known that persons are differently affected by the bites or stings of moschitos, (mosquitos) and also by coming in contact with vegetable poisons—poison sumac (*Rhus*) for instance.

We once knew a man who was almost invariably poisoned by handling or eating pawpaws, of which he was very fond. Injudicious subsequent exposure, through which inflammation is excited by what is commonly called "taking cold" in the wound, has also an unfriendly effect.

We cannot even guess what insect is referred to in the above extract under the name of "white bumbler." If it was a white-faced wood-borer, he is destitute of a sting. No male species, the female of which is armed with an abdominal sting, has a sting at all; that pernicious implement is peculiarly the endowment of the female. The mouth parts of the female mosquito are prolonged into a thin proboscis with which she penetrates the human body and pumps up the blood, but the mouth parts of the male are entirely wanting, and therefore he never stings or partakes of any food. But in hemipterous insects (bugs) both male and female are provided with a proboscis, and, therefore, if they choose, both of them can inflict a sting. In addition to our simple remedies, we subjoin the following, partly as a corroboration and partly as suggestive of other remedies, which, no doubt will be equally efficacious.

How to Treat Insect Stings.

The pain caused by the sting of a plant or insect is the result of a certain amount of acid poison injected into the blood. The first thing to be done is to press the tube of a small key firmly on the wound, moving the key from side to side to facilitate the expulsion of the sting and its accompanying poison. The sting if left in the wound, should be carefully extracted, otherwise it will greatly increase the local irritation. The poison of stings being acid, common sense points to the alkalies as the proper means of cure. Among the most easily procured remedies may be mentioned, soft soap, liquor of ammonia (spirits of hartshorn), smelling salts, washing soda, quicklime made into a paste with water, lime water, the juice of an onion, tobacco juice, chewed tobacco, bruised dock leaves, tomato juice, wood ashes, tabacco ash and carbonate of soda.

If the sting be severe, rest and coolness should be added to the other remedies, more especially in the case of nervous subjects. Nothing is so apt to make the poison active as heat, and nothing favors its activity less than cold. Let the body be kept cool and at rest, and the activity of the poison will be reduced to a minimum. Any active exertion whereby the circulation is quickened will increase both pain and swelling. If the swelling be severe, the part may be rubbed with sweet oil, or a drop or two of landanum. Stings in the eye, ear, mouth or throat, sometimes lead to serious consequences; in such cases medical advice should always be sought as soon as possible.—*London Garden.*

THE CODLING MOTH.

The Grape Procris and the Grape Leaf-Folder.

Some time ago an attachee of the *Intelligencer* presented to Prof. S. S. Rathvon, the eminent entomologist, a box of insect-infested apricots and a few grape leaves, with a request that he would examine and report upon them. Following is his reply, from which it will be seen that a hitherto received theory that the codling moth will not attack stoned fruit, is refuted :

Mr. J. M. J. : The "batch" of insects submitted to me by you, on the 20th of July last, consisted of three distinct species, belonging to as many different genera : namely, the larva of the "Codling Moth," the American "Grape Procris" and the grape "leaf folder." I examined all the apricots—about twenty in number—and found five larva of the codling, (*Carpocapsa pomonella*) the same species that infests the apples, the pears and the peaches. These, with some of the fruit, I confined in a small box with a glass lid to enable me to observe their operations—retaining one specimen for identification, which I immersed in alcohol. They were of a pink color, about ¾ of an inch long, and possessing all the characteristics of Lepidopterous larvæ. On the 22d two of them spun themselves in irregular cocoons, in the angle at the bottom of the box, and the remainder of them died. On the 30th they evolved from the cocoons in the perfect moth form, beautiful, lively little insects, with their wings deflexed, and wrapped so closely around the body as to almost form a cylinder. Their color is a gray ground, dappled with irregular bands of brown, and a large brown spot near the ends of the anterior wings. They are a little over a quarter of an inch in length, and expand over half an inch. The entomological record that the codling moth confines itself to pip-fruit, and never attacks stone-fruit, becomes discredited, for we have now bred them from the apricot and the peach.

The second is the "Grape leaf-folder," the larva of which is a glass green in color, over an inch in length, and the head and three anterior segments blotched with dark patches. This larva was exceedingly active, wriggling, jerking and jumping backward or forward at the least disturbance. We confined this larva in a box, a short time after which it returned to its leafy cell and changed to a pupa; and, on the 2d of August the moth appeared. It is a beautiful insect, expanding over an inch from tip to tip of its wings. The ground color is blackish, with a pearly reflection, the wings fringed with white, two large white spots on each of the wings, and two white bars across the abdomen. This moth is double brooded; the first brood appears about the 1st of June, and the second about the 1st of August. It is the *Desmia maculalis* of entomologists, and when numerous—which frequently occurs—it is very destructive to the foliage of the grape vines. Of course, the only remedy is to clip off all the folded leaves and burn them; but, this should be done when the insects are in pupæ, between the 20th of July and the 1st of August, but particularly before the leaves fall in autumn; because the last brood hibernates in the pupa form during winter, and emerges about the end of May or beginning of June, and lays the foundation for the first brood. If the leaves are cut off while the insect is still in the larva state, it will wriggle itself out of its cell and escape, and your object would be defeated.

The third species is the "American Grape Procris," (*Procris americana*,) little pale yellow larva, with black heads, and a transverse row of black spots on each dorsal segment of the body. These, after about the third moulting, arrange themselves side by side, like the knives of a mowing machine, and cut a clean swath across the grape leaves, devouring all except the larger nervures and midribs. These larvæ did not feed in concert, in confinement, as they do in the open air. They were rather discontented, and always retired to the sides of the bell-glass to moult,

to spin their scale-like cocoon, and to pupate. This last transformation commenced on the 2d of August, and is not yet ended. The pupa is a light brown, as seen through the glass. As we have frequently bred these insects we will not delay this paper until their final transformation, which will probably not occur for a week or ten days yet. The mature moth is a slender little insect, with narrow wings, expanding three-fourths of an inch, and with a tuft, or brush, at the end of the body. The color is totally black, except a narrow orange-colored ring around the neck. Whilst in the larva state they are easily destroyed, as they make no attempt to escape; especially as they are gregarious, and thus a whole colony may be secured by cutting off a single leaf. Cutting off the infested leaves and burning or scalding the infestors, is the only remedy we can recommend, and, perhaps, the only one that is worth recommending.

BLACK BASS AND BASS-BAIT.

The stocking of the Susquehanna river and its tributaries with black bass seems to have developed an industry hitherto unknown, namely, the procuring of such baits for their capture as are taken by them the most readily, and which afford the anglers for them the most sport and the greatest success. Of course, there are a number of baits that these fishes take, but there are three kinds for which they appear to have a special partiality, and these three kinds readily command a penny for each separate bait. Perhaps the very best bait is a small fresh-water "crayfish," commonly called "crabs," although in point of fact it is more nearly allied to the lobster, both in its form and its habits. This is the *Astacus Bartonii*, a small crustacean found in our rivers and creeks, but especially in small shallow runs or rivulets, where they may be found under stones. But until it was discovered that they were a capital bass-bait, we venture to say that but few people knew that they were so abundant. We have it from good authority, that nearly three thousand of these crustaceans were obtained the present season in the river and the small streams in and about Columbia, all of which were sold at not less than a cent a piece.

The next in value—if not of equal value—is what is vulgarly called the "Hellgramite." This is the larva of the "Horned Corydalis," (*Corydalis cornutus*) which in its larva state is aquatic, and when fully matured is three inches in length; the head and thoracic segments black, and the abdominal portion of a dark swarthy color. In our boyhood we called these larva, "Alligators," because they bear some resemblance to a miniature animal of that type. But of these animals we have never seen more than a dozen or so in a whole season; and yet, within the past week, we have been credibly informed that one man in Columbia captured seven hundred of them in a single day, which he sold at a cent apiece. These are surely windfalls in times like the present, but it is likely to result in the extinction of the Hellgramites. What derangement in nature's economy this may produce, is more than we are able to determine, but if they were not of some use, they probably would not be. Aquatic insects doubtless are beneficial to stagnant waters, as it is claimed that they purify them by devouring both animal and vegetable matter, which would otherwise render the water impure or putrid. But of course, neither the bass nor the bass-fishers will give any heed to this, when self-gratification is the end.

The third bait referred to, is a juvenile specimen of the common toad (*Bufo Americana*), of which there are now many to be found in the vicinity of the streams in which they have passed their happy "tadpole" days, if such an advent is possible, surrounded as they are by a multitude of dangers. In comparison with the number of eggs deposited by toads, the multitude of tadpoles often noticed in the shallows of streams, and also the great numbers of young toads often seen on beaches and flats in proximity to the stream, after they lose their tails and their transition to the toad state, it is singular how few of the adults are seen and how few survive the season. There must be a great mortality among them, either from natural causes, from accidents, or from their appropriation by other animals. Snakes and wading fowls devour many of them, and now that it has been discovered that they make a good bass bait, the innocent little things have a fearful ordeal to pass through before they can attain to mature toadhood; for a boy to pass over a bar or flat and see these little toads, it is equivalent to finding so many pennies, and an embargo is therefore immediately laid upon them. The adult toad is a capital insect scavenger, but there is danger that but few of them will reach that state in the vicinity of localities where the bass abounds. We await the result.

OLIVER DALRYMPLE THE "GREAT WHEAT KING" OF MINNESOTA.

A friend in Geneva, Ill., writes us that he has heard a great deal about the "Dalrymple farm," near Fargo, and has also seen many contradictory statements about the size of the farm and the amount in wheat this year, and asks us to give him a "bill of particulars." For the benefit of our correspondent, and others who may be interested in large farming operations, we will state that what is called the "Dalrymple farm" is a tract of about 11,000 acres of land near Casselton, twenty miles west of Fargo, on the line of the Northern Pacific Railroad. It is owned by George W. Cass and P. B. Cheney, of New York, and Oliver Dalrymple, the "wheat king of Minnesota," as he is termed. Twelve hundred acres were broken in 1875 and sowed to wheat last year. This year there are 4,000 acres in wheat—and a splendid crop it is, too—and 3,000 acres additional were broken this season for seeding next year.

Mr. Dalrymple also owns a half interest in what is known as the "Grandin farm," a tract of 40,000 acres just north of Elm River, in Traill county, D. T., 35 miles north of Fargo. The other owners are the Grandin Brothers, bankers of Tidioute, Pa. On this farm there are 3,500 acres in wheat this year, and some 3,000 acres broken for next year. To harvest this crop of 7,500 acres on the two places, it required 42 self-binding reapers, 225 horses and mules and 150 men. Nine steam threshers, each with a capacity of 1,000 bushels per day, are now at work threshing the grain.

In addition to his interest in these two immense farms, Mr. Dalrymple owns 2,000 acres of land in Cottage Grove, Minnesota, near St. Paul, 1,500 acres of which is in wheat—so that either as sole or half owner, Mr. Dalrymple is interested in 9,000 acres of wheat this year, which will be increased to 15,000 acres next year.

Oliver Dalrymple has five steam threshers now at work on his 4,000 acre farm at Casselton, each one threshing an average of 1,000 bushels per day. The grain is hauled directly to the cars as fast as threshed, and shipped to New York, via Duluth and the lakes. He loads and forwards 15 cars per day. At 350 bushels to the car, the crop on this one place will make 257 car loads. The yield, from what has been threshed so far, is estimated at 90,000 bushels—an average of 22½ bushels per acre. Add to this the 3,500 acres on the Grandin farm, in which Mr. Dalrymple has a half interest, and which will average equally well, the two farms will produce 168,750 bushels of wheat this year. A nice little plum to have, surely.

We may add that it is the intention of the owners of these two huge farms to break on an average about 5,000 acres each year, until the whole 51,000 acres are brought under cultivation. They have abundant means, and the experiment so far has proven that it is not possible to make a better investment of money. This is the second year of the enterprise, and so far the net profits have been over $10 per acre each year, for every acre under cultivation. Go thou and do likewise, and there is plenty of room here to do it in.

The above we clip from the editorial columns of the *Fargo* (Dakota) *Times*, of August 25th, 1877. We reproduce it in the columns of the *Farmer*, more to give our readers a knowledge of what is transpiring in the great wheat growing interests of the country, and as an illustration of personal enterprise, than as a recommendation to "Go thou and do likewise;" for we cannot see that immense farms, in the possession of a few men, are more conducive to the public welfare in the long run, than immense monopolies in other things. We believe it would be better for the country at large, better for the farming interests, better for the hundreds and thousands who are now out of employment, and better for the moral and material development of society, if the 53,000 acres of land which Mr. Dalrymple and less than half a dozen others own or control, were divided into about four hundred farms, than to be amassed into one single concern. The ambition to possess the largest farm in the Union, and to raise the largest crop of wheat, merely for the eclat which attaches to such achievements, or for the wealth which it puts into the pockets of its possessors, is not calculated to engender that contentment, or inculcate that republican simplicity, which are so essential to the happiness and the welfare of a free country, although we are far from attaching anything to it that savors of civil or social criminality.

STATE FAIR.

Our patrons will not forget that Pennsylvania's annual agricultural exhibition will be held at Erie, commencing on Monday, September the 24th, and continuing to Friday the 28th. Although, from the proceedings of our local society, it will be perceived that it was deemed inexpedient to hold a county exhibition the present season, on account of the poor show of fruit, which is usually the chief attraction, still, some of our farmers and manufacturers may be able to make a creditable display at the State fair. To those therefore, to whom distance is not an insurmountable objection, the event at Erie may afford an opportunity to advertise themselves and their productions in a useful way, and we call the attention of such to the subject.

OUR LOCAL ORGANIZATION AND OURSELF.

By referring to the proceedings of the September meeting of the "Lancaster County Agricultural and Horticultural Society," it will be perceived that we have been the subject of a handsome testimonial, in the form of a gold-headed ebony cane. Whether we merited such a token of the Society's kindness or not, is not within our province to discuss. Acting in perfect freedom in the matter, we must presume that the society itself is the most competent party to determine that point. It is sufficient for us to know that the act was entirely spontaneous on its part, and that our acceptance of the gift was as disinterested as it was unexpected. What we desire to record here, is a more grateful appreciation of the gift than our feelings would permit us to express at the moment the event transpired; and our thankfulness for this recognition of our feeble efforts to advance the interests of agriculture, as well as the mental and material welfare of those who are engaged in an occupation, upon the success of which are based the foundations of civil society. Under any circumstances, this manifestation of personal esteem ought to constitute a social landmark in the wilderness of our days, to which we can always return with sentiments of grateful remembrance.

Viewed from a correspondential standpoint, this act of the generous donors is of a deeper significance than they may have apprehended, although not more so than they may have intended.

A cane, or staff, in proportion to its strength and gracefulness, signifies those powers of our spiritual and and moral natures which have their origin in goodness and truthfulness.

The socket, or base, is *iron*, (or steel) which is a symbol of natural or rational truth, in its most obvious sense—the natural light of man—or that natural degree of knowledge which illuminates his mind in natural things alone.

The shaft is *ebony*, which signifies a diviner form of truth, in its outward expression—truth, as it flows into, and gives quality to, external actions.

The head is *gold*, which, according to the subjects with which it is connected, has various symbolical meanings, or correspondential significations. In its common and most obvious moral sense, it represents the goodness of that love which comes from God; and its spiritual and celestial significance are indicated by the fineness of its quality.

This moral analysis of the subject must enhance the value of the gift in the estimation of both the givers and the receiver; and illustrates that we cannot separate anything that is made from Him who made it, or through whose divine energies it is permitted to be made. And furthermore, that in our expressions of thankfulness to our fellow men, our sentiments should be purified by the recognition of God in everything—that every outward manifestation is but the expression of something that is within, and has its source in the unseen, whether it be good or evil.

A SINGULAR POTATO.

(Singular, only, however, if there is no mistake in the facts of the case.)

Haydn H. Tshudy, esq., of Lititz, Pa., has placed in our hands a potato supposed to be a union between an "Early Rose" and a "Snowflake." These two varieties had been planted side by side in parallel rows, and on taking them up on the 30th of August, this tuber—six and a half inches long, and the same in circumference—was found to have a vine at each end, one of which belonged to the "Rose" and the other to the "Flake." The tuber is slightly contracted in the middle, and from that point towards the ends, there is a slight difference in color, as well as in the texture; but, had we found it separated from the vines, we should not have noticed anything very extraordinary, either in its form, texture, or color.

Potatoes, however, are subject to some very peculiar malformations, and can accommodate themselves to almost any adverse circumstances, such as growing through and around an iron ring; one growing within another, growing through an auger hole and developing into a "clinch" on each side, &c., &c., and we cannot positively say that one—in its juvenile state of ductility—will not grow into, and finally blend with another. The only thing that raises a doubt in our mind in the present instance, is the fact that the "eyes and brows" all look in one direction, and therefore the stem of attachment at the apical end, must have been abnormal; or, one of the eyes stimulated to an unnatural growth, forming an additional stem. This is however merely suggestive, and the case must rest for the present on its external merits.

WHEAT CROP OF 1877.

According to the Chicago *Tribune* this year's wheat crop in the great wheat-producing western States compares with that of 1875 and 1876 as follows:

	1875. Bushels.	1876. Bushels.	1877. Bushels.
Minnesota	27,000,000	16,000,000	35,000,000
Iowa	29,000,000	18,000,000	37,000,000
Wisconsin	25,000,000	15,000,000	25,000,000
Kansas	12,000,000	12,000,000	20,000,000
Total	93,000,000	61,000,000	117,000,000

Here we have an increase of twenty-five per cent. over the crop of 1875, and nearly one hundred per cent. over that of 1876. The increase is general throughout the country also, and for all kinds of grains. The grain crop of this year will be the largest, in all probability, that has ever been produced in the United States. The cotton crop will not fall below 4,500,000 bales, and the yield of sugar in Louisiana is an exceptionally abundant one. The west and southwest are rejoicing in the fine prospect before them and in the signs of returning prosperity. The transportation of these immense harvests to the Atlantic seaboard will create a rush of business among the railroads. The farmers and planters will have more money and will consume more. In anticipation of the demand, merchants are already repairing in considerable numbers to the Eastern cities, and buying freely assorted stocks of goods. The elements of a new era of prosperity are being rapidly formed. An eminent banker of New York, and one of the most sagacious observers and best-informed financiers of the country, predicts that within two years the United States will be overflown with prosperity and wealth.

MONTHLY REMINDERS.

The fall crops will now be growing rapidly, and will require hoeing and other attentions. From the 15th to the 25th cabbage, cauliflower and lettuce seeds may be sown, for young plants to winter over in cold frames. Shallots and onions should be planted, and spinach and German greens sown for next spring's crop. Earth up such celery as may be wanted for next month.

The *shallot* is a species of onion, the root of which is composed of numerous small bulbs, united at their base, and covered with a thin skin. It is chiefly used in a green state, early in spring. It thrives in any soil suitable for the onion, preferring, however, a light, warm soil. It is chiefly grown by dividing the bulbs and planting the offsets. They may also be planted in April for later use. When the tops die off the bulbs should be taken up, well dried, and kept in a warm, dry place; as damp and cold cause them to decay rapidly. There are five or six varieties, but none of them are better than the common sort—*Allium ascalonicum*—from Ascalon, in Palestine.

QUERIES AND ANSWERS.

The Locust Catcher.

MARIETTA, August 14, 1877.

PROF. S. S. RATHVON—*Dear Sir:* I send by mail an insect known here as the "locust catcher." Whether it catches locusts I do not know. But I do know that it is armed with a powerful "javelin," as Josh Billings would say. They made their appearance here four years ago; one pair burrowing in the road. From there they emigrated to the garden walks, where I counted no less than twenty-five holes which they bored out this year. The sample that I send I suppose is a male, as it is larger than some others. Very truly, *Horace M. Engle.*

Your large wasp-like insect is the *Styzus speciosus* of Say; but from my boyhood up to the present time it has been known in Lancaster county under the common name of the "Locust-catcher." Perhaps "Cicada-catcher" would be more appropriate. This insect generally makes its appearance in the month of August; therefore it does not catch what is commonly called the "Seventeen-year Locust," for the period of that insect passes away before this one makes its appearance. Moreover, if it had to depend upon that insect, it would have to suspend its wants to suit the long intervals in the periods of its prey. But it catches the annual locust, better named "Harvest-fly," (*Cicada pruinosa*) which makes its appearance about the time it does. And now, what does it do with the locust after it catches it? We will endeavor to answer. This insect belongs to a tribe or family of fossorial wasps, which make burrows in the earth and stock them with various kinds of insects, each species generally confining itself to a particular kind of insect. The *Styzus* uniformly confines itself to the annual cicada. It does not feed on the cicada itself, nor does it kill; it only paralyzes it and crams it into its burrow, in which it also deposits its eggs, supplying as many cicadas as it lays eggs. In due time these eggs hatch out, and the young grub feeds upon the cicada, in such a way, too, as not to entirely destroy its vitality until it has matured its larval development, and is ready to assume the pupa state, after which it remains in the earth, in this form, until July or August of the following year, when it comes forth a winged insect, so educated as to know exactly what to do and how to proceed in imitating the life and progress of its parents. The old Styzus does not survive the season, nor repeat what it once has done, after the deposition of all its eggs, but soon thereafter dies, and we have found more dead ones in September than we have live ones in August. There is a singular economy in only paralyzing and not killing its prey. If it is killed its decomposition would take place before the development of its grub was accomplished, and starvation would follow. The grub is equally gifted in its economic instincts, for it does not consume the most vital part of its host until there is no longer any need of its vitality. There may be something in its paralyzed condition which arrests decomposition also. Some of these fossorial wasps appropriate caterpillars, and therefore, if it cannot be regarded as an insect friend, it may be classed with the innoxious kinds. "Twenty-five burrows in one garden-walk" is more than we have ever seen at one place.

BERLIN, PA., September 3, 1877.

PROF. S. S. RATHVON—*Dear Sir:* I send by to-day's mail, enclosed in a small box, a small animal, insect, worm or what it may be. In appearance it is entirely strange to me, and to every person in the community who has seen it. It was found on the bark of a tree—couldn't say what kind. Don't know on what it feeds. If you examine it will you please let me know what it is. Respectfully yours, *J. P. Brubaker.*

Your box came to hand, one day after your letter, a perfect wreck, and it is a miracle that its contents were not entirely destroyed. (Boxes for the transmission of such objects through the mail should be stiff paper or tin.) The "small animal" it contained had undergone a complete metamorphosis since its incarceration, and was inclosed in a thin spherical shell or cocoon, about the size of a marrow-fat pea, leaving us in a measure to guess at its species. It, however, belongs to a Lepidopterous family called LAMICADANS or "Hag-moths." This subject is very probably the species called the "saddle-back moth" (*Empretia stimula.*) The whole animal—which was the larval form of the insect—has the form of a cart saddle, with two erect fleshy horns, or "pummels," at each end, and a large purple spot with a green margin on the centre of the back. There are several species of them, but judging from the size, form and texture of the cocoon, we think it is the one above-named. They are omniverous feeders, and we have found them on at least twenty different kinds of trees, shrubs and plants. The moth will not appear until next season.

MILLERSVILLE, Pa., August, 1877.

PROF. S. S. RATHVON.—*Dear Sir.*—The enclosed worms I found on the *Desmodium viridiflorum*, growing near the Conestoga—the smaller ones skeletonizing the leaves, and the larger one consuming them completely—it ate an entire leaflet last night.—*T. P. B.*

There were three different kinds of *larvæ* (worms) in the box. The large green bristly one, with lateral party colored stripes, was the larva of *Saturnia Io*, perhaps the nearest representative of the true silk worm, (*Bombyx mori*) that we have in this country. Two of the smaller ones were the larva of a species of *Galeruca* or *Haltica*, (coleoptera); they soon died, and were too young to determine the species. The third was a geometer or "Looper," but it somehow made its escape before we could make a close examination of it.

H. M. E. The large white grub worm, inside of your potato is *Areoda lanigera*, very likely, or perhaps *Gymnetus nitides*, or one of the May-beetles (*Lachnosterna.*) Now we confess this is very indefinite, but the larvæ of the whole family MELONLOTHIDÆ bear such a strong resemblance to each other, that unless we have bred them from the larva to the mature insect, under our own personal supervision, it is almost impossible to identity the species, from seeing the larva alone. We have found both *Areoda* and *Gymnetus* in the potato, and especially in "potato patches," in May and June. This is a very voracious subject, but we shall try to raise him to the beetle state, and if we succeed, we shall let you know the result.

CULINARY CONTRIBUTIONS.

POTATOES, A SIDE DISH.—Take mealy potatoes, pare, cut in slices half an inch thick; put in a stew kettle, cover with water, put in salt to your taste, a little saffron, and parsley or celery, or both if liked, stew till done; take one tablespoonful of flour, and stir in cold water to make a batter, pour over the potatoes and boil a few minutes longer. Serve.

TO CAN CELERY.—Boil it in water, after it is cleaned, till soft, drain, fill up your jars, pour over good cold vinegar till full; shut up

tight, set in a cool place, add the other things when you use it.

WILD CHERRY PIE.—Line a pie plate with paste, put in wild cherries, three or four tablespoonfulls of sugar, a little cinnamon to taste; if the cherries are juicy, no water, a little flour strewed over, cover with paste, bake in a moderate hot oven fifteen minutes. It's equal to cranberry pie. Try it.

GRAPE JELLY.—Take ripe grapes, squeeze out the pulp, discard the hulls, use only the juice of the pulp; to every pint take one pound of pure white sugar, boil fifteen minutes and you will have a jelly like pine apple.

LEOLINE.

NEW FEED BUCKEYE GRAIN DRILL.

This popular Agricultural implement is manufactured at the celebrated "Buckeye Agricultural Works," at Springfield, Ohio, under the proprietorship of P. P. MAST & Co., and only needs to be tried to supersede many if not all of the best in the market; and from the fact that it is favorably known in England, Germany, Russia, and other remote and near parts of Europe, as well as to dealers in drills all over the United States, those who

are in need of an implement of the kind (and, what farmer does not, when he is sure of finding a good one?) cannot make a mistake in patronizing the BUCKEYE, with its NEW FEEDER attachment. This feeder is very simple in its structure, not liable to get out of order, and can be readily adjusted to throw out a small or a larger quantity of seed, by a simple device attached to the end of the hopper, and which uniformly changes all of the feeders at once, and is equally effective whether applied to a peck or a pint. The above cut is a fair illustration of the *tout ensemble* of this implement, but for the details we would recommend our readers who are in need of a drill to send to the establishment for an illuminated circular and catalogue. There are several other economical devices that can be attached to this drill, as occasion, or fancy may need. We may instance the "Guano Fertilizer attachments," the "Plaster Sower," the "Spring Hoe," and the "Hoe Shifter," as well as a "new method of attaching the Gum Tubes."

See advertisement of P. P. MAST & Co., in our advertising columns; and in the matter of a grain-drill, if possible, get the best, which will always be the cheapest.

FOR THE LANCASTER FARMER.

ARTIFICIAL BUTTER.

In the published report of the Lancaster County Agricultural and Horticultural Society of September 4th, 1877, under the discussion about the Oleomargarine, "Casper Hiller asked whether any one could tell anything about its manufacture; there were no responses." In No. 48 and 49 of the *Scientific American* supplement, November, 1876, is a full history of the subject, with six illustrations, covering eight columns of reading matter. Mege obtained the first patent on record, in England, July 17, 1869. Wm. Palmer is said to have taken out a patent in 1846 for treating fat or fatty matters from beef, mutton, veal and lamb, but this product did not resemble butter; it was intended for culinary purposes instead of lard. Mege's patent was not issued in the United States until December 30, 1873, for the manufacture of artificial butter. H. W. Bradley's patent, January 3, 1871, was for a new composition for lard, butter or shortening. Bradley got another patent October 7, 1871, which had for its object "to deodorize and render palatable cotton seed oil for culinary purposes. The next process was the patent of Peyrouse, November 2, 1871, for a substance intermediate between butter and lard. The next was the patent of Paraf, April, 1873. In this is claimed "the true process of the manufacture of artificial butter," an imitation of Mege's process, and he gave it the name of "Oleomargarine," as butter at one time was considered a compound principally composed of olein and margarine; but later investigations have shown that margarine is a mixture of palmatin and stearin. Paraf started a large company in New York for its manufacture. This, when just made, resembles butter at a distance, but on examination with a microscope, it seems to possess distinct grain, which is very distinguishable on tasting. Before Mege's American patent, Joseph Brown obtained one for purifying tallow, December 23, 1873.

The following is a simple list of patents to show the struggle and competition: Francis Kraft, July 21, 1874; Wm. E. Andrew, Aug. 11, 1874; John Nobbs, August 18, 1874; Wm. L. Churchill and Jacob L. Englehart, August 25, 1874; George Bloom Van Brunt, October 13, 1874; Wm. E. Andrews, August 24, 1875; John P. Kinney, October 19, 1875; Wm. E. Andrews again (re-issue) November 16, 1875; Garret Cosine, February 15, 1876, for an improved process for making artificial butter. Dr. Chandler and Henry A. Mott, jr., E. M. Ph. D., had previously used several of the processes claimed by patentees, all more or less approximating to the secret of purifying fats and manipulating them. The process of Mege's being about equal to the later patents obtained—each for a different mode to accomplish the same end. To sum up the matter, without detailing the various modes specified, we may state that the first matter to be attended to, when a good product is to be manufactured, is cleanliness. The strictest attention to the washing process, care being taken to have the fats fresh and pure, and all carefully removed and separated, and thoroughly washed in separate tanks; covered in tepid water and left at rest an hour, then the fatty matters are removed and washed with cold water, and covered with fresh water and repeated. After this the fatty matters, sweet tallow, &c., is passed through a "meat hasher," piece by piece, cut by revolving knives and forced through a fine sieve into a tub, accomplished by steam power. The melting process is carried on in tanks (heated to 116° Fahrenheit), heated by steam, the fat being continually stirred at an even temperature. The "scraps" settle in the bottom on leaving the melted fat at rest, a clear yellow oil floats on top, covered by a film of white emulsion of oil, with the water contained in the fat. When the scraps have completely subsided, the thin layer of emulsion is bailed off, and the clean yellow oil is drawn and received in wooden cars, which when nearly filled are removed, to allow the oil to solidify. The melting process properly performed occupies from 3 to 4 hours; it takes from 12 to 24 hours to granulate, in a room 70° Fahrenheit, and must not be hurried, otherwise the stearin in the fat will not have time to crystallize.

It is then submitted to the press, in a press-room, kept at a temperature between 85° and 90° Fahrenheit. The refined fat must be so solid that it cannot be worked with the fingers with ease. When in the right condition, it is packed in cloths, set in moulds to form packages. These packages (4 by 8 inches) 1½ thick, are placed on galvanized iron plates in the press, at equal distances apart, piled upon each other. The pressure forces the oil out, which is collected in tin vessels. These cakes of pure white stearine are obtained (8 by 5

inches), ¼ thick. The stearine, after the removal of the cloths, is ready for sale.

The oil collected is removed to the churning room, which is at 70° Fahrenheit. To 100 pounds of oil, 15 to 20 pounds of sour milk are added in the churn; solution of annatto, to which is added ½ to ¾ of an ounce of bicarbonate of soda, and the whole agitated for 10 or 15 minutes, till thoroughly mixed; when it is withdrawn from the churn at one end into a tub containing pounded ice; when kept in motion until solidified; worked on a table and salted about ½ to 1 ounce of salt to the pound of butter. This butter is preferred by some—the milk used is not sufficient to make it rancid, but quite sufficient to give to this butter the so much prized flavor and odor. Hon. X. A. Willard, the President of the New York State Dairymen's Association, who is deemed good authority, as well as other experts who have tested it, pronounce it equal to the genuine butter in flavor and quality.—*J. Stauffer.*

For The Lancaster Farmer.

NEBRASKA NOTES.

Schuyler, Nebraska, August 13, 1877.

Editor.—About five miles south of this place, near the confluence of Skull Creek with the Platte river, are the crumbling ruins of an ancient town, the houses of which must have been circular in form, as the remains are similar in appearance to the common circus ring, though not generally quite as large. By digging here, bone fragments, pieces of pottery, pebbles, beads, sharp stone arrows and lance points, etc., are found. The doorways in each case are plainly marked, and were evidently covered entrances or projecting hallways. The streets and play-grounds are beaten deep into the earth, and the streets wind around irregularly through the town, so there was no street here that could properly have been called "straight." In the central portion of the town is a large rock, having a smooth depression in its upper surface, and which must have been brought from a distance, as there are no similar rocks in the vicinity. This rock was the corn-grinder or "City Mill," over which many a woman may have turned her melancholy song years ago. Nothing more is known of the inhabitants of this place than may be inferred from the above-named remains, and Pawnee legends.

Notwithstanding the obliterating effects of the perpetually recurring autumn fires and spring rains, the buffalo "wallows," bleaching bones, and their ancient trails remain on the prairies and hillsides throughout this region. Twenty years ago this portion of the great Platte Valley was lonely, silent, grass-covered hills, valleys and plains with unbroken solitude save the whistling winds, the buffalo tramp, or the twang of the red man's bowstring; no white man dwelt here, but now Butler county alone has about five thousand live, intelligent, prosperous and happy people, a majority of whom are from New York, New England, Pennsylvania, Ohio and Illinois.

This country is well watered by the Platte river flowing entirely across the north side, and receiving Wilson, Elm, Deer, Bone and Skull Creeks from about the middle of the county south, near where the Big and Little Blue Rivers and Oak Creeks, with their numerous affluents, rise and flow south and east into the Republican and Missouri Rivers, altogether giving this region a very large area of wonderfully rich valley land, the productiveness of which may be inferred from the fact that last year there were eight hundred and seventy-eight car loads of wheat and other farm products shipped from Schuyler over the Union Pacific Railroad. The altitude of this place is about one thousand five hundred feet, and the healthfulness is remarkable. Natural forests are not extensive in Butler county, but there are fifteen or twenty thousand acres of forest trees being successfully cultivated, including black walnut, ash, maple, elm, cottonwood and box-elder. The cottonwood grows most rapidly, often reaching a height of from twenty to thirty feet during the first four years. As fencing material is not yet plentiful in this plains country, a peculiar system of caring for live stock is adopted. *Work* animals and milk cows are "picketed" with ropes long enough for them to secure sufficient grass by changing the picket-pin once or twice a day; but all others are herded, generally by a boy, pony and dog, at a cost of about thirty dollars per month, for a herd of from fifty to five hundred cattle.

By proper planting and cultivating, good osage orange hedge fences may be grown in four years, and the settlers are fencing in this way very rapidly throughout this great plains country, and they unanimously claim that they could make farms here much easier and cheaper even if they had to buy lumber for fencing, than in a timber country where so many stumps and stones are to be removed before cultivating. The wheat harvest is past with a large yield, and grain of good quality. The corn and other crop prospects are very promising, and the people generally are much encouraged.

Land may be bought in Butler county, of the Union Pacific Railroad company, at from two to six dollars per acre, on long credit, giving the purchaser ample time to make the money to pay for the farm from its products. The Lake Shore and Michigan Southern, Chicago, Burlington and Quincy, and Union Pacific railroads, form the best route to this portion of the great Platte Valley, because the shortest, and from Chicago the C. B. & Q. and U. P. make special greatly reduced rates of both fares and freights.—*Examiner.*

For The Lancaster Farmer.

AROUND THE FARM. No. 1.

"What! *You* write for the "Lancaster Farmer?" It takes an abler pen than yours to write for that paper, as it is one of the ablest of my farm journals;" thus remarked the "friend at my elbow." I confess my spirit was considerably dampened at being thus addressed, but when I remembered that the lesss able have sometimes contributed facts and items that benefited others, I was again encouraged to write for our home journal, believing it is the duty of every farmer to give his experience and practical knowledge for the benefit of others. We shall try to give our own views and experiences "Around the farm," from time to time, but if we fail to benefit others, we are at least conscious that we shall do no great harm.

There is a matter to which I wish to call your attention, that is, the proper management of stable floors in summer. I have been experimenting in regard to keeping them sweet and clean, and find the following method excellent: Stables with earth floors are considered best, but soon become foul from neglect. My plan is to have them slope to the rear, so as to carry off all liquid manure, and then clean them at least twice a week, taking a rake and stiff broom to go over, after manure is removed, pushing and sweeping very clean. Have a box containing ashes and dry earth mixed in equal proportions in some convenient place; dust a shovelfull or two over each stall as an absorbent, and drop four or five drops of carbolic acid over that, and you will have no trouble to keep your stable clean. Horses should be turned out at night, if practicable.

Machinery.

Now is the time to clean and put away agricultural implements; overhaul your reapers and mowers to ascertain what parts are worn and need replacing, and put them in repair for next year's haying. People too often neglect this important work till a day or so before haying, when they find they must order from the factory, often losing three or four days, which they can ill afford. Take your machines apart and clean with a sharp piece of steel, scraping all oil, gum, and dirt off cogs and bearings; finish off the bearings with benzine, wipe dry, replace, and your machine will mow 20 per cent. easier.

People make a great mistake in oiling or greasing cog wheels at reapers. Unless cased very tight, the drive wheels will throw dirt on the greased cogs, which sticks, and they will wear faster than if they are not greased at all. I have run a combined reaper and mower for 3 years, without a particle of grease on the cogs, and they are not injured perceptibly.

Tobacco Moths.

Most of our farmers are also tobacco raisers, and I would appeal to every one to try poisoning the flowers of the Jimson weed (*Datura stramonium*) next season. A neighbor of mine has succeeded in killing upwards of 150,000 tobacco worms by this means, and as a consequence, he has one of the cleanest lots he ever raised. Few things are more tedious than hunting tobacco worms, and by this means they can be destroyed in the night.

The following is the best receipe we know of: Take of the best arsenic, dissolve in sweetened water, and drop a few drops into each flower every evening during the warm season, and you will have no trouble with worms. Every moth killed is as good as hunting 300 tobacco worms, as each one lays about that many eggs.

Mr. Walk, the neighbor referred to, had very few worms, while patches but a few hundred yards away were full. So try this method next year, every one, and we will get rid of that troublesome pest—the tobacco worm. Of course, one man or a few men cannot do it, but in union there is strength, and by a combined effort we can do it.—*Ruralist, Cresswell, September* 3, 1877.

DESCRIPTION OF A ROMAN COIN.

Licinius, Senior, A. D. 307-324.

The coin which I have the honor of presenting to the Linnæan Society is an excellent specimen of the Roman *third bronze*. Though not very rare it is exceedingly well preserved; and as the planchet is more nearly circular than is usual in ancient coins, we have the whole legend without the loss of a single letter.

The obverse of the coin bears, as usual, a bust of the reigning monarch, with an inscription (IMPCVRLLICINLICINIVSPFAVG), which I translate, "*The Emperor Galerius Valerius Licinianus Licinius, High Priest, Augustus.*"

The reverse represents Jupiter standing, with an eagle at his side, and in his right hand a figure of Victory, holding a chaplet, with the legend "IOVICONSERVATORI," *i. e.*, "*To Jove the Preserver.*" In the exergue are the letters SMN, *i. e.*, *Sacra Moneta Narbonensis*, which indicates that the piece was struck at the branch mint of the city of Narbonne, in Southern Gaul.

The "image and superscription" is that of a Roman Emperor who reigned from A. D. 307 to 324. His full name was Publius Flavius Galerius Valerius Licinianus Licinius; but he is generally known in history as Licinius, *Senior*. He was by birth a Dacian peasant, and the early friend and companion-in-arms of the Emperor Galerius, who raised him to the rank of Augustus and invested him with the command of the Illyrian Provinces on the 11th of November, A. D. 307. About the same time *Constantine*, afterwards called the Great, assumed the government of Britain, Gaul, and Spain, though the Emperor could be persuaded to give him only the inferior title of *Cæsar*.

A full account of the career of *Licinius* may be found in Gibbon and elsewhere, so that we need not enlarge. It will be remembered that after the death of Galerius an attempt was made to divide the empire between Maximinus and Licinius, by which the Bosphorus was to be the boundary of the two empires. In 313 Maximinus invaded the dominions of Licinius, and was utterly defeated and crushed. In the previous year Constantine, who continued to hold western Europe, had defeated Maxentius, who had seized the imperial power at Rome. It was on this occasion that Constantine is said to have had his celebrated vision of a cross in the heavens with the inscription *ἐν τούτῳ νίκα*, BY THIS CONQUER.

Constantine and Licinius were now the only emperors, and together they issued in March, A. D. 313, the celebrated edict of Milan, which granted to the Christians of the empire full civil and religious rights. Licinius, however, did not really care for the Christians, and when in 315 war broke out between the two emperors he rescinded his former acts, and again deprived them of their political privileges. Licinius was defeated after a severe struggle, and was compelled to purchase peace by ceding to Constantine, Greece, Macedonia and Illyricum. Having married the sister of Constantine, Licinius reigned quietly as emperor of the east for nine years; at the end of that time hostilities were renewed. Having lost the great battles of Adrianople and Chalcedon, Licinius was placed at the mercy of Constantine, who spared his life and sentenced him to honorable imprisonment at Thessalonica; but a few years afterwards found a convenient pretext for putting him to death.

The coin which we have described appears to have been struck about the beginning of the first conflict with Constantine (A. D. 315). The device and inscription on the reverse would seem to indicate a religious reaction, or at least a protest against the movement in the direction of Christianity. It is issued by Licinius in the character of *Pontifex Maximus*, or high priest of the religion of the Roman state; and is dedicated to *Jove the Preserver*, who holds victory in the hollow of his hands. This would seem to indicate that Licinius believed that Jove would preserve the ancient religious order, and grant victory to its faithful champions. The fact that the coin was struck at Narbonne also, proves the fact, that it cannot have been coined at a later date than A. D. 315; because after that date Licinius was emperor of the east, and all western Europe was under the undisputable sway of Constantine.

This little coin may, therefore, be regarded as one of the last products of classical heathenism. With the single brief exception of the reign of Julian the Apostate, Roman coins, from this time forth, bear Christian emblems, strangely intermingled with ancient devices.

When this coin was struck Roman heathenism was rapidly passing away. Men had lost all faith in deities, the creatures of the imagination of poets and artists; and it was therefore little better than a piece of impudence on the part of the government to place a representation of *Jupiter Conservator* on the coin of the empire.

There have been modern writers who, from an aesthetic point of view, have mourned over the downfall of ancient heathenism. Schiller says:

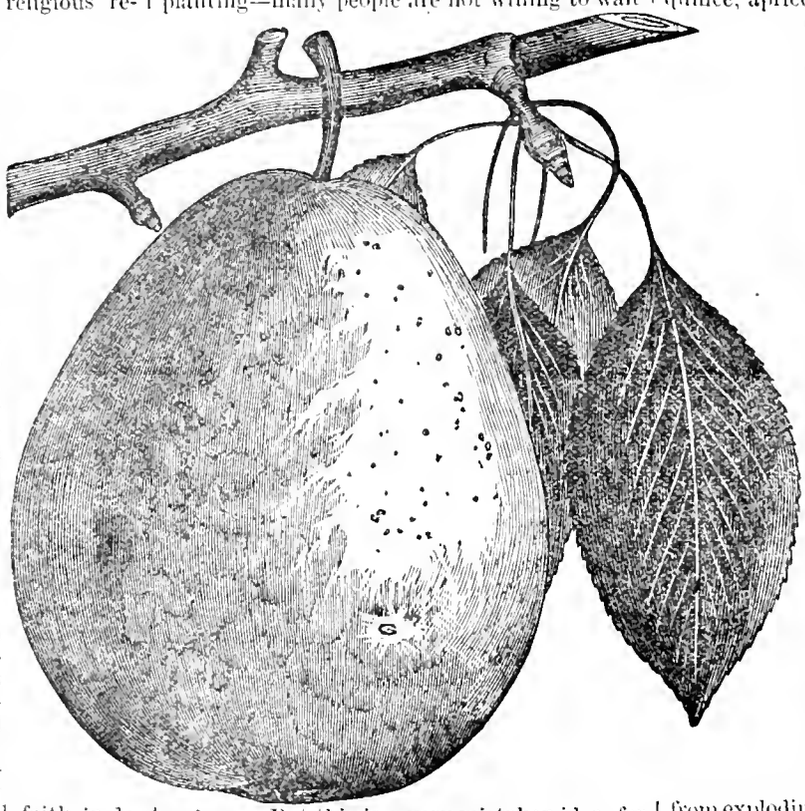
"Einen zu beriehern unter allen
Musste diese Gotterwelt vergehn."

In the heart of a sincere Christian the sight of these relics of antiquity produces no such emotions. It rather strengthens his faith to be assured, that while there is nothing to remind us of *Jupiter Conservator* but an occasional relic of antiquity, the kingdom of his Lord is an everlasting kingdom; that while the name of Jupiter "the king of gods and men" is but "*vox et praeterea nihil*," the name of the Lord Jesus Christ remains in the hearts of his people in undying freshness forever.—*J. H. D., Lancaster, August 27th*, 1877.

IMPORTANT.—In our October or November number we propose to publish a list of premiums for 1878. Our patrons and their friends will therefore, in making their selections, hold in remembrance their own local journal in the distribution of their favors for next year.

THE FLEMISH BEAUTY PEAR.

The subject of our engraving is a most excellent variety of the pear (*Pyrus communis.*) A good pear is an exceedingly rich and luscious fruit, and second to none but the apple in importance. The fruit under consideration is large, the skin a little rough, pale yellow, with marblings and patches of light russet; the sunny side reddish-brown at maturity; flesh yellowish-white; and very fine grain, but juicy, melting, very sweet and rich. Ripens the last of September. The Flemish Beauty is one of the most superb pears in this climate, sometimes measuring twelve inches in circumference. The tree is very luxuriant, and bears early and abundantly. The fruit should be picked before it parts readily from the tree, and allowed to ripen in the house, when it becomes very fine; but if allowed to remain on the tree until dead ripe, it loses its flavor and soon decays. Small trees can be obtained at any first-class nursery.



Pear culture is yet, comparatively speaking, in its infancy in many portions of our country—especially at the west and southwest. This is mainly owing to the prevailing error that it takes a very long time to procure fruit after planting—many people are not willing to wait so long. But this is a very mistaken idea, for good fruit, in moderate quantities, can be obtained from the planting of the pear, as soon as from the apple, or even the peach. Crops have been secured in two or three years.

For THE LANCASTER FARMER.

HUMBUGS, SWINDLES AND FRAUDS, AS PRACTICED ON THE FARMING COMMUNITY.

In looking over the humbug column of the *American Agriculturist*, one is struck with the variety of swindles, &c., perpetrated, and more particularly the number that are especially prepared to catch farmers and others living in the country.

Although all the terms at the head of our article might be included under the single term of cheats, yet the cheating is pretty easily classified as above.

To humbug is to impose on, and is in most cases so simple and transparent as to be easily avoided; and that so many persons are yet the victims, in spite of daily, weekly and other papers, is only to be accounted for on Barnum's opinion that people want to be humbugged.

One of the most popular articles to humbug farmers with are seeds of newly discovered and wonderful grains, &c., or, new varieties of old-established species, which are guaranteed to produce twice or three times as much per acre as any hitherto in cultivation. The seed of surghum (*S. Vulgare*) is the favorite grain and has been advertised under perhaps as many as a dozen different names, such as ivory wheat, Japan wheat, sugar cane that will stand the northern winters (*Iaccharum officinarum*, which is cultivated only in warm countries). It is remarkable that all these wonderful seeds are advertised by persons not in the seed business, whose usual address is at some out-of-the-way post office. It should be borne in mind that our wide-awake seedsmen are very active and enterprising in trying to get hold of any promising new varieties, and that new species and novelties are always given to the public through them.

In some sections tree agents introduce peaches grafted on poplar or willow, cherries on wild cherry, curculio-proof plums, &c. If "nature abhors close union," she also protests most emphatically against anything but the closest relationship, and grafting and budding must be practiced in accordance with this. We have a few instances in which this does not seem to be the case, such as pears on quince, apricot on plum; but these are in all cases species of one genus, that is to say, brothers. As long as curculios are about, stone fruits with smooth, tender skins will be stung by them, and they will not even now-a-days spare the wooly peach.

Many of the readers of the *Farmer* have doubtless seen advertisements of some wonderful chemical compound by which butter could be made out of milk at an expense of but a few cents per pound. How the owner of kine must have felt his heart sink at the idea of the flood of butter that would be thrown on the market until prices would sink so low that it would not even pay for the taking to market; or perhaps his heart was elated and he would take by the horn, not his cow, but the opportunity, invest some of the hoarded "dollar of the fathers" in the "compound," and reap a harvest of golden eagles by selling lots of golden butter before his slower brethren of the dairy knew on which side of the bread the butter was.

Then there are a lot of humbugs that are practiced on town as well as country folks, such as powders to keep coal oil lamps from exploding, powders to put into white-wash lime to keep the flies from alighting on the ceiling and walls of rooms; and scores of others that we have not space to enumerate, but any person that has only a moderate amount of common sense, and uses it, will rarely be caught, though the vender have an "oily tongue and a brazen face."

There is one class of humbugs that should not be omitted, but as long as people know so much better what ails them, and what *may cure* them, so much better than the regular physician would, and besides is so much cheaper, it is useless, and probably a waste of time, paper and ink to mention patent medicines. Persons who have spent time and money to cure incurable diseases have our pity and sympathy.

Swindles, as a species of cheating, are usually on a larger scale than humbugs, and are different from the latter in this, that there are no uncertainties as to being the right thing or not, but are in all cases traps into which the dupe steps unawares, and is awakened as by a clap of thunder.

The most usual form of swindles, practiced by the sharpers, is to appoint the subject on whom the operation is to be performed, as an agent for selling something. The paper mentioned at the beginning of this article has the following:

"As a general rule, it will be safe for farmers to refuse all agencies, as the risk of getting swindled is altogether too great. Traveling agents come along and propose to farmers to take an agency to sell this or that thing. The story is a plausible one; the farmer is to be the only agent in the vicinity—the goods are of a salable kind, and are not to be paid for until sold—while the profits to the farmer, who sees but little ready money, seem so liberal, that the offer is a really tempting one. Still, we say, don't do it. If all were as represented, it would be another thing; but there is quite sure to be a catch somewhere—some "after clap," as old Col. D. used to say—and the chances are so great that a traveling agent of this sort is a swindler, that it is safest to give them all a wide berth. The spring-bed swindle is one of these agency affairs that farmers should look out for. It appears to be mostly carried on in New England. A smooth-tongued chap comes along to establish agencies on behalf of the manufacturer; he finds some one willing to act as agent for the sale of the goods, from whom he gets an obligation to pay for the goods when sold, and an order for the goods to be sent. The beds come, the agent pays freight, and takes them home. In a few days a party, claiming to be the manufacturer, comes along to collect the bill. The agent says that the goods were only to be paid for when sold; but this is laughed at; they never sold goods in that way; no one had authority to make any such terms; there was the agent's order for the goods, and there was the bill, (some $200 or $300,) and if not paid for at once, it would be put in the hands of a lawyer for collection. The pretended manufacturer understands the bluff-game, and too often succeeds in frightening his victim into paying the bill, or in settling the matter by giving him $50 to take away his beds. One of our readers who had accepted the agency, and was called upon and threatened, wrote to us for advice in the case. Our advice was to stick to the agreement and let him sue. We afterwards learned that a lawyer from a neighboring town came to collect the bill; finding that he could not get the amount, he proposed to settle for $75, then for $50, and then for $25, and take the beds back. But our correspondent would pay nothing, and agree to nothing, except take the beds to the depot, which he did, and comes out of the transaction minus the freight he paid when he took them. This shows that in such cases firmness is a good investment.

The above swindle has also been carried on to some extent in this county; but when they got hold of Mr. W., near this place, they got hold of the wrong man. Mr. W. would not only not pay anything, or compromise, but he has actually held the beds for over a year for freight paid, and for expense of hauling to his place, and storage, and threatened to sue the party for attempting swindling and extortion.

Wild-Cat Mining and Coal Oil Companies, Prize Associations, Riverside Library Institutes, Lotteries, &c., are always as plenty as blackberries, and the originators must find it a lucrative business, considering the numbers engaged in it; and looking at the expense incurred in advertising, one must come to the conclusion that more gulls are to be found inland than along any sea shore that has ever existed.

A neat swindle was perpetrated a few years ago on a farmer living near the Susquehanna river, in the following, or nearly a similar manner. One evening a traveling trader, in other words, a peddler called at a farm house; he was better dressed than the general run of these useful folks; this was no doubt to be attributed to the fact that he was not of the vulgar needles and pins sort, for he was a verifable silverware merchant. The farmer's family did not indulge very much in his ware, only a few dollars, I believe, but by this time our merchant was afraid to venture out, as he did not like to expose his valuable stock of knives and spoons to a possible misappropriation by some unauthorized person, and so would the kind woman of the house keep him over night. The request was readily granted by the farmer and his wife. The next morning our roaming dealer in goods, made of precious metal, complained of not feeling well, and was afraid he would have to leave his "case" in the care of the farmer, as he had important business which must be attended to; he found himself short of about forty dollars, of which he would be very thankful to have the loan for a few days until he came back for his "case." Would he be asking too much? Oh, no! the farmer was always ready to help any deserving fellow-creature in trouble. Our silverware dealer and the forty dollars went forth; neither have come back yet. That "case" of "silver ware" is still at the farm house, but the silver used in the manufacture was not much—there was more of it on that fellow's tongue.

Frauds are harder to guard against than either humbugs or swindles, as they generally are deceptive with regard to quality. At the present writing, artificial fertilizers are the staple articles dealt in by the harpies who hope to fatten on the farmer's well earned savings. These men are too respectable to deal in humbugs; too cowardly to risk the fate that sometimes overtakes swindlers, and so they descend to a lower depth by deceiving in articles, the composition of which few men are capable of determining.

We believe that business of all kinds, intended for the public good, should be as unframmeled as possible, but we undoubtedly need a strict license law for dealing in fertilizers. This subject has been agitated in various parts of the State, but I think that in most cases a uniform license has been thought of, whereas the license should be as to the amount sold. To guard against frauds, the dealer, in receiving his license, must be held in bonds that he state on each package the composition, and heavy penalties be provided for not doing so, or for making fraudulent statements.

In a nut shell: To avoid humbugs, use common sense. To keep clear of swindlers, sign nothing. To prevent frauds, deal only with known reliable parties.—*A. B. K.*

For The Lancaster Farmer.

DEW, AND ITS CAUSE.

What we term dew is the "moisture precipitated from the atmosphere on the surface of bodies. It is thus distinguished from fog, which is moisture precipitated within the atmosphere."—*D. Olmstead.* The cause and nature of dew has been a subject of much discussion and experiment since the days of Aristotle, until more successfully investigated by Dr. Wells, in 1814. He seems to have clearly established the fact, "that the cold is the cause of the dew;" I quote, "for he found, 1st, That in certain circumstances bodies would become colder than the air without being dewed, whence it is obvious that the cold could not be the effect of the dew; and, 2nd, That when dew was formed, its quantity and degree of cold that appeared with it, at different times, were very far from being always in the same proportion to each other." He also invariably found that bodies became colder before dew began to appear on them. The formation of dew is therefore a phenomenon precisely of the same kind as the precipitation of moisture which takes place on the outside of a vessel into which a liquid colder than the air is poured.

The different degrees of temperature of the air determines the quantity of water contained, and that the quantity is greater as the temperature is higher. Hence, when a stratum of air comes in contact with colder bodies, a precipitation takes place—thus a second stratum, and so on, with great rapidity—and in a short time a *cooling* body is covered with dew and moisture. The laws of radiation of heat explain the cause why bodies, when exposed to the cloudless sky in clear and calm nights, become colder than the surrounding atmosphere, as explained by Leslie and Rumford. We know that during calm and serene nights, the upper parts of the grass radiate their heat into the regions of space, from which they receive back no heat in return; its lower parts, from the smallness of their conducting power, transmit little of the earth's heat to the upper parts, which at the same time receiving only a small quantity of the atmosphere, and none from any other lateral body, must remain colder than the air, and condense into dew its watery vapors, if this be sufficiently abundant.

On this point Mr. Prevost, of Geneva, (radiation of heat) differs from Sir J. Leslie, who ascribes the effect to the descent of cold air from the upper regions of the atmosphere: "The application of the athrioscope," he remarks, "has not only ascertained the existence, but measured the intensity, of the cold pulses which are at all times darted downwards from the successive strata of air, though often partially intercepted by clouds, or more completely obstructed by low fogs. It may be computed that in fine bright evenings those cold pulses, rained from the sky, are sufficient alone to depress the temperature of the ground, according to the seasons, sometimes eight degrees, but generally about three degrees of Fahrenheit's scale. The blades of grass, thus chilled from exposure, cool in their turn the damp air which touches them, and cause it to drop its moisture. "(Encyclopædia Britannica, art. "Dew.")

My attention was called to this subject by a letter from a graduate of Franklin and Marshall College, Rev. Jas. G. Dengler, pastor at Sellersville, Bucks county. He says: "A question by a number of my young friends here. I felt unable to answer it. It is a question I often asked myself. "It is about the *dew-drop* that gathers on the very points of a spire of grass"—"a sea of pearls," as Goethe calls it—strange that a drop of dew, should, contrary to the law of gravity, gather in that manner. How do you account for it? What law governs it? I cannot account for it satisfactorily on capillary attraction, along the grooves on leaves, as water or oil is drawn up by a wick. Dr. Fretz, a botanist, and one of my members, thinks there is some electrical principal at work in bringing about the result. Would you please give us your opinion; we could find nothing on the subject to explain it.

I mention this because few have given the subject thought, and the question certainly involves more than we think. I find in the old American Cyclopedia seven full pages giving the conflicting experiments of Mr. Du Fay, of Paris, and those of Muschenbroeck, and Dr. L. Stocke: "none fell on *rusty iron*," polished metal scarcely any, if at all, was visible. Dr. Watson, Bishop of Landaff, relates his experiments. Dr. Hales. The oxydation of metals renders them also unfit for the experiment. A dispute of considerable interest took place some years ago between Mr. Du Fay and Mr. Muschenbroeck respecting the origin of dew.

Mr. Dalton sums up:

1st. "That aqueous vapor is an elastic fluid, *sui generis*, diffusible in the atmosphere, but forming no chemical combination with it."

2d. "That temperature alone limits the maximum of vapor in the atmosphere."

3d. "That there exists at all times, and in all places, a quantity of aqueous vapor in the atmosphere, variable according to circumstances."

4th. "That whatever quantity of aqueous vapor may exist in the atmosphere at any time, a certain temperature may be found, below which a portion of that vapor would unavoidably fall, or be deposited, in the form of rain or dew, but above which no such diminution could take place, chemical agency apart. This point may be called the *extreme temperature* of vapor of that density."

5th. "And that whenever any body colder than the extreme temperature of the existing vapor is situated in the atmosphere, dew is deposited upon it, the quantity of which varies as the surface of the body and degree of cold below the extreme temperature."

This extreme temperature or actual temperature of the atmosphere varies all the way to ten, fifteen, twenty or more degrees below it. The point may be found in the hottest months by pouring cold spring water into a dry and clear glass, and marking what degree of cold is sufficient to produce a dew on the outside of the glass; at other times frigorific saline solutions may be used. Independently of the radiations of heat, etc., the action of electricity seems to be in a great measure concerned in the production of molecular attraction to form the phenomena of aqueous beads, like pearls. Yet Mr. Prevost who has bestowed a good deal of attention on this subject, disbelieving the interference of electricity, advances the theory that its formation depends on the action of heat only; and explains his reason thus: 1st. "The less the temperature of glass is elevated the more humidity it attracts from the air." 2. "Metals attract it very little." 3. "Glass sensibly exercises its action on the humidity of the air, at a distance, and notwithstanding the interposition of different bodies, such as plates of metal, &c." 4. "Metals give to glass (as it were) near which they are placed, the property of more speedily attracting caloric from hot air, and on the contrary, that of yielding it more speedily to cold air." My individual opinion is that they lost sight of the oxygen in the aqueous vapor, being absorbed by metals, both annulling the *heat* and *electricity*—and simply setting the hydrogen free; thus the difference is readily accounted for between metals or subjects having a greater affinity for oxygen, and on close inspection of the diversity of results, by adopting this latter view all these seeming contradictions will vanish, is my opinion.

We may now glance at some singular phenomena, besides those that occupied the learned investigators, some of which have a sanitary and others a horticultural relation.

It is recorded in Philosophical Transactions that in the year 1695 there fell in Ireland, and particularly in the provinces of Leinster and Munster, during a great part of the winter and spring, a fatty substance, somewhat like butter, instead of the usual dew, which, from its color and consistency, the natives called *dew-butter*. It fell during the night on the moorish low grounds, and was found in the morning attached to the leaves of grass and to the thatches of houses, &c, in the form of pretty large lumps, and it is added that it seldom fell twice in the same place. It had an offensive smell, like that of a church-yard; yet it lay upon the ground a fortnight before it changed color, after which it dried up and became black; but it never bred worms nor did it prove noxious to the cattle that fed in the fields where it fell. During the same winter some very stinking fogs were observed in the same places where the *dew-butter* fell. During volcanic eruptions (1783) a peculiar clamminess was observed on the leaves of trees, as if a dew of a glutinous nature had been deposited from the atmosphere. This must not be confounded with what is called "Honey-dew," a sweet viscid liquor, found sometimes in great abundance on the hazel, lime, elm, etc., and on fruit trees.

It is found that in some instances the dew is a very compound substance, so that nothing positive of its nature can be stated. In gravel-pits, for instance, and in high, dry, and healthy grounds of a large extent, there is collected but a very small quantity of this vapor, and that almost entirely watery; whilst that which is collected about standing waters, fens, marshes, and fat, bituminous grounds, abounding with petrified fish, and other animals, is of quite a different nature, and very often pernicious to mankind and vegetation. Chemists have found such different results, that scarce any two are agreed about them. Some dew that has been collected in a certain part of the earth, has afforded a liquor, by distillation, which struck the colors of the rainbow upon glass, as not to be effaced by friction, alkaline lixiviums, or aqua-regia; it also burnt like spirit of wine, etc. In short, we find the nature of dew differs surprisingly with the different seasons of the year, and the various successions of meteors; hence spores, animalcules or the invisible eggs, mingled therewith, may cause some of the blights and diseases of vegetables and fruits—often not understood whence or how they arise. But, alas! I must stop—without exhausting the subject.—*J. Stauffer.*

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

A very interesting meeting of the Lancaster County Agricultural and Horticultural Society was held in their rooms in the City Hall on Monday, Sept. 3d.

The following members and visitors were present: Calvin Cooper, Paradise, president; Johnson Miller, Warwick, secretary; Henry M. Engle, Marietta; Levi W. Groff, West Earl; P. S. Reist, Oregon, Manheim township; Levi W. Groff, Manheim; Jacob Bollinger, Warwick; Henry Kurtz, Mount Joy; Levi Pownall, Sadsbury; John C. Linville, Salisbury; M. D. Kendig, Manor; Prof. S. S. Rathvon, city; Robert Dysart, city; A. S. Bard city; I. L. Landis, Manheim; David G. Swartz, city; Casper Hiller, Conestoga; J. H. Landis, Manor; John B. Erb, Strasburg; Joseph F. Witmer, Paradise; Samuel L. Seldomridge, Ephrata; David Bender, West Earl; David W. Ranck, Bird in-Hand; Joseph Rupp, Earl; Joseph L. Witmer, Paradise; Webster L. Hershey, East Hempfield; Samuel Burkholder, Farmersville; John Seldomridge, Ephrata; John B. Reist, Penn; Abraham Summy, Marietta; John Miller, Oregon; John Huber, Warwick; David Wolf, Millway; S. A. Hershey, Salunga; Jacob Herr, Manor; C. L. Hunsecker, Manheim; Henry Erb, Manheim; Eph. S. Hoover, Manheim; Elias Hershey, Paradise.

Crop Reports.

Reports of the condition of the crops being called for, the president stated that hereafter strictures on the reports presented by any member would not be permitted.

Mr. John C. Linville, of Salisbury, reported that the wheat crop was good; corn pretty good; grass not very good; oats a full crop; few peaches; tobacco fair.

H. M. Engle, of Marietta, said the drouth was very great, but he could report wheat quite good; corn not so promising; young clover burning out; the fruit crop dwindling down; grapes pretty good. The rainfall for the month was the smallest for years—being less than one inch.

Henry Kurtz, of Mount Joy, reported the wheat crop at a little more than one-half of an average crop of 25 or 30 bushels; corn will not be a full crop; grass looks pretty well, but the timothy has been prevented from starting by the drouth; tobacco in some places looks very well and in other places very poor.

Casper Hiller, of Conestoga, had no report to make; indeed he did not see any great advantage in making crop reports, unless some remedy can be offered to make a bad crop better.

Henry M. Engle, of Marietta, said the object of these reports is to secure correct data on which to base an estimate of the total crop of the county. He looked upon them as being very valuable.

President Cooper said that where bad crops were reported inquiry would be provoked to ascertain the cause, and the cause, when found, might be removed, or its recurrence provided against.

P. S. Reist, of Oregon, Manheim township, said the weather had been very dry; but the crops were pretty good; corn would yield 60 bushels to the acre—some fields much more—wheat does not thresh out as well as it was supposed it would before harvest; grapes are pretty good, but many of them are dropping off, owing to the drouth; tobacco is not as promising as it was a month ago, but some of it is nevertheless very fine, and a good portion of it has been cut off; peaches are very scarce, but what there are of them are very fine. Mr. Reist took occasion to explain that when he said at the last meeting of the society that from 5,000 to 10,000 mechanics and laborers could find employment in the county, in erecting tobacco sheds and harvesting the crops, he did not mean to invite that number of workmen from abroad, but to say that there was more of that kind of work to be done in the county than that number of workmen could do, and that if the army of tramps with which the county is overrun were honest workmen they might find work. He would not now invite workingmen to come here from other places, and he had so written to several persons from whom he had received letters. He believed there had been more hard work done within the past two weeks in Lancaster county, by the men, women and children, than ever before in the same length of time. The grain being quickly disposed of by the steam threshers, and the ground being too dry to plow, the men had had plenty of time to work on the tobacco sheds.

Jacob Bollinger, of Warwick, reported a full crop of corn; potatoes above an average crop; apples scarce and imperfect; no cloverseed cut; young grass fields look well, but weather very dry.

Martin D. Kendig, of Manor, reported the growing crops withered by the drouth; wheat had yielded from twenty to twenty-five bushels per acre, corn not much over half a crop; potatoes a good crop; tobacco a fair average; fruit very scarce; grapes don't ripen well. The rainfall for the past month was only six-tenths of an inch.

No Horticultural Exhibition.

Levi S. Reist, from the committee appointed to inquire into the expediency of having a society exhibition of fruits and vegetables this fall, reported that the Northern market house company had kindly offered the society the use of their market house for the purpose of the exhibition, but owing to the scarcity and imperfection of most kinds of fruits, and the lateness of the season, the committee deemed it inexpedient to hold an exhibition this season, and so reported. The report was received and agreed to.

Premiums for Best Crops.

Henry M. Engle, from the committee appointed to prepare a list of premiums to be awarded to members of the society growing the best crops, presented the following schedule of premiums:

For the largest crop of corn on not less than one acre, first premium, $5; second largest crop, second premium, $4; third largest, third premium, $3.

For largest crop of potatoes, not less than half an acre, first premium, $4; second premium, $3; third premium, $2.

For the best essay on the culture of wheat, $3; second best, $2; third best, $1.

For best small fruits, $3; second best, $2; third best, $1.

The conferring of the above awards to be discretionary with the judges appointed to examine the exhibits.

Mr. Hiller asked whether the proposed premiums would be awarded for crops grown this year.

Mr. Engle answered that it was now of course too late to award premiums for small fruits and wheat, for these had been gathered, but it was early enough for corn and potatoes.

Joseph L. Witmer, of Paradise, suggested that a diploma from the society or a subscription to some good agricultural journal would be more suitable and more highly prized than a money premium. The Oxford society has adopted the system of awarding newspaper subscriptions instead of money premiums.

Henry Kurtz moved to amend the report of the committee by awarding diplomas instead of money premiums.

Mr. Engle said if diplomas were given the society would have to have one engraved, and this would take time and money; while a newspaper prize would cost as much as the money proposed to be awarded.

The amendment was withdrawn and the report of the committee adopted.

Oleomargarine.

A proposed act of Legislature regulating the manufacture and sale of oleomargarine (bull fat butter) was read by the secretary. It provides that each package of the manufacturer shall be plainly marked "oleomargarine," and fixes a penalty of $100 for offering it for sale as dairy butter.

John C. Linville moved that the proposed act be approved by the society.

Peter S. Reist favored the passage of the act, but thought the penalty excessive. A person might be imposed on and sell a few pounds of it without knowing it.

President Cooper explained that the act provided no penalty against any one except such as "knowingly" sold the oleomargarine as butter. It is an act to protect our dairies and the people who use dairy butter. It does not propose to prevent the manufacture of oleomargarine, but only that it shall be sold for what it really is. Let it stand on its own merits, and let those who like it buy it. As for himself, he wants none of it.

A vote was taken and the act was almost unanimously approved.

An Act to Regulate the Manufacture and Sale of Fertilizers.

This act, which had been previously discussed and postponed, came up for further consideration. [Both it and the act relating to oleomargarine have heretofore been published in the *Farmer*.]

Mr. Linville moved its adoption.

Mr. I. L. Landis thought there were some provisions in the proposed act which had better be omitted. It requires that the ingredients used in the manufacture of fertilizers shall be made public. Many of these fertilizers are patented and the patentees cannot be compelled to make known the ingredients of the article manufactured by them. To do so would be to render their patent valueless.

Casper Hiller said the subject of artificial fertilizers was one of vast importance to our farmers, who were pushing farming to its highest state by the use of fertilizers. High farming will cause the land to deteriorate and become poor, unless we can fall

back on some good fertilizer to supply the soil with the ingredients taken from it in cropping. For some years past very inferior fertilizers have been thrown upon the market. Two years ago Mr. Hiller had purchased two tons of superphosphate at a high price, and he could not see where he had placed it. Since that time he has bought some that showed excellent results. It is necessary, therefore, for the protection of the farmer, as well as the honest manufacturer, that the analysis of the fertilizer should be known. He favored the passage of the bill.

Mr. Linville said that a law similar to the one now being considered had been passed by the Georgia Legislature some years ago, and since its passage the fertilizers offered in that State are 20 per cent. better than they were before. The law does not prohibit the manufacture of any kind of fertilizer but compels the manufacturer to furnish an analysis of its constituents.

Levi W. Groff thought it would not be long before every farmer in the county would manufacture his own phosphates, then no such law as the one proposed will be necessary; you can go to Steinman's, purchase the necessary articles and make your own.

President Cooper said the passage of the proposed act would not prevent any one from doing so.

J. H. Landis, of Manor, said that South Carolina rock could be sold in Wilmington for $8 per ton, and can be sold in Chester and Lancaster counties for less than $16. He thought the operations of the law should not be restricted to those kind of fertilizers which sold at $20 or more per ton.

Secretary Miller explained that the law said "less" than $20 per ton, not "more."

Mr. Landis withdrew his objection and the act was approved; but having again read the bill, and discovered that his objection was well founded, he moved a reconsideration of the vote, by which it was approved, and it was accordingly reconsidered.

Mr. Landis then asked for information why samples of artificial feltilizers selling for less than $20 per ton were exempt from analysis and inspection.

Mr. Linville said that where fertilizers were offered at such low figures farmers would know that they were not good and could look out for themselves. When the prices were higher the temptation to fraud would be greater.

Mr. Landis contended that if a $20 article should be inspected, so should a $19 article. He moved to strike out the figures "$20" in the last line of the proviso.

Mr. Hiller said it was well known to all that a concentrated fertilizer could not be made for less than $40, $50 or $60, and therefore cannot be sold for $20. To have inserted all kinds of fertilizers in the bill would perhaps necessitate an inspection of lime, plaster and other manures.

Mr. Landis then moved to strike out the entire proviso.

Mr. Witmer approved striking out the proviso.

P. S. Reist said he thought there was a good deal of humbugging in these artificial fertilizers, and read a paper by a tobacco expert to show that much of the imperfection in the quality of tobacco leaf was caused by using them instead of barnyard manure. He moved that the further consideration of the subject be postponed until next meeting.

Mr. Engle opposed further postponement. It had already been postponed for one month, and members are as well qualified to vote now as they will be in a month hence.

Mr. Reist said that Prof. Calder, of the Pennsylvania Agricultural College, hooted at the analyzation of fertilizers.

Jacob Bollinger did not use any artificial fertilizers, nor did any of his neighbors. He thought every farm should produce enough manure to keep it up. As only those who use the fertilizers would have to pay for them, he thought it would be as well to pass the act.

A vote was then taken on postponing its further consideration and lost—yeas, 10; nays, 12.

A vote was then taken on the rejection of the proviso—yeas, 3; nays not counted.

The act was then adopted without division.

Committee to Test Fruits.

The president appointed Casper Hiller, John H. Landis and John C. Linville a committee to examine the very fine fruits on exhibition before the society.

Prof. S. S. Rathvon moved that the librarian be instructed to purchase a dozen more chairs for the use of members. Carried.

Mr. Engle read a communication he had received from the officers of the York County Agricultural Society, requesting the Lancaster society to appoint four judges to assist in making the awards at the coming York county fair, and to send the names and postoffice addresses of the appointees to the secretary at York.

Mr. Engle moved that the request of the York county society be complied with, and that the president appoint the judges and shall be a member thereof. The motion was agreed to, and the president named them as follows: Henry M. Engle, Marietta; Johnson Miller, Lititz; Ephraim S. Hoover, Manheim; Calvin Cooper, Paradise.

Testimonial to Prof. Rathvon.

Mr. M. D. Kendig stepped up in front of Prof. S. S. Rathvon, who was seated near the president, and spoke as follows:

Professor: Permit me, on behalf of the members of the Lancaster County Agricultural and Horticultural Society, in recognition of your valuable and self-sacrificing labors in said society, towards promoting its welfare and success, and the great pleasure with which your efforts were exercised in its behalf; therefore, as a slight testimonial of our appreciation of your kind recognitions of our wants, and the philosophical explanations you have given us from time to time on the various subjects which have come before us, we present you with this cane, and desire you to accept it with our best wishes. May you lean upon it for support in your declining years, as this society has ever leaned upon you, and when your life's labors are finished here, may you have a beautiful entrance into that world of blessedness, where all is peace and rest.

The cane is of ebony, with a heavy and beautifully chased gold head containing the following inscription: "Presented to S. S. Rathvon by the Agricultural and Horticultural society of Lancaster county, Pa., Sept. 3d, 1877." It was gotten up by H. L. Zahm & Co., on the order of a number of Prof. Rathvon's friends, members of the society.

The Professor's Reply.

Prof. Rathvon was much affected, and his surprise was so complete that it was some moments before he found utterance. He said he was at no time a fluent off-hand speaker, and that now he was so astonished and overwhelmed at the receipt of the testimonial, and the complimentary manner in which it had been presented, that he could not coin words with which to express the emotions of his heart. From his heart he thanked the givers, but feared the honor done him was but poorly deserved. He had done nothing for the society but what he had done from a sense of duty. His efforts had been only a labor of love, and he was not sure that a man who did only that which he loved to do was entitled to as much credit as he who acts contrary to his inclinations in doing a good work. He accepted the cane in the same spirit in which it was bestowed, and would lean upon it for support in his declining years, and hope for an entrance into the better life when this shall have ended.

Social Intercourse and Testing of Fruit.

A recess was then taken to examine and test the fruits on exhibition, and after this had gone on for some time John B. Erb moved that all the fruit not wanted by the exhibitors be donated to the newspaper reporters. There was laughter and applause among the members, while broad grins distended the reporters' mouths from ear to ear.

The Codling Moth.

Prof. Rathvon presented specimens of the codling which he had hatched out and developed from eggs deposited in apricots presented by J. M. Johnston. He said he had raised the codling moth from the apple, pear, peach, quince, nectarine and apricot, and these experiments exploded the theory that the codling moth attacks only pip fruits.

Fruit Report.

The committee appointed to examine and test fruits presented the following report:

The committee to examine and report on the large array of apples, pears and grapes brought by some of the members, submitted the following:

Henry M. Engle made a splendid display of grapes, consisting of the following varieties: Jessic, Delaware, Massasoit, Telegraph, Wilder, Lindley, Iowa, Paxton, Rogers No. 19, Creveling, Lady, Salem, Rogers No. 33, Croton, Adirondack, Agawam, Antachon, Ives, Clinton, Canada, Martha, Concord, Maxatawney, Cornucopia. The grape Jessie is especially good and is worthy of trial.

John Huber exhibited a bunch of Lady, a new white grape, very good and very promising.

Calvin Cooper also exhibited a very fine lot of grapes: Northern Muscadine, Merrimac, Massasoit, Concord, Catawba, Hartford, Prolific, Herbert, Telegraph, Wilder, Martha, Agawam, two other varieties of Rogers.

Levi S. Reist exhibited ten varieties of pears: Onondago, Belle Lucretia, Bartlett, Howell, Flemish Beauty, McLaughlin, Buffum, Seckel, Lawrence, Schaum. Peaches: Morris White, Early Crawford. Apples: Shoonhauer, Hubbardston Nonsuch, Applebutter, and a sweet for name.

Samuel Binkley exhibited extra fine specimens of Concord and Martha.

C. Hiller—Bonni St. Ghistain pear, pronounced very good.

H. M. Engle, Pears—Bartlett, Seckel, Howell, Duchess de Bonne, Des Nonnes, Flemish Beauty.

B. Frank Taylor, of Chester county, sends a fine bunch of hulless oats.

Casper Hiller,
J. C. Linville,
John H. Landis.

Mr. Engle thought this society should be represented in the annual meeting of the American Pomological society, which meets in Baltimore, on the 12th, 13th and 14th inst., and the Maryland Horticultural society, which meets at the same time and place.

Levi S. Reist moved that a committee of three be appointed by the chair to attend said meetings. Agreed to, and M. D. Kendig, Levi S. Reist and H. M. Engle were appointed. Messrs. Engle and Reist were also appointed last January to represent the Pennsylvania Fruit Growers' Society at the same meeting.

Business for next Meeting.

The committee on business reported the following questions for discussion at next meeting:

What grade of horses are best adapted for farm use?

Does it pay to fatten stock when we get no more than market price for the grain fed? Adjourned.

TOBACCO GROWERS' ASSOCIATION.

A stated meeting of the Lancaster County Tobacco Growers' Association was held in their rooms in the city hall, on Monday afternoon, August 20. The following named members and visitors were present:

M. D. Kendig, president, Manor; W. L. Hershey, secretary, East Hempfield; Henry Mayer, East Hempfield; Adam Bear, Lancaster twp.; P. S. Reist, Oregon, Manheim twp.; I. L. Landis, Manheim; Henry Kurtz, Mount Joy; Jacob F. Frantz, Manor; Henry Shiffner, Leacock; Sylvester Kennedy, Salisbury; John M. Stehman, Manheim; Aldus Gross, East Hempfield; Ephraim Hoover, East Hempfield; Levi S. Reist, Manheim; Prof. S. S. Rathvon, city; Silas K. Eshleman, Leaman Place; Wm. D. Hoar, Salisbury; J. M. Johnston, city; Andrew Lane, city; B. Ritter, Litiz; Levi Gross, East Hempfield; Wm. McComsey, city; Frank R. Diffenderfer, city; Clare Carpenter, city; H. B. Harnish, Conestoga; Mr. Long, and a few others.

The minutes of last meeting were read and adopted.

Crop Reports.

The condition of the tobacco crop throughout the county being called for, Israel L. Landis, of Manheim, reported that in his section it was very good—a considerable portion of it had been already cut and housed and was equal to any grown for some years. A number of new tobacco sheds are being erected, and there are other evidences of a growing interest in the cultivation of the weed. Not much old tobacco remains in the hands of the growers, though he (Mr. Landis) and a few others have a few cases on hand.

Henry Kurtz, of Mount Joy, reported some very good tobacco in his neighborhood, some not so good, and some very poor indeed.

Silas K. Eshleman, of Leaman Place, said that owing to the late dry weather a good deal of the tobacco has a stunted appearance, though there are some patches that are very fine. The tobacco worm has not been troublesome this season.

Henry Shiffner, of Leacock, reported some of the tobacco very fine, especially that which was planted early. Some of the later planted was not so good. In Paradise, Lower Leacock and other neighboring places there will not be more than two-thirds of a crop. He thought his own crop might be rated as "thribble A." He had not been troubled with the tobacco worm, and had secured a large and fine crop by low topping, which he regarded as essential to the growth of first-class tobacco. By careful cultivation and low topping he had raised excellent crops for six years in succession on the same land. He set his plants 26 inches apart in rows 29 inches apart.

Sylvester Kennedy, of Salisbury, reported the crop doing well—better than any one expected earlier in the season. The acreage is from 50 to 100 per cent. greater than it was last year. The early planted is better than that which was set out later; it escaped the ravages of the worm, which did not appear in any considerable number until a week or two ago. Some farmers have already cut their tobacco and others have one-half or one-quarter cut off. The "stink-bug" and the dry weather have done more harm to the worm. A number of new tobacco houses have been built, and should the present crop prove to be a profitable one, almost all the farmers in Salisbury will engage in its cultivation next year. His plan of killing the tobacco moth was to put sweetened water in the jimson blossoms, and strike down the moth with paddles when they come to feed. Some of the late tobacco is yet very small, but with a favorable season it has yet a chance to turn out well.

Jacob F. Frantz asked Mr. Kennedy whether the moth did not fly more during moonlight nights than dark nights.

Mr. Kennedy thought not; he had frequently killed them in the evening before dark, and after dark when there was no moon and it was raining.

Harry Mayer, of East Hempfield, reported some very good crops of tobacco in his neighborhood and none that are very poor. As to quality he did not think it would prove as good as last year's crop. The plants grew too rapidly in the spring and then

the dry spell of weather which followed had injured the leaf and he feared it would not cure so well as is desirable. His own crop and some of his neighbors' had been much injured by the late hail storm, especially that which had been topped. That which had not been topped was improved by removing the riddled leaves, (most of which were on one side only of the plant,) and thus throwing additional strength into the uninjured ones. The crop generally looks promising, but wants rain. Many farmers have commenced cutting. Worms have not been troublesome.

J. F. FRANTZ, of Manor, concurred generally with what Mr. Mayer had said—the crop in Manor being in about the same condition as that of Hempfield, except that it had not been injured by hail. The bulk of the tobacco is larger than last year's crop, and the crop equally as good. Much of it has been already cut.

PETER S. REIST reported an increased acreage and a good crop as to quantity; did not know enough about it to report its quality. In some sections it is of immense growth and some of it is very backward, but healthy looking. With favorable weather there will be a very large crop. There are a number of new sheds going up in his neighborhood, and more would be built were it not for the scarcity of lumber and carpenters. On this account some farmers are cleaning out their barns and preparing them for the storage of tobacco. He thinks that from five to ten thousand people might be profitably employed in putting up sheds and doing other work necessary to secure the present crop.

HENRY SHIFFNER, of Leacock, thought the quality of the growing crop very good—especially that which was planted early; believes it will cure better than last year's crop.

HENRY KURTZ, of Mount Joy, hoped this might prove true, but feared it would not. The tobacco looks too much like that of 1872. He has noticed a great many patches with small, sickly looking leaves that stand straight up as though they were looking for rain. This tobacco will not be likely to sweat well. He believes tobacco cut off in August will not cure as well as that cut in September. He would like to hear from the southern section of the county.

J. M. JOHNSTON, city, said in reply, that he had seen Squire Housekeeper, of Chestnut Level, who told him the crop in that vicinity would be very good. He had himself paid a visit to the southern end of the county two or three weeks ago, and at that time the tobacco was growing finely. Although there is not so much attention given to tobacco in that as in some other sections of the county, the acreage has been considerably increased, and an increased crop is expected.

PRESIDENT KENDIG, of Manor, reported a good, fair growth of the leaf, but feared it would not cure so well; it seemed to be dry and stunted and wants a good soaking rain to bring it out; otherwise it will not be of first quality. There are some very fine patches; not ten per cent. of the crop has been yet cut. Worms have been scarce.

JOHN BRADY, of Millersville, said his son had cut an acre, and it seemed to be curing very well. He favored low topping. Three or four good leaves to a stalk are worth a dozen little ones.

ALDUS GROSS, of East Hempfield, reported a good deal of the leaf stunted by dryness. If cut now it will not cure well, and even if it gets a good rain, it is now too late to help it much.

LEVI S. REIST, of Manheim, said there had been rain enough until the first of August, and the early planted tobacco is as good as any he ever before saw. A rain now will help the late plowed.

Referred Questions.

"How soon after stripping could and should tobacco be cased?" a question which had been at last meeting referred to Henry Kurtz, was answered by that gentleman, who said that the proper time to pack tobacco is three or four weeks after it has been stripped and ranked. It must be ranked with the buts outwards and the leaves well lapped over. He had packed tobacco with favorable results after its first sweating, and had been told by old packers that they had cased tobacco when it was so wet that the water ran out of it and it turned out to be the best.

JOHN BRADY, of Millersville, said when tobacco is fit to strip it is fit to case. Let it cure well on the scaffold and case it at once.

MR. KENNEDY, of Salisbury, knew that tobacco could be packed more easily immediately after it was stripped than if it was ranked and subsequently packed; but he was not sure that it was the way to secure the best tobacco.

JACOB F. FRANTZ thought this subject should be well considered. We should not talk about what will be the result if the tobacco is stripped before it is fit to strip. We should assume that no intelligent grower will strip it until it is fit, and then we should endeavor to find out how soon it should be packed. His own opinion is that if stripped at the right time it may be packed at once. It should not be stripped when the but or ribs are green, as every sensible farmer knows.

MR. KURTZ insisted that three or four weeks should elapse between the stripping and casing, and Mr. Brady was equally certain that it should be cased at once, and so warmly did they advocate their respective plans that they were ready to wager money on the result.

HENRY SHIFFNER, of Leacock, said if tobacco was not fit to case it was not fit to strip, and it certainly was not fit to strip so long as the ribs remained green.

PRESIDENT KENDIG thought we were drifting away from our real business—the growing of tobacco—and entering a field that is already occupied. There are plenty of expert packers to take the business of packing off our hands as soon as the crop has been properly prepared for them.

MR. SHIFFNER also thought the present discussion premature. There is a belief entertained by many that this society intends to establish a commission house to which farmers will be expected to bring their tobacco, and sell it for what it will fetch. Some dealers also think the society intends interfering with their business. The prevalence of these beliefs is the reason the meetings of the society are not more largely attended. We should confine ourselves to the growing of tobacco, and acquainting ourselves with the best methods. When we get eight or ten miles away from Lancaster we find very little tobacco that is grown or handled as well as it should be.

P. S. REIST, of Manheim, favored the adoption of a resolution to the effect that the object of the society is to grow tobacco and prepare it for the use of buyers.

MR. KURTZ predicted that in a few years every tobacco farmer in the county would case his own tobacco, whether this society approves it or not.

I. L. LANDIS thought the subject a very proper one for discussion. Farmers should know how and when to pack their own tobacco. They cannot always sell when they would like to, and their own interest requires that they should know what to do with their tobacco when they cannot sell it. That the subject may be thoroughly discussed, as it is now growing late, he moved that its further consideration be postponed until next meeting. Agreed to.

Management of Tobacco Sheds.

In answer to a question as to how tobacco sheds should be managed after the tobacco has been hung up, in order to cure tobacco in the best manner, Jacob F. Frantz said in order to answer the question intelligently it would be necessary to presume that all tobacco sheds were built alike, and this was not the case. He would say that it was of primary importance to have effective ventilation and light. To cure tobacco properly the shed must be so arranged that light may be readily admitted or excluded. He recommended the horizontal ventilators as far preferable to the perpendicular ones. The shed should be built close and tight, so that ventilation and light may be regulated at will. As soon as the tobacco has been partially cured the shed should be closed in daytime and opened at night, so that dampness may be diffused through the whole mass. If there be a long spell of murky weather the shed should also be closed at night. It is a settled principle that tobacco, hay and grain must go through a sweating process before they are fit for use.

EPHRAIM HOOVER, of East Hempfield, said in regard to the relative merit of horizontal or perpendicular shutters he would not express an opinion; but he knew of one man who built a shed with perpendicular shutters and used it for some time. The shed was blown down and he rebuilt it with horizontal shutters and found that he did not like them as well as the old kind. This summer he built another shed with perpendicular shutters, saying they were cheaper and better than the others. The water that gets into the crevices soon dries off, while it lies upon the horizontal shutter and is often blown in upon the tobacco. Several other farmers have told him they prefer the perpendicular shutter, although they are more troublesome to open and close. Mr. Hoover's own shed had upright shutters and he found them to answer very well. He though a tobacco shed should be built with a view of using it for the storage of grain as well as tobacco.

A Plea for the Birds.

MR. SILAS K. ESHLEMAN, of Leaman Place, read a long and interesting essay, in which he took the ground that birds—and especially partridges—were the farmer's best friends; but as the law has made the partridge a "game bird," farmers as well as others join in their destruction. He deplored the cruel "sport" as it is called, and hoped the law would soon be amended so as to give all insectivorous birds the protection they are entitled to. If there were more birds there would be less insects to destroy the crops. Since the senseless destruction of prairie hens, pheasants, quail, &c., by Western sportsmen, the crops in the West have been devastated by grasshoppers. It may not be generally known that a brace of partridges will destroy a whole colony of ants that are so destructive to corn, cucumbers and other vegetables. There are no doubt other birds that feed upon the tobacco worm and would assist the farmer in ridding his fields of this pest if they were protected and permitted to live. He hoped the cruel "sport" of murdering the innocent birds would soon be abandoned.

A vote of thanks was given to Mr. Eshleman for his able essay.

Hanging up Tobacco.

"What is the best method of hanging up tobacco to cure it best?"—a question which had at last meeting been referred to Harry Mayer, of East Hempfield—was answered by that gentleman. To illustrate his plan, he exhibited before the society a pretty little model of the trestle and lathe he uses in hanging up his tobacco. The trestle is over five feet in height, and long enough to hold a lath four feet in length, one and a-half inches in width, and three-quarters of an inch thick. In this lath six sixpenny nails are driven obliquely (three on each side) eight inches apart. The oblique direction is given to the nail so that its point, when the lath is hung up, may be a little higher than its head, and thus form a sort of hook on which the tobacco can be hung. To give uniform direction to the nails, the lath, before they are driven, is placed upon a graduated piece of hard wood in which beveled slots have been cut to turn the point of the nail in the desired direction. The lath having been thus prepared to receive the tobacco is placed in the trestle, which is also furnished with slots to receive it. The cut tobacco is hauled to the trestle on wheelbarrows, and the butt ends of the stalks forced upon the points of the nails, and the lath of tobacco hung in its place in the shed. Mr. Mayer says that by this plan he can hang up tobacco nearly twice as fast as by any other method. He has entirely discarded the patent tobacco hook in general use. When the tobacco is ready for stripping the trestle is taken to the cellar under the shed. The lath containing the tobacco is placed in the trestle and the leaves are stripped while it hangs there. All damage to the leaves is thus avoided, and Mr. Mayer is enabled to sell as "seconds" a great deal of tobacco that would otherwise be counted as fillers. The little model was much admired, and several members expressed a determination to adopt Mr. Mayer's plan.

On motion of Mr. Landis the president and secretary were appointed a committee to confer with the officers of the Agricultural and Horticultural Society as to the expediency of having tobacco exhibited at the proposed horticultural exhibition in the Northern market house next month.

The following question was referred to Peter S. Reist to be answered at next meeting:

"What method of preparation of soil is best adapted to promote the prospects of a good crop of tobacco, having reference to kind of fertilizers and time and quantity of application?"

On motion adjourned.

THE LINNÆAN SOCIETY.

The Linnæan Society held their stated meeting on Saturday, August 25th, 1877. Seven members present, the President, Rev. I. S. Stahr, in the chair. After the preliminary business had been attended to, the donations to the museum were examined, and found to consist of nine small jars and bottles, containing sundry mammals (upland mice), reptiles, arachnoides or spiders, mfriopods and sundry insects, snails and eggs of lepidoptera, the fruit of a day's hunt by Prof. S. S. Rathvon, in Sadsbury township, near Christiana, Lancaster county, while on a visit to Mr. Levi Pownall, on the 17th ult.

A very minute egg, fully formed, taken out of the yolk of a common barn fowl egg, sent per Col. Joel Lightner.

Prof. T. R. Baker, Millersville, brought a small fish, which he informed us, however small, is wholly rejected for bait by fishermen. Without special inspection, it was pronounced an exoglosson, originally so named by Mr. Haldeman, a fish quite abundant in all the tributaries of the Susquehanna, and as yet not known in other waters and easily known by its peculiar under lip or mouth; a sluggish fish, but ready to take the hook, and never deemed worth having, even if fully grown.

Beetles in wheat, per Prof. Baker.

Bottle of beetles, per J. Stauffer, one a fine large specimen of that beautiful beetle, the Calisima Scrutator.

A large sexton, or burying beetle, Necrophris grandis, per Mrs. Gibbons.

A spinous leaf of the agave, by Mr. Zimmerman.

Dr. Baker submitted sundry plants for names—four species of verbena, one of which seemed new; a thistle, closely resembling the Canada thistle; the singular long-leafed elgrass valisnaria, found growing in the Conestoga, near Rockville.

W. P. Bolton sent a letter (with a specimen of a very remarkable growth of the joe pie, Eupatorium purpureum) to, and it was read by Mr. Stauffer.

Additions to the library: Charles V.; Riley's book on "The Locust Plague of the Rocky Mountains," illustrated; the LANCASTER FARMER for August; two copies of the *Naturalist's Monthly Bulletin*, per A. Foot, M. D., Philadelphia.

Papers read—No. 570. J. Stauffer read an illustrated paper on the abnormal growth of the Eupatorium purpureum, found by Mr. W. P. Bolton near the mouth of the Fishing creek, in Drumore township, this county. This common plant in low grounds, growing from 2 to 12 feet high, on a simple stem, with the leaves in whorls of 5 or 6 at a joint, the dense corymb of flowers terminating the stem, as also those growing from the axillary of the upper leaves.

The flowers are similar to those of the thoroughwort or boneset, only of a purplish cast in the involucral heads. But in this plant, which must have been over six feet in height, the smooth stem has the epidermis striated, or stiped, with slightly purplish bands, somewhat spirally arranged in regular order. This epidermis forms a raised welt or seam longitudinally along the entire stem on one side, almost in a straight or vertical line, and from this welt or ridge every leaf and axillary and terminal branch of the entire plant springs, so that the whole stem, from top to bottom, is perfectly free of leaf or bud, except on this line, one above the other, apparently somewhat grouped so as to indicate the ordinary intermode between the whorls or leaves. The science of "Phyllotaxis," or the arrangement of the leaves, hardly accounts for this vertical arrangement, however elaborately investigated by Dr. Gray and other writers. Leaves are usually alternate, opposite or verticillate. These are normal modes and accounted for on the ground that the nodes are in cycles, two, three or more ranked, also oblique series or secondary spirals are accounted for. Prof. J. S. Stahr suggested that the stipes on the stem might indicate an untwisting of the ordinary spiral elongation, so as to bring all the nodes in a vertical row as we find them; but is the fact accounted for by such a supposition? The raised welt is suggestive of an injury in its earliest development, sufficient to twist the molecules that give rise to the leaf nodes, while the stem was tender and succulent and emerging perhaps from between stones, causing the embryotic leaf matter to be pressed to one side, and thus carried up and developed successively in this one sided manner. All growth is governed by laws, but counteracting laws also exist, and hence comes a disturbance to normal law, and abnormal results arise. Whether we can determine exactly how or not—the matter is curious and of interest.

S. S. Rathvon read a descriptive paper (No. 571) on the collection deposited by him, stating interesting particulars respecting the upland mouse (Arvicola pinetorum). The red salamander and "Amblystoma punctatum." The "Spirobolus marginatus," Arachnoida coleoptera and larvæ—grape vine insects—and about the "Agave Americana," raised by Mr. Zimmerman from a seed sent him by Mr. Frank Diffenderfer in 1859, from El Paso, in New Mexico, called Century plant, and American aloe, which is found to flower at the age of 10 or 15 years, instead of 100, as the name implies, as this plant has proved, having bloomed, though raised from seed as stated.

A bill presented for cleaning rooms, &c., $1.90, was ordered to be paid.

On motion of S. M. Sener, a committee of three was appointed to consider the expedience of having a semi-monthly meeting, on some evening, in addition to the regular meeting. The chair appointed S. M. Sener, S. S. Rathvon and J. Stauffer said committee.

On motion, adjourned.

AGRICULTURAL.

Working Land on Shares.

Working land on shares seems to be a poor business for both parties. It is to the interest of the tenant to spend as little for extra labor as possible, because the owner of the land gets half the benefit, without bearing any of the expense. When the country was new and the land rich, a man could, perhaps, afford to give half the products, as he could get fair crops with little labor; but now that the land is more or less run down, and it is necessary to build it up with manure and good culture, it is impossible for a man to expend the necessary labor and give half the produce for rent. It may be done for a year or two on land in high condition; but the farm must inevitably deteriorate under the system. A man might afford to rent a grass farm on shares, but not an arable farm. It is difficult to take one of our ordinary run-down farms and raise enough from it, for the first few years, to pay the cost of labor and support the teams. It would be cheaper, so far as immediate profit is concerned, to pay one hundred dollars an acre for a farm in high condition, with good buildings and fences, than to accept as a gift one of these run-down farms. It is time this matter was understood, so that those uneasy mortals who are always expecting to sell, and consequently make no efforts to keep up and improve the land, should be compelled to turn over a new leaf, or else dispose of their farms at a low figure.—*Ohio Farmer.*

Compost.

Are not many of our farmers mistaken in their ideas of the value of compost manure? Is it not often the case that they rate the increased value of the manure by the number of cart loads of earth which they have added to it? We must not forget that the earth adds very little manurial value to the pile, and in reality does little but induce a much quicker and more rapid action by shortening and dividing the manure and producing a more rapid and much earlier decay. It is only a question of the rapidity and duration of action. If quick and rapid action is needed for a short time, then composting is the plan, and the only question in doubt will be whether this kind of action will repay the increased expense of composting. If from the nature of the case a gradual and prolonged action is needed then composting is not the proper plan. Through all we must bear in mind that but little is added by this plan, and that for this gain *alone* it will not repay the expense. A similar mistake is often made in valuing barnyard manure for the large amount of straw which may have been passed through the stables and into the yard. If enough straw or fodder has been supplied to absorb all liquids and prevent their waste, but little is gained in value by a further addition, and in the after-handling the extra amount of long straw may prove an actual loss, and in many cases it would be more economical to apply it directly to the land. We must not mistake bulk for value.

Killing Canada Thistles.

I had on my farm a four-acre field covered with Canada thistles. I say "had," because I am convinced that the present season's treatment has made it too hot for them and I shall see no more of them. The land was strong—"it takes good land to raise good thistles." One-half the field was seeded, immediately after plowing and a thorough working with a two-horse cultivator, with soiling corn. This was put in drills, 30 inches apart, with a large one-horse seed drill—about 3½ bushels per acre. By the frequent use of the cultivator the space between the rows was kept clean, and directly in the row the few that have stuck up their heads look very yellow and sickly, being shaded by the dense growth of corn. The remainder of the field was seeded heavily with Hungarian grass. Timely showers have made the season favorable for this crop and it has grown rapidly, smothering the disagreeable former occupants of the soil. I do not consider this so successful a mode of treatment as the former, because Hungarian grows so slowly on the start and the thistles had an opportunity to gain a foothold. The crop is nearly ready to harvest. Here and there, in looking over the field, a thistle is seen, but a stranger would never mistrust how foul the field was seventy days ago. At any rate what few there are will be cut before they mature seed.—*P., Litchfield county, Con.*

Sugar Corn vs. Hungarian Grass.

The *Scientific Farmer*, Boston, has a good word for Hungarian grass, saying: "We recommend a bushel of seed to the acre, on rich ground. On poorer ground the quantity may be increased. Yet fertile land is desirable for this crop, as well as others, and a dressing of dung or fertilizer will be apt to bring its reward in a thick and luxuriant crop. Hungarian is a more difficult crop to harvest than hay. Always cut during a dry time, if possible, for it will take three good hay days to prepare for the barn. We do not always, however, have our choice, for as the crop ripens very rapidly, and should be cut just when in blossom, a little delay at the critical time, in order to secure favorable weather, is apt to result in over-ripening, or the formation of seed. Dead-ripe Hungarian is poor stuff for food, and may even act as a poison, or at least as an injurious food, when fed to horses, and hence it is preferable to harvest rather early than too late." This is good advice; but better advice would be to substitute an acre or two of sugar corn, sown broadcast. For fall food it comes just in the nick of time; or to cut for fodder just before it gets into tassel, and curing it for winter feeding. It is relished exceedingly by cattle and especially so by horses, and is very wholesome. The fodder crop of corn, when Lucerne and Hungarian grass are under consideration, should always be borne in mind and be allowed its full weight.

Fall Plowing.

Mr. Harris says, in the *American Agriculturist:* I am convinced that we shall find it to our interest to work our land more and more in the fall—and the earlier the better. Our springs are short, and we are in a hurry to get in the seed; the land is wet, and if plowed in this condition we do more harm than good. If we wait until it gets dry it is apt to turn up lumpy, and much harrowing, cultivating and rolling is required to get it in anything like good condition. And as everything is crowding us, we are often obliged to put in the crop with some of the land so hard that unless we have an unusually wet spring the seed is a long time in coming up, and the crops are "spotty." And it is these poor spots that pull down the "average yield" to such a low figure. I have in my own barley field to-day portions that will probably give fifty bushels per acre, and spots where the yield will not be ten bushels. And yet these latter spots are naturally the strongest and richest land in the field.

Coal Ashes.

Bliss, the seedsman, recommends the use of coal ashes for potato patches, and says that persons who are in the habit of throwing ashes away as useless are making a great mistake; they are found by experience to be of great benefit in the culture of potatoes. Many ashes are dumped in the streets and alleys, when they could be used to improve the soil of gardens. Save your ashes and use them for the purpose of manure. Wood ashes are counted among the first fertilizers, and they command a good price by those who know their value.

HORTICULTURAL.

Management of Fruit Trees.

What may be now a tender, quick-growing sprout will, in October, be a strong, woody branch, and perhaps a branch just where it is not wanted, and which must be removed by the use of a saw or a strong knife. At the right time the shoot could have been rubbed off, and not only the trouble of removing the branch avoided, but the useless growth would have been directed to parts where it was needed. If one has a careful eye to his young trees, he can, by rubbing off a bud or shoot here, and pinching a shoot there, so direct the growth that by the time the trees come into bearing they will be of proper form, and very little work will be required for the pruning-saw and chisel. If large limbs are to be removed from neglected trees, this month or next (according to locality, at any rate, when the spring growth is made and the leaves have attained full size and substance) is by many preferred for the work, as wounds now heal rapidly. Cut all large wounds smooth with a drawing-knife and cover with shellac varnish, melted grafting-wax, or thick paint. Borers do not breed in the tree, as some suppose. Every borer in the tree went in. The parent winged insect laid the egg on the bark. The little borer hatched out at once bored its way into the tree, and there it will stay until it comes out a perfect insect, or is cut out or is punched to death in the hole. But please observe, no patent stuff that is to be laid in the crotch of the tree, no stuff that you may paint on the trunk, no "invigorator" or anything that you may apply to the soil, to be taken up by the roots and thus poison the borer, will be of any earthly use. While you are fussing with such treatment the borer is quietly at work, perhaps stopping now and then to laugh at the folly of the performance. Cut with knife and punch with wire. The slug, so called, but which is really a caterpillar, will appear, especially on the pear and cherry leaves, and, unless checked, often makes sad work. It is a dark-green leach-like creature, that leaves a slimy trail. Slaked lime, dusted from a coarse bag at the end of a pole will soon end it. In a dry time fine dust from the road may be thrown into the trees with good effect.—*Independent.*

A Propagating Secret.

Under this head the London *Gardener's Chronicle* says: It will be remembered that a month or two ago we alluded to an alleged extraordinary secret for propagating trees and grafting roses, whereby much time could be saved, offered for a small sum by an Austrian nurseryman. This gentleman has since communicated an article on the subject to the *Wiener Gartenfreund*. Briefly, his new method is as follows: Cuttings of shrubs and trees are taken off at the beginning of July, from six inches to twelve inches long, according to the kind. The leaves are removed from the lower portion which is to enter the ground, but those which will come above the ground are left. Beds are prepared for them in the open air by thorough digging and leveling, and afterwards applying a superficial layer, about two inches thick, of rotten manure from a spent hot-bed. The cuttings are then stuck in about two inches apart, and in a somewhat oblique direction. Each bed when filled is surrounded with a lath fence, so that shade may be given when the sun is very hot, and the cuttings are well watered with a rose-spouted can. This completes the operation. The only further care necessary is a sprinkling overhead three or four times a day during the first week, if the weather be very hot, and once a day afterwards. In the course of five or six weeks treated in the manner indicated, the cuttings of most plants will have formed a callus, and further shading will be unnecessary. Late in the autumn a layer of rough manure, two inches or three inches thick, is spread over for winter prorection. It also serves as manure when the cuttings start growing in the spring; and cuttings treated thus make extraordinary progress—forming plants equal to two-year old plants from winter or spring cuttings. Very few, it is asserted, fail. The new method of grafting roses is the insertion of growing eyes early in spring, instead of dormant eyes in the summer. They are inserted in the main stem, one on each side, to form symmetrical heads. These make, it is said, as much growth the first season as the dormant eyes the second season.

Cracking of Pears.

Why some pears crack, seems one of those queer things which no one can find out. We have never claimed much luck at finding out these riddles, but we do think that there may be several reasons and that all kinds of pear-cracking are not from the same cause. All around everywhere, except in closely built up cities, so far as we know, the old Butter pear, or white Doyenne, cracks badly. It is rare, indeed, that we see a perfect fruit. The Seckel never cracks—at least we never knew of a case. But some seem to crack sometimes and not at others, and why this should be so is more of a mystery than in the case of the Butter, which has the disorder as a regular thing. In this region the Beurre Giffard is one we have frequently recommended in our lists and elsewhere. So far as we know, it is regularly good everywhere about here, and no one need fear to

plant it as one of the best early fruits. Yet we read once in awhile in some distant place that the "Giffard cracks badly." This can hardly be a close constitutional matter as in the case of the Butter pear, but probably is owing to some very local and temporary cause.

We see the same thing of the Tyson pear, a native, by close neighborhood, of Philadelphia, and one which in accordance with the spirit of the good old observation that a prophet is not without honor except in his own country. It is extensively planted and valued here in its native home as among the highest type of the pear race. It is sometimes said that it does not bear as freely as some others, but no one ever thought of charging it with the meanness of cracking. Yet we see it suggested in a distant contemporary who, after enumerating a long list of virtues, adds, "but it once in awhile cracks.—*Germantown Telegraph.*

Watering Trees.

So far generally throughout the country spring-planted trees have not needed much watering owing to the moist season we have had. But it often occurs that, in such seasons as we have had this year, the latter part of the summer will be very dry, and we may have a drought in August.

Should this be the case newly-planted trees may require watering. By watering the surface of the soil, a large proportion of the water is soon evaporated by the heat of the surface soil or by the heat of the sun, and if the soil is any way heavy the watering causes it to bake, thus excluding the air and preventing the moisture from being drawn up from below. To counteract these injurious effects and to get the water into the soil underneath the trees, make three, four, or five holes with a crowbar, or stout pointed stake, about 18 inches deep, and the same distance from the tree, and pour the water into these holes. It will soak away into the soil and come into immediate contact with the roots, keeping them moist and cool.

It repays the extra labor of making the holes, in that it does not require as much water for a given number of trees as does surface watering, and so saves the labor of carrying.

Shall Old Orchards be Plowed?

The editor of the *Rural Home*, in describing the farms of the Genesee Valley makes the following mention of an orchard owned by a Mr. Greenwood: "He has a remarkable orchard of four and a half acres, which for the last eight years has been the source of a liberal income. It averages about three hundred barrels a year. About ten years since it yielded over 600 barrels, which he sold for $5.70 a barrel, making a nice little income of $3,400 that year. It is composed of Baldwins, Greenings and Rox-Russets; Baldwins predominating and giving the best satisfaction. This orchard has been in pasture, without plowing for eighteen years, pastured by sheep, swine and horses. Think it would ruin it to plow it after remaining so long in grass. Some neighbors tried the experiment a few years since, tearing up and drawing off large quantities of roots, but it ruined the orchard."

American Fruit in Europe.

Europe is now taking a surprising quantity of American fruit. The purchases have amounted, according to the New York *Tribune*, to over $2,500,000 worth since June, 1876, compared with $600,000 in the same period the year before. Dried apples figure largely in this movement. This country has exported over $12,000,000 pounds of them since last June, as compared with 522,000 pounds the previous year. This new addition to the trade of the United States is due to invention, which has occupied itself of late with improved methods for drying and preserving for transporting fruit. The greatest progress has been made in the way of dryers. Within a year some notable inventions in this line have been perfected, which are a great requisition to the resources of the country. The fruit dryer bids fair hereafter to be as much of a necessity to every farming community as the cider mill and the cheese factory.—*Scientific American.*

Soot as a Garden Fertilizer.

Perhaps it may have occurred to some of our lady readers that the refuse soot of our chimneys is one of the most valuable stimulants and fertilizers they can have for their garden flowers. The following incident of practical experience is from a lady contributor to the *Rural Carolinian*:

"During two seasons we nursed, fed, and petted the Hartford Prolific grape vine, as much for its shade over the window as for its fruit; but it persisted in remaining a stunted cane, yellow and refusing to climb. Despairing of a shade in grapes, and roses, we finally bethought ourselves of soot as a manure, and forthwith made a "soot tea" by steeping a teacup of soot in a quart of water. This we administered, two doses each, to both the tree and the vine. The vine grew six feet in height in the space of six weeks, the rosebush four feet in the same length of time. Both, therefore, rejoiced in living green."

DOMESTIC ECONOMY.

Setting Milk for Cream.

It is not to be wondered at that the average dairyman of our State is puzzled to know what to do for the best. Professor Wilkinson tells him plainly that nothing but shallow pans and sub-earth ducts will do; while Professor Hardin is equally certain that deep pans (20 inches), sunk to the rim in water, at a temperature of 50 degrees, alone insure the largest yield of the best quality of butter; and now these are overtopped by the new Cooley system, which proposes to enclose the milk in a deep narrow can, with a water-tight lid, and sink it under water, which is carefully kept at a low temperature by the use of ice.

Our own experiments satisfy us that both extreme rules are right, provided, certain rules, as unalterable as those of the Medes and Persians, are observed. At a temperature above 60 degrees, deep cans will not do; the milk will usually sour before all the cream reaches the surface. When this temperature is unavoidable, shallow and broad pans will give the best results. When cold water is abundant and the means of keeping it at 50 degrees or lower are at hand, it will be found that cans, twenty inches deep, and eight or nine inches in diameter, will save much labor, and at the same time make quite as much and better butter. Those dairymen whose situation is covered by the first case should be cautious in the use of deep cans. It is no doubt for the want of a proper observance of these simple rules that we now have a conflict of sentiment as to the comparative merits of deep and shallow setting.—*Phila. Times.*

Cleansing Feathers of Their Animal Oil.

The following receipt gained a premium from the Society of Arts: Take for every gallon of clean water one pound of quicklime, mix them well together, and when the undissolved lime is precipitated in fine powder pour off the clean lime water for use. Put the feathers to be cleaned into another tub, and add to them a quantity of clean lime water, sufficient to cover them about three inches, when well immersed and stirred about therein. The feathers, when thoroughly moistened, will sink down, and should remain in the lime water three or four days; after which the foul liquor should be separated from them, by laying them in a sieve. The feathers should be afterwards well washed in clean water, and dried upon nets, the meshes of which may be about the fineness of cabbage-nets. The feathers must, from time to time, be shaken on the nets, and as they get dry will fall through the meshes, and are to be collected for use. The admission of air will be serviceable in drying. The process will be completed in three weeks; and after being thus prepared, the feathers will only require to be beaten to get rid of the dust.

Ventilation of Closets.

Too little attention is paid in the construction of closets to their proper ventilation. It is not always convenient to have a closet door stand open, and if it were, full ventilation cannot be secured in this way. There should be a window or an opening of some sort from the closet to the outer air or to a hall, so that a current of air might remove any unpleasant odors arising from clothing that has been worn, from shoes, or from anything else kept in the closet. A garment that has been hung up for a length of time in a close closet is as unfit to wear, unless it has been thoroughly aired, as though the unwholesome vapors it has absorbed were visible to the eye. The charm of clothing new and clean lies far more in the absence of these vapors than many people are aware.

Simple Cure for Ear-ache.

Many years ago two of my children, one aged 3, the other 1 year, had a terrible attack of ear-ache all one day and night. I worked over the little sufferers, doing all I could think of, and trying remedies suggested by our neighbors. On the second morning of the attack, a lady came in and asked me if I had tried burnt sugar. I told her no, that I had not heard of that. She told me to put some live coals on a tin plate, sprinkle some brown sugar on them, set a funnel over it, and then hold the child so that the smoke could go into the ear. I did so, using the remedy for both little ones. The result was marvelous; the pain stopped instantly, and soon both little sufferers were in a sound, refreshing sleep.

Shakers' Pickles to Keep Ten Years.

Half-grown cucumbers fresh gathered, wash clean and pack in jars. Make a pickle of salt and water that will bear an egg; put in a piece of alum the size of a nutmeg to a gallon of brine; boil and skim it, and pour hot over the cucumbers; let it stand till cool, then pour off. Boil enough vinegar to cover your pickles, spice to taste, pour it over hot, first adding a small piece of alum. In two days these are ready to eat.

WAX FOR CANS.—Rosin, eight ounces; two ounces gum shellac; beeswax half an ounce. If you wish it red, take English vermillion, one and a half ounces; melt the rosin and stir in the coloring (if used), then add the shellac slowly; afterwards the beeswax. It can be heated whenever needed.

Household Recipes.

PICKLED QUINCES.—Pare and quarter; to 10 pounds quinces add three pounds brown sugar, one pint vinegar, one ounce cloves, one ounce cinnamon; boil until tender.

TO SOUR CONDENSED MILK.—Dilute as usual with water, pour into an earthen dish, and set in a warm place; use vinegar, a dessertspoonful to a pint of milk; and trust heat and time to accomplish the rest.

STEAMED BROWN BREAD—I.—Two cupfuls meal, two cupfuls flour, two cupfuls milk, a teaspoonful salt, two teaspoonfuls soda, and a cupful molasses; butter a pail, cover tight, put into a kettle of boiling water; steam two hours, and, removing the cover, bake two hours in the pail.

II.—One pint milk, one teaspoonful soda, one of salt, one cupful flour, and two cupfuls meal; steam two hours, and bake half an hour, pail cover removed.

GRAHAM BREAD.—One quart Graham flour, one quart wheat flour, one cup yeast, one-half cup sugar; let it rise over night; in the morning knead it and let it stand in the pans a short time before baking.

YEAST FOR GRAHAM BREAD.—A handful of hops put in a lace bag; seven good sized potatoes; boil together in three pints of water; before the potatoes are quite done take the hops out; mash the potatoes and let them cool; then add one-half cup flour; put it in the water and let it boil up, and add one-half cup salt, one-half cup sugar, and enough yeast to raise it; it will be ready for use in about 12 hours. Good for all kinds of bread.

BREAD-MAKING.—Make a thin batter of flour and tepid water, and add sufficient salt; then, if two loaves are intended, dissolve a third of a cake of compressed yeast in half a cupful of tepid water and add to the batter, stirring all together, and set in a warm place over night. In the morning the sponge will be light; add sufficient flour, and work well, and set in a warm place until the dough becomes light; then work again, and set in pans and allow to rise, say from 15 to 20 minutes, but do not let it stay too long, or it becomes sour; then place in an oven until cooked; after the bread is sufficiently done it should remain in the oven with the door open to dry the bread half an hour or so. Bread thus made combines everything desirable in being light, white, and perfectly sweet for two or three days after baking. I believe bread made thus would keep sweet for a week, but it has never been tested longer than three or four days.

BOILED RABBIT WITH ONION SAUCE.—Peel five or six medium sized onions and put them into cold water; boil them till tender; cut up the rabbit into joints and put it into a saucepan, with sufficient cold water to cover it, and simmer gently for an hour and a half. After it comes to boiling heat chop the onions and season them with a saltspoonful of salt, the same of white pepper, and put them into a small saucepan, with an ounce of butter and two tablespoonfuls of milk. Stir and boil up, lay the rabbit neatly on a hot dish, pour the sauce over it, and serve at once.

PEACH JELLY.—Wipe the down well off your peaches, which should be free stones, and not too ripe, cut them in quarters, crack the stones, and break the kernels small. Put the peaches and kernels into a covered jar; set them into a kettle of boiling water, and let them boil till they are soft; strain them through a jelly bag; allow a pound of loaf sugar to a pint of juice; put the juice into a preserving kettle and boil fifteen or twenty minutes briskly; then add the sugar and let it dissolve; skim carefully; pour the jelly into glasses; when cold cover with thick paper.

CORN CAKE WITH FRUIT.—Pour one quart boiling water on one quart corn meal, and stir quickly. Wet the hands, and form the dough into small round cakes one-half an inch thick. Bake in a hot oven. The addition of a few raspberries, huckleberries, or any other sub-acid fruit, is a decided improvement. Sweet apples, chopped fine, are also excellent.

WATER RISING FOR BREAD.—Take a quart pitcher and a spoon, scald them; fill the pitcher half-full of boiling water; cool to the temperature of good hot dishwater; stir in flour to make a batter as thick as flour pancakes; and a quarter teaspoonful of salt and as much soda, cover closely, set where it will keep quite warm, stirring occasionally; it will rise in five or six hours. Some prefer this to hop or brewers' yeast.

BAKED BATTER PUDDING WITH FRUIT.—Take a half-pound of flour; one pint of milk; the yolks of four and whites of two eggs, and half a teaspoonful of baking powder. Rub the powder till smooth, mixing it well with the flour, and as much milk as will make a stiff batter; beat it till quite smooth, then add the remainder of the milk, and the eggs, well beaten. Put some apples, cut as for a pie, into a buttered dish; pour the batter over, and bake in a moderately hot oven. Damsons currants, gooseberries or rhubarb may be used in the same way.

SALT ON STEAK.—It is much better to broil or fry the steak without salting, adding the salt after the meat is on the platter, as the salt draws the juice out of the meat if put on before it is cooked, thereby making it dry and indigestible. In cooking steak the object is to keep in the juice as much as possible, hence the meat should be seared over as quickly as possible on both sides, and frequently turned while cooking over a very hot fire.

LIVE STOCK.

How to Have Healthy Pigs.

Prof. Law, of Cornell University, writes as follows in regard to the proper treatment of swine for the prevention of disease: Keep your hogs clean. Protect them from the hot, reeking bed of manure and close sleeping place, where the emanations from decomposing dung, urine, straw and other organic matter are added to those of their own skins and lungs when huddled together in great numbers. See that both food and water are clean, in the sense of being free from disease germs, and from the microscopic particles of decomposing organic matter which, within the system as well as outside it, furnish appropriate food for the disease poison, and favor its increase, while they depress its vital powers, and lessen the chances of the virus being thrown off. And it is here that the pork raisers are most frequently at fault. Fifty or a hundred pigs are allowed to crowd together in a filthy manure heap, a rotten straw stack, or under a barn, subjected to the droppings of other animals as well as their own products. Their feeding troughs and drinking water are so supplied that they can get into them with their filthy feet, and they must devour the most obnoxious matter or starve. If under this abuse disease is developed, the healthy are left with the sick, as "they will all have it anyway," and the result is usually a clean sweep.

When hog cholera exists, the sick should be placed by themselves under a special attendant, and the free use of disinfectants; the healthy should be carefully watched, and on the first sign of illness or increased temperature, as ascertained by the introduction of a clinical thermometer into the rectum, they should be at once taken from the herd and carefully secluded. This, with active disinfection, will enable the owner to cut short an outbreak, and save, perhaps, the great majority of an already infected herd. Again, the sale of animals from an infected stock, to be removed from the premises alive, should be severely punished, and the disinfection of the buildings where the sick have been, should be made imperative. We shall obtain the greatest success with this disease when we treat it as a contagious malady, and wherever it is found to exist, give our main attention to prevent the further generation and dissemination of the poison.

Potatoes for Cows.

Cows in milk may be fed so much of certain kinds of food as to derange their digestive powers, and thus dry up their milk. *The Live Stock Journal* states that it has been found that a large feed of potatoes will lessen the percentage of hay digested, but we think the large amount of starch contained in the potato causes a looseness of the bowels, and thus impairs the digestive function.

We often fed potatoes to cows in milk with great benefit. Our plan has been to run potatoes through a root slicer and feed four quarts at a time mixed with cut hay and a pint of oil meal or pea meal, or a quart of oats. And since the experiment mentioned, we have again tried this mode of feeding, and found it to work admirably well.

The potato is a very imperfect food alone, being principally starch, having too litte nitrogen and phosphate of lime to make milk; but it is the richest root raised on the farm, and when fed in small quantity, raw, will regulate the bowels, and have a very similar effect to green grass. It is a very laxative food in the raw state, and that is probably the cause of its peculiar effect upon the digestion of hay. When the potato is cooked the effect is quite different, and its value is increased. A small quantity of potatoes, say four quarts as a feed, will increase the yield of milk nearly as much as so much grain, provided they are fed with other food rich in the constituents of milk.

The American dairyman is prone to feed one thing at a time, almost wholly, instead of giving variety in food, which will furnish all the elements required in the proper proportion. We found an objection to the use of oil meal when fed above two pounds per day to a cow, as it is too laxative. We found one quart per day the most profitable, and have also found one peck of potatoes per day, in two feeds the most profitable.—*Ex.*

How to Fit Horse Collars.

It is very important to have a collar fit nice to the shoulders of the horse. It enables him to work with a great deal more ease, and to apply a great deal more strength. It prevents galling and wounding, as the friction is avoided. Collars are made, or should be, to throw the chief force on the lower part of the shoulders. The horse can apply but little strength on the upper part, and for this reason breast collars are coming greatly into vogue, as the strength is exerted on the lower part of the shoulder.

But we started out to tell our readers how to make a new collar fit the shoulder of the horse. The collar should be purchased of the proper size; just before putting it on the first time immerse it in water, letting it remain about a minute, and immediately put it on the horse, being careful to have the hames so adjusted at the top and bottom as to fit the shoulder, and then put the horse to work. The collar by being wet will adapt itself to the shoulder, and should dry on the horse; when taken off it should be left in the same shape it occupied on the horse, and ever after he will have a snug-fitting collar and no wounds.

Cleanse the Manger.

The mangers of horses, cows and oxen, when supplied with cut fodder and meal, frequently become offensively sour in consequence of the decomposition of the wet meal that adheres to the corners of the feed boxes. This is apt to be the case especially when animals do not lick the corners entirely clean. If a small portion of feed is allowed to remain in the manger only a portion of a warm day, it will become sour, and the offensive effluvia will taint the entire manger, so that an animal will often refuse to eat his accustomed allowance, unless compelled by keen hunger. The true way to manage mangers is to scrape the corners clean at least twice a day, removing every particle of rejected food. Then if the manger does not smell as a butter bowl, let the corners be washed out with hot water, wiped clean, and a handful of caustic, of slacked lime be sprinkled in the manger. If mangers are kept clean they will seldom become offensively sour. If an animal leaves a portion of his feed, a new mess should never be given on the rejected feed.—*New York Herald.*

Stumbling Horses.

The best horse, indeed, may stumble. If it arises from a heavy fore-hand and fore-legs being too much under the horse, or being too narrow in the breast, no one can alter the natural shape of the "critter." A young, overgrown animal, and one of spirit, if not properly broken in, will commonly stumble. If it arises from tender-footedness, knock-kneed, or with feet turned in or out, you will find it a difficult matter to remedy. A tight rein is a caution that should not be omitted. In purchasing a horse—I say the best horse may stumble; but if he has scars, or the hair be broken on his legs, and if he springs out when he stumbles as if he feared a whip or spur, you may beware of a stumbling jade and perpetual faller. Show me a big horse and I will show you a stumbler. In the majority of cases tripping is found to be practiced by young, overgrown horses before they have arrived at maturity. A known stumbler should never be ridden, but should be put to slow and heavy work.

Full Feeding.

No profit can result from keeping a common dairy of cows in the scant mode of feeding. Full and generous feeding, on a varied diet the year round, so that the cow will give milk nearly the year through, is the only profitable dairy management. The cow can make milk only from her surplus food.

Her system must be supported before she can secrete milk, and the beef animal likewise can only lay on flesh and fat from extra food. Full feeding, with other judicious management, will bring full returns and a pleasant account at the end of the year; poor feeding only loss and disappointment.—*Live Stock Journal.*

How the Price of Cows has Risen.

An old cattle dealer gives the following prices paid by him for milch cows, in Montgomery county, Pa.: In 1835 and previous years he paid an average price of $18 to 24; in 1835 and 1836, $20; in 1837 and 1838 $32; in 1839, $38; in 1840, $30; in 1841 and 1842, $19; in 1843, $32; thence up to 1849, $22 to $25; in 1849, 1850, 1851, 1852 and 1853, $25; in 1854, $28 (highest $40, lowest $22;) in 1855 and 1856, $30; in 1857, $34; thence to 1860, $29; in 1860 and 1861, $35; the next three years, $65, (some good ones going over $100;) and since then prices have been as high or higher, and market good. The prospect now is for a decline for some time.

A Lamb with a Cow for a Mother.

A short time ago a fine Cotswold ewe belonging to Major McDonald, of Daviess county, gave birth to a buck lamb, immediately after which she died. About the same time a young heifer on the Major's place dropped a calf which died. The Major's son, after consulting "Randall's Sheep Husbandry," placed the lamb with the heifer, first holding it up to the cow's udder until it sucked. The result of the affair is that the heifer at once adopted the lamb, and it is now fat, thrifty and vigorous, being about seven weeks old and weighs over fifty pounds.—*Sedalia (Mo.) Bazoo.*

Age of Sheep.

A sheep's front teeth the first year are eight in number appearing all of a size. Second year two middle ones are shed out and replaced by two much larger than the others. Third year two very small ones appear—one on either side of the eight. At the end of the fourth year there are six large teeth. Six years all begin to show wear—not till then.

ENTOMOLOGICAL.

Bot and Bot Flies.

The following valuable article from Prof. C. V. Riley to the *Scientific American* we give our readers this month for its thorough explanation and timely suggestions on the subject of bot and bot flies:

"A correspondent, engaged in the tanning business, asks why 'wormals' get into the backs of cattle, and how they undergo their transformations?"

Almost all cloven-footed animals, and many other herbivorous species, are infested with bots. These are legless grubs which fall into three categories: 1. Gastric, or those which are swallowed by the animal infested, and which live in the stomach in a bath of chyle. 2. Cervical, or those which crawl up the nostrils and inhabit the frontal sinuses. 3. Cutaneous, or those which dwell in tumors just beneath the skin. They are all the larvæ or early state of two-winged flies (*diptera*) belonging to the family *oestridæ*, characterized by having the mouth parts entirely obsolete, and popularly called gad flies or bot flies. In the first series, of which the horse bot (*gastrophilus equi*) is the most familiar example, the eggs are hatched by the female fly to the hairs of the body, and principally on those parts of the body within easy reach of the animal's mouth. The egg opens with a lid, and the young maggot upon hatching clings to the tongue as the animal licks itself, and is thus carried into the fore-stomach, to which it holds tenaciously by a series of spines around the body, but principally by a pair of sharp hooks at the head. When fully grown, they leave their post with the fæces, burrow in the ground and undergo the final transformation. In the second kind, of which the sheep bot (*œstrus ovis*) will serve as an example, the egg generally hatches within the body of the parent, and the young grub is deposited alive on the slimy nostrils of its victim.

By means of a pair of long and sharp hooks at the head, and of bands of minute spines on the venter, the young grub works its way into the sinuses of the head, and when full grown permits itself to be sneezed out, when it also burrows into the ground and transforms. In the third kind, the parent lays the egg on those parts of the body which cannot well be reached by the mouth of the animal attacked, and the young grub, which soon hatches, burrows into the flesh and subsists upon the pus and diseased matter which results from the wound inflicted and the irritation constantly kept up. The well-known wormal or ox bot (*hypoderma bovis*), so common along the backs of our cattle, and especially of yearlings and two-year-olds, and dreaded as much by the tanner as by the animal it infests, is typical of this kind. Residing in a fixed spot, we no longer find in this species the strong hooks at the head, and the spines around the body are sparse and very minute, the parts of the mouth are soft and fleshy.

"All these bot larvæ breathe principally through two spiracles placed at the blunt and squarely cloeked end of the body, and in the ox bot these are very large and completely fill up the hole to the tumor in which the animal dwells. When ready to transform, it backs out of its residence, drops, and burrows into the ground, and there, like the other species, contracts and undergoes its final change to the fly. The eggs of this ox bot are elliptic-ovoid, slightly compressed, and have at the attached end a five-ribbed cap or stout stalk with which to strongly attach them to the skin of the back.

"The gastric bots are best prevented by proper grooming of the horses to remove the eggs or nits from the forelegs and flanks. Horses, too, that are properly stabled and kept in the shade during the hotter summer months are less frequented by the parent fly. Scarcely any mode of drugging will dislodge the bots when once they are attached to the stomach, without injuring the parasitized animal. Cervical bots are also with difficulty dislodged, except when they are full grown and ready to naturally let go their hold. Animals may, however, be measurably protected, by enabling them to bury their noses when the parent fly is seeking to deposit. This they will instinctively do, if portions of their pasture be turned up and the ground kept loose. The cutaneous species may be removed by pressure of the thumb and finger, or destroyed by the application of kerosene. If removed while small, the wound in the skin heals up, and no hole will occur in the hide.

The Potato Bug Abroad.

G. W. Smalley writes to the *Tribune*, from London, concerning our old friend, the potato bug:

Next after Gen. Grant, the greatest American celebrity of the London season is the Colorado beetle. He is not invited out to dine with dukes, but his movements are watched with an attention most flattering to him, and his appearance at Millheim on the Rhine produced intense alarm on the Thames. Followed as it was, yesterday, by an announcement that he had been seen in Dublin crawling ashore on a cable, the alarm became a panic. This morning the panic is abated, on the assurance of an eminent entomologist that the Dublin insect was not a Colorado beetle at all, but only looked like him. Long before this, however, extraordinary precautions had been

taken respecting the dreaded visit. Questions are asked about him in Parliament, and letters written to to the newspapers—those being the two resources of the Briton on all occasions of peril or annoyance. The privy council has sent out circulars about him—for it is one of many oddities of English administration that her majesty's privy council deals with such agricultural calamities as the cattle plague and the potato plague. Pictures of the interesting animal have been sent all over the kingdom, more particularly in Ireland, where an enterprising farmers' journal has given him the widest possible circulation. His biography has been published. Minute accounts of his habits and haunts are in the hands of the police, and of everybody who is concerned in his exclusion from these islands. Town councils debate about him. The lord provost of Glasgow told the police board this week that he had seen thousands of beetles heaped upon the American shores as they had been washed in after attempting to cross the Atlantic! It is impossible to suspect the worthy Scot of meaning to joke, and it must be supposed that he believes this dreadful creature capable of flying 3,000 miles, with or against the wind, as the case may be. I see Capt. Nolan is to ask another question to-night in the House, which implies, perhaps, that the beetle is to be pressed into the service of Home rule. He would make a very suitable recruit to the faction of Irish obstructives or destructives. But his identity ought not to be in dispute, as it is. Has he stripes across his back or not? The highest authorities differ, but the balance of testimony is in favor of longitudinal stripes, and none across. There are specimens in the possession of naturalists, and more are promised from Germany, where they have made models of the animal, waiting the moment when a few thousand of him shall be hatched and forwarded by post. He can not be a rarity on your side, and your evidence on the point of the stripes will be received, if dispatched without delay.

Industry of Ants.

In industry ants are not surpassed even by bees and wasps. They work all day, and in warm weather, if need be, even at night too. I once watched an ant from six in the morning, and she worked without intermission till a quarter to ten at night. I had put her to a saucer containing larvæ, and in this time she carried off no less than a hundred and eighty-seven to the nest. I once had another ant which I employed in my experiments, under observation, several days. When I came up to London in the morning, and went to bed at night, I used to put her in a small bottle, but the moment she was let out she began to work again. On one occasion I was away from home for a week. On my return I let her out of the bottle, placing her on a little heap of larvæ about three feet from the nest. Under these circumstances I certainly did not expect her to return. However, though she had been six days in confinement, the brave little creature immediately picked up a larva, carried it off to the nest, and after half an hour's rest returned for another. We have hitherto had little information as to the length of life in ants. So far, indeed as the preparatory stages are concerned, there is little difficulty in approximately ascertaining the facts—namely, that while they take only a few weeks in summer, in some species, as our small yellow meadow ants, the autumn larvæ remain with comparatively little change throughout the winter. It is much more difficult to ascertain the length of life in the perfect insect, on account of their gregarious habits, and the difficulty of recognizing individual ants. It has, however, generally been supposed that they live about a season, and this is probably the case.

Codling Moth.

Nearly all the orchards in Jo Daviess County are becoming more or less infected with the Codling Moth. Orchardists should know that there are several remedies for this insect, among which is one, fruit growers near Chicago have used successfully the present season. It is arsenic, applied in the following manner: Take one pound of arsenic to a barrel of water, boil it in the open air (as boiling within doors may endanger life), and apply with a hand pump, showing the whole tree. One man with a team can shower 500 trees in a day. The arsenic can be obtained for 3 or 5 cents per pound. Paris Green applied in the same way is equally efficacious but not so cheap. Several barrels of water can be hauled through the orchard on a wagon, at one time, and with an ordinary hand-pump, the mixture can be thrown from the wagon on the trees. We have seen a number of fine orchards within the past few days nearly destroyed by this pest, to the owners of which the above recipe is worth much, if they will use it.

A TEXAS sheep raiser says there are about 2,000,000 head of sheep on the borders of the Rio Grande, the finest sheep raising country in the world.

THE POULTRY YARD.

Eggs and Ways of Using Them.

Dr. Edward Smith says. "It would not be possible to exaggerate the value of eggs as an article of food, whether from their universal use, or the convenient form in which the food is preserved, presented and cooked, and the nutriment which they contain." Again he says, "There is no egg of a bird known which is not good for food, or which would not be eaten by a hungry man." The white of egg consists of nearly pure albumen, oils, sulphur and water. Albumen is considered the most important single element of food. It is found in all compounded animal structures, and in the vegetable productions most valuable as food, though in a modified form.

There is a great difference in the value of different eggs, as there is in their size and flavor. Well fed domestic fowls yield far richer food in their eggs than common, wild fowls. Many suppose that raw eggs are more easily digested than those that are cooked, but for most persons this is not the case, if the eggs are not cooked improperly. Dr. Smith thinks it is a mistake to give a mixture of raw eggs and new milk to invalids, such a mixture tending more to hinder than to promote digestion. Dyspeptics often think that they cannot eat eggs at all, and it is the case that delicate stomachs do sometimes suffer greatly from eating any but the freshest of eggs. When we cannot be sure of the age of the eggs provided, it is always most safe to break them before cooking. For invalids, the very safest way is to drop the eggs from the shell without disarranging its form, into water boiling in a shallow dish. A few minutes boiling is sufficient and no dressing is necessary, except a trifle of salt for those who eat anything salted, though, of course, good butter and pepper may be added, or the egg may be carefully laid upon a slice of toast. For a family of children, it is often more convenient, in all respects, to serve eggs in scrambled form, or in omelettes, than cooked separately. Some children are notional, and will not eat the white of an egg, others think they dislike the yolk, but when they are both cooked together they think nothing about it, but eat, with pleasure, all that they can get. In most receipt books, the directions for scrambling eggs, advise a "good piece of butter" with which to cook the eggs, seasoning them with salt and pepper, and with chopped parsley, if you choose and can. But if for any other reason you prefer it, you can use milk instead of butter, and for children, this is best. The proportions used for an omelette are very good, "a cup of milk for six eggs." This increases the quantity. The eggs are broken but not beaten, and are stirred simply to mix well, and prevent burning while cooking.

Omelettes are not common in the country. The usual recipes are enough to frighten one, because they enjoin extreme caution, lest the omelette may fall or be heavy. At our house we have always had good success with the following recipe, perhaps because of the flour or corn starch used, perhaps because we baked it in the oven in a shallow dish, which we set upon the table, and so had no trouble in turning it over or turning it out: Six eggs, the whites beaten to a froth, the yolks well beaten; one teacup of warm milk, in which a small bit of butter is melted; a tablespoonful of flour or cornstarch, wet to a paste with a little of the milk, and stirred into the cup of milk; a teaspoonful of salt and a little pepper. Mix together, adding the whites last; bake immediately.

Change of Color or Moult.

A correspondent of *Land and Water*, in discussing the subject of change of color in birds, says:

To me rubbing and wearing means destruction of substance, and abrasion of surface, neither of which I believe will be found to exist on any bird after change of plumage by moult or change of color only. A bird's plumage may be compared to the coat of a horse, where we find rubbing produces a finely shining and even coat, but where wearing commences, we find from the bearing of the saddle or harness on a particular spot, there is either a bare spot or shortening of hair, producing change both in color and eveness of surface, which remains in that state until the horse casts his coat and gets new hairs. Such, I believe, under the same circumstances, would be the effect on a bird's plumage, and how a process when applied to a bird's tail should destroy the tail, but if applied to the head and cheek should have a renovating effect there, is more than I can possibly understand. The little time I have had to spare from my usual occupation for more than forty years has been chiefly pleasantly passed in making observations on various departments of natural history, more particularly in ornithology; and my observations show me that birds assume in the autumn a plumage they carry on through the winter months without the slightest appearance of rubbing and wearing up to the end of January, or even longer, when a change commences, and in a few weeks they have assumed the nuptial dress, which, in most cases, continues until the autumnal change again takes place. The spring change is not confined to any particular parts of birds, but is a general brightening of the plumage, while in some parts an entire change of color, all this, I believe, produced by a change of color, as shown by Mr. J., takes place by a pouring in of color in the head of the blackbird, gull, and in the feathers on the back of the great northern diver. It is nearly twelve years since I noted the same change in the autumnal change of the great northern diver, and then ventured to predict that on future inquiry many changes in the plumage of birds would be found to be change of color, not moult; and why Mr. J., seeing how beautifully nature has provided for the change of color in these birds, should seek for a different method of change in the birds he mentions, is seeking for the unnecessary and is quite needless.

Effects of Cold Storms on Poultry.

Each season of the year brings its special work and care, demanding the attention of the keepers of poultry. Excepting the first bleak autumn storms, no period of the year is so trying to the constitution of fowls as cold, spring rain storms. Birds that have stood the severity of winter without any apparent signs of disease, often succumb to the effects of a chilly rain storm. The germs of disease, however, are sometimes contracted during confinement in winter, and the sudden change of weather, experienced during a cold rain, will develop the malady, which is likely to become contagious. Fowls that have been highly fed and kept warm to induce laying, will, like a forced plant, be too tender to stand neglect during the early drenching rains that penetrate to their very skins.

The danger need not be feared, however, by those who will take a little extra care of their stock during such weather. As soon as the earth softens under the first mild breath of spring, fowls are all awake to the prospect of getting worms and other insects from the ground. They will then be off, prowling about before it is light enough even to see their prey, but as they evidently know that the early bird catches the worm, they are on the ground betimes. Perhaps the next day there is a severe change in the weather, with sleet or rain, and you will see the birds hunting about, in hopes of finding insects, till they get soaking wet through their feathers, and if not well cared for this often proves fatal.

Most farmers have noticed that a cold storm frequently stops hens from laying for a week. Now, this delay and risk of sickness may often be prevented by giving them a liberal mess of soft, warm food, with a little cayenne pepper in it. To this should be added a generous amount of animal food, either scraps or haslets, to take the place of the supply of worms, which is stopped when the fowls cannot get out. With this little extra care hens will often keep on laying, retain perfect health, and be profitable to their keepers.

Non-Sitters.

The Black Spanish, the Polish, the Leghorns, and the Hamburgs are all great layers, and not inclined to sit. Some prefer one breed and some another. One cock to every ten or twelve hens is sufficient, at most, and some of our best poultry men keep a less proportion than that.

In the egg-producing class, the Leghorns stand pre-eminently above all others. This variety consists of the white and brown. The browns appear to be favorites, being hardy, easily raised, and maturing quickly, the pullets often laying at four months. Pullets of this breed frequently lay as high as 260 eggs during the year. Their large comb, and pendants require warm houses during our rigorous winters.

The next in high favor is the Black Spanish; these, like the former, are non-sitters, and prolific, but not so easily raised. They do not, until nearly grown, get their full feathers, being generally half naked for a considerable time after hatching. These, like the Leghorns, require comfortable winter quarters, owing to their large comb and wattles.

The Houdans, a French breed, come next as layers and non sitters. This is what they call a made breed, between Poland and Dorking—showing the characteristic crest of the former, and the fifth toe of the latter. Although not as continual layers as the two varieties mentioned, yet they possess points superior to the others in size, delicacy of flesh, and hardihood, but are very liable to disease.

The small breeds, the different varieties of Hamburgs and Polands, have their admirers as fancy fowls. They are excellent layers, partially non-incubators, but are not recommendable, owing to their size, as likely to improve our present stock of common fowls.

Profit in Poultry Keeping.

We do not keep hens as we do canaries, as pets, but they are kept for the profit they will bring us in eggs and poultry. Now, the income from our poultry will be large or small just to that degree in which we are successful in making our hens forget or ignore the season of the year, and our profits will be large or small just in proportion as we accomplish this without incurring unnecessary expense. If we can so surround our poultry with the conditions which be-

long to spring that they will not realize that it is mid-winter, then we can have eggs. Some poultry keepers do have eggs all winter long, and always obtain good prices and make large profits from their investments. Poultry, if properly managed, we believe, may be made to pay the largest per cent. of profit on the amount of capital invested of any of our live stock. The outlay is small on each fowl, and the returns are quickly made. We do not have to wait two, three or five years, as is the case with cattle or horses, before the harvest season begins. A chicken is fit for the market in a hundred days from the shell, and a good pullet will pay for herself in eggs before she is a year old.

Errors in Poultry Keeping.

In confirmation of what I said in a previous article, in regard to keeping none but one year old fowls for layers, I annex the following: "Although there are many widely different breeds of fowls, adapted more or less to the varied wants of the farmer, there are some general rules for their management which are applicable everywhere; and many flagrant errors are made by most farmers. One serious error is the common custom of keeping hens until they become too old for profit, because they were choice birds and good layers when young. A hen of any breed will lay only about half as many eggs the second year as the first after she commences laying. All fowls kept by a farmer after they are two years old are kept at a loss, as far as money is concerned. When a whole flock is allowed to run without killing off the old ones and replacing them by pullets, disease is sure to attack them. They become liable to cholera, etc., after they become aged. If the practice of keeping only pullets is once followed I am sure that no farmer will ever abandon it."—*The Farmer's Friend.*

Profit in Poultry.

The Philadelphia *Times* says: As a general rule we do not think farmers pay sufficient attention to the production of poultry for sale. Carefully-kept accounts will demonstrate that one pound of poultry can be produced at about half the cost of the same weight of beef or pork, and always meets with a ready market. Another advantage is that it can be attended to quite as well, if not better, by women and children than by men, thus economizing the labor of the whole family, and directing it into the production of profit for the general purse. Try the experiment of allowing the children, if large enough, to take care of the poultry for a share of the products, either in eggs or dressed poultry. Charge them with all the food consumed and credit them with all the eggs and flesh consumed by the family, and note your percentage in the speculation and the benefit it has been to them.

Caponizing.

It is the universal practice of mankind with their domestic animals, when intended either for food or work, to deprive the males of their productive organs. The flesh of males not castrated, of many species of animals, is strong, disagreeable, and hardly fit for use; and yet poultry raisers generally fail to recognize the fact that a cock is as much improved for table purposes by the operation as a bull or ram. Those who give the subject thought are deterred from undertaking the matter, fearing it is a delicate and difficult process. Yet it much resembles the spaying of a sow or heifer. With the convenient instruments of the present day the operation, after a little practice, is easily and quickly performed on both cobkerels and pullets. An expert in the business can caponize two hundred in a day, with the loss of only five per cent.

Gapes.

Gapes is supposed to be caused by a parasite, which infests the heads of young chicks. These can be destroyed by greasing the heads of the chicks or the hen, as described in treatment for lice. When once infested the following remedies are said to be good: Cover the bottom of the coop with quick lime. Another is a lump of tallow of the size of a hen's egg, melted and stirred up with a quart of oatmeal for feed. Another, pluck the web from both sides of a feather, leaving the tip, which wet with a solution of 20 drops of carbolic acid and 1 oz. of glycerine; run the feather down the wind-pipe, give it three or four turns and withdraw quickly; repeat a few times with a new feather. The acid paralyzes and the glycerine sticks the worms to the feather, so that they can be drawn out. In treating sick fowls all matter, etc., should be burned, to prevent exposure to the rest.

The Number of Hens to a Cock.

Houdaus, ten hens to one cock; Crevecœurs, eight hens to one cock; Cochins, eight hens to one cock; Gray Dorkings, ten hens to one cock; White Leghorns, fourteen hens to one cock; Spanish, twelve hens to one cock; Brahmas, eight hens to one cock; Hamburgs, fourteen hens to one cock; Polands, twelve hens to one cock; Game, ten hens to one cock. With this proportion of hens to a cock, the vitality of the eggs will prove good, and at least eleven out of twelve eggs set should produce "chicks."—*American Poultry Journal.*

Chicken Cholera.

In the last week's FARMER, N. W. inquires how to cure chicken cholera. It was very bad here last spring, and if you will allow me space in your paper, I will tell your readers how we cured it. For every forty fowls we took a piece of asafœtida the size of a hickorynut, broke it in small pieces and mixed it in about a pint of corn meal, wet it thoroughly with boiling water, and place it near the roosting place, so that the chickens can eat of it the first thing in the morning. If they are not too near dead to eat, a cure is certain.

Lime Dust.

The following has been recommended as the best mode for preparing lime dust for slugs and other insects, for mildew, etc.: Take say a peck of fresh or sharp lime, broken up into small pieces; then add four pounds of flour of sulphur, or in like proportions if in smaller quantity. Add one-third as much boiling water, or just enough to slack the lime to dry powder, and cover the vessel as soon as the water is poured on. By adding water, it may be made into an excellent whitewash for trees, the sulphur increasing its efficacy.

LITERARY AND PERSONAL.

WE respectfully call the attention of our readers to the advertisements which from time to time appear in the columns of the FARMER, which we have reason to believe are all reliable.

PARTIES desiring trees, plants, or bulbs, are referred to Ellwanger & Barby's advertisement, now appearing in our columns. Their establishment is recognized as one of the largest and most reliable in the United States.

E. MOODY & SONS' semi-annual wholesale trade list of fruit and ornamental trees, evergreens, roses, shrubs, small fruits, climbing plants, cuttings, grafts, cions and buds, for the fall of 1877, will be found of interest to those who are engaged in the nursery business. Niagara Nurseries, Lockport, N. Y.

ART OF PROPAGATION.—A concise practical work on the rapid increase and multiplication of stock—amply illustrated. Price pre-paid by mail, 50 cents. Published by Jenkins' Grape and Seedling Nurseries, Winona, Columbiana county, Ohio. Send for it, and for free catalogue.

WORTH $100.00 FOR 3 CENTS.—We have just received Helmick's Centennial Cook Book, containing over 100 valuable receipts for cooking, besides other useful information. The same will be sent to subscribers of our paper only by sending a three cent postage stamp to the publisher, F. W. HELMICK, 50 West Fourth street, Cincinnati, O.

"OUT OF WORK."—A very touching and insigficant title in these days of great financial depression; and the attention of our readers is directed to our advertising columns, if they desire to possess one of the most beautiful and expressive ballads we ha have ever read—or perhaps that has ever been written by any author—the hearty appreciation of which, under our present circumstances, is a natural sequence.

BY REFERRING to our advertising columns our readers will see that Benson & Burpee, Fine Stock and Reliable Seed Dealers, No. 223 Church street, Philadelphia, have associated with them Mr. Wm. H. Maule in said business, and that the title of this firm is now BENSON, BURPEE & CO., and with superior facilities to meet the increasing demand of their business they solicit a continuance of public favor.

MONTHLY REPORT of the Kansas State Board of Agriculture, for July 1877, an octavo of 34 pages, three folded diagrams, and one page illustration of an improved fishway. The statistics of the State are very full, and don't at all look as if the State had ever been visited by the "Rocky Mountain Locust." It exhibits enterprise. When will our Pennsylvania State Board do likewise?

E. P. ROE'S Circular and Price List, for summer and fall of 1877, including gooseberry, strawberry, raspberry, blackberry and currant plants, &c., on hand and for sale. Address E. P. Roe, Cornwall, on the Hudson, Orange county, New York, and get a circular at least. Their patrons think it will pay to keep their circular on hand for future reference, because he makes a specialty of "small fruits," and has them in all varieties and prices.

FRUIT FARM, and Small Fruit Nurseries. Wholesale price list for 1877. Samuel Kinsey, Dayton, Ohio. Branch Nurseries at Columbia City, Indiana. This enterprising nurseryman includes in his list: Deciduous trees, ornamental and flowering shrubs, evergreen blooming plants, fruit trees, flowering bulbs, evergreens, hedge plants, cuttings, fruit scions, and miscellaneous plants. Send for catalogue, and get "*Monarch of the West*" Strawberry.

I. C. PLUMB & SON, Green Hill Nursery, Milton, Wisconsin. Descriptive price list for 1877-78, with advice to tree planters. Hardy fruits for the north made a specialty, and as they are an establishment of 30 years standing fruit growers would do well in this section, and might be benefited by making a note of this.

IN the July number of THE FARMER we called the attention of our readers to a new and useful cooking utensil recently invented, which is known as the Centennial Cake and Baking Pan, made of Russia iron, and is so constructed that after your cake is baked, you can instantly remove it from the pan without injuring it; and having a raised bottom the cake can not possibly burn. It is also provided with a slide on the bottom, so that when you remove the tube, you can close the hole, making a pan with plain bottom for baking jelly or plain cakes, bread, etc

Since then we have seen one of the pans, which was shown us by Mr. B. G. LeFevre, formerly of Quarryville, who is agent for this county, and who is now canvassing for the same.

POPPLEINS' SILICATED SUPER PHOSPHATE OF LIME, embracing new ideas on fertilization; composed of vegetable silica, soluble phosphates, and potash salts. General office, No. 11 Germen street, Baltimore, Md. They base their formula for each crop on the analysis of the ash of the plant to which it is to be applied. This, to our apprehension, is the true theory of fertilization, and we believe it will eventually be confirmed by experience. For sale by Joseph Tatnall & Co., northeast corner Front and Orange streets, Wilmington, Del., and at Stanton Mills, Stanton, Del. The philosophy of this theory is in harmony with views upon the subject we have entertained for a long time, and which we embodied in an essay on "Rust in Wheat," a month or two ago. *Wheat grower notice this.*

VICK'S FLORAL GUIDE, No. 4, for 1877, is a splendid demi-octavo of 35 pages of capitally executed letter-press, on fine calendered paper, and over 125 well executed illustrations of plants, flowers, flower-stands, brackets and flowers groups; together with copious lists of flowering and ornamental plants, and directions for their proper cultivation. It also contains a circular announcing that No. 1, Vol. 1, of *Vick's New Illustrated Monthly Magazine*, will be issued in January, 1878.

This is an enlargment and improvement of the *Floral Guide*, each number of which will contain thirty-two pages of reading matter, and numerous fine wood-cut illustrations, and *one colored plate*. Subscription $1.25 a year, and five copies for five dollars. Vick's antecedents are such, that the bare announcement of his new anterprise must secure for it a liberal support, and there is no journal in the country, on a similar subject, that we would sooner have as an exchange.

THE CABBAGE FAMILY, its varieties, qualities, and culture. By David Landreth & Sons (Bloomingdale) Philadelphia. Price 25 cents. This is a beautiful octavo pamphlet of 35 pages, and eight finely executed engravings of the leading varieties of cabbages, including Landreth's Large York; Early Sugar Loaf; Bloomsdale Bullock Heart; Bloomsdale Early Market; Jersey Wakefield; Bloomsdale Brunswick; Bloomsdale Early Drumhead; Bloomsdale Late Flat Dutch; Drumhead Savoy, and Curled Savoy. The Landreth establishment is 90 years old, and as an illustration of its standing it is only necessary to state that at the International Centennial Exhibition the firm was awarded seven International Reports, four medals, four diplomas, and three special prizes of $100 each. Send for a phamplet at once.

THE LOCUST PLAGUE in the United States; being more particularly a treatise on the *Rocky Mountain Locust*, or so-called *Grasshopper*, as it occurs east of the Rocky Mountains, with practical recommendations for its destruction, by Charles V. Riley, M. A., Ph. D., State Entomologist of Missouri; Chief of the U. S. Entomological Commission; Lecturer on Entomology in various colleges; author of "Potato Pests," etc. With 45 illustrations. Published by Rand, McNally & Co., Chicago, Illinois. This is a handsome royal 12mo. of 236 pages, with three full-page colored maps, in addition to the other illustrations, printed in clear type, and on fine tinted and calendered paper. The name of the distinguished author alone is a sufficient guarantee that the two chapters into which the book is divided contains the most valuable information that has been yet developed on a subject which is deeply interwoven with western and southwestern agriculture, and no farmer, gardener or horticulturist in that region should fail to possess a copy of it. But this is not all. On looking at the infested region of 1876, as indicated by the coloring on the maps, we find that in that year it extended down to about the twenty-eight degree of north latitude, which is below Galveston, Texas; therefore it has reached the Gulf of Mexico, with the eastern margin of said district or region, about midway between the fifteenth and twentieth degrees of west longitude from Washington, embracing British America, Montana, Dakota, Wyoming, Nebraska, Kansas, Indian Territory and Texas, and parts of Minesota, Iowa, Missouri, and a corner in Arkansas; and all that is required is for the belt to shift eastward to sweep over the larger portion of the United States; but whether there are any circumstances to limit its eastern border, arbitrarily, will require time to fully develop.

$1 a Year {To subscribers in the county.

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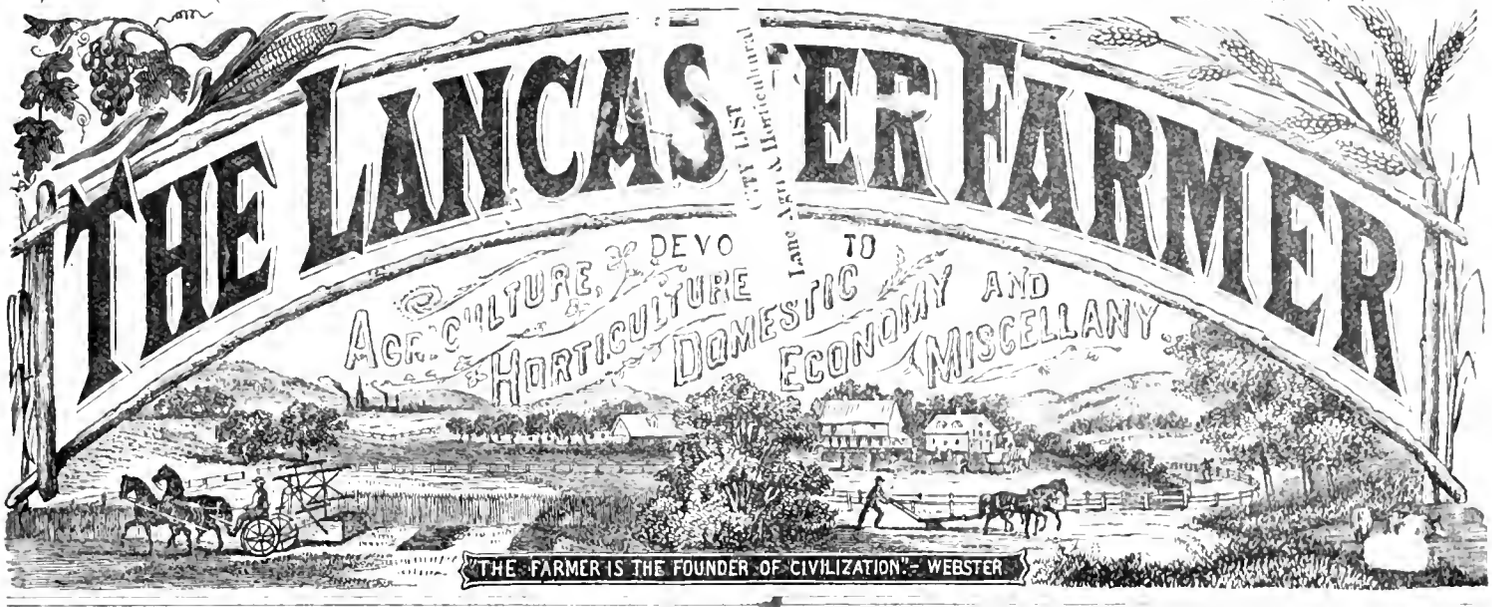
To subscribers out of the county. $1.25



Prof. S. S. RATHVON, Editor. LANCASTER, OCTOBER 15, 1877. LINNÆUS RATHVON, Publisher.

THE FARMERS HOME ORGAN.

The Lancaster Farmer;

A MONTHLY NEWSPAPER,

DEVOTED TO AGRICULTURE, HORTICULTURE, DOMESTIC ECONOMY AND MISCELLANY.

PRACTICAL ENTOMOLOGY

Made a prominent feature, with special reference to the wants of the Farmer, the Gardener and Fruit-Grower.

Founded under the auspices of the Lancaster County Agricultural and Horticultural Society.

Edited by Prof. S. S. RATHVON.

TERMS:

To subscribers residing within the county—

One Copy, one year,	$1.00
Six Copies, one year,	5.00
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All subscriptions will commence with the January number unless otherwise ordered.

All communications intended for publication should be addressed to the Editor, and, to secure insertion, should be in his hands by the first of the month of publication.

All business letters, containing subscriptions and advertisements, should be addressed to the publisher.

THE LANCASTER FARMER having completed its eighth year under various vicissitudes, now commences its ninth volume under, it is hoped, more favorable auspices than attended its former volumes. When the publishers of the last two volumes assumed the responsibilities of its publication, it was with a determination to make such improvements as would place the farmer's organ of this great agricultural county in the very front rank of agricultural journalism. That this has been accomplished we think our readers will bear cheerful testimony. If reasonably sustained, our aim is to make it still more interesting and instructive under its new proprietorship. In this, however, we need the co-operation of every friend of the enterprise.

The contributions of our able editor, Prof. RATHVON, on subjects connected with the science of farming, and particularly that specialty of which he is so thoroughly a master—entomological science—some knowledge of which has become a necessity to the successful farmer, are alone worth much more than the price of this publication.

THE FARMER will be published on the 15th of every month, printed on good paper with clear type, in convenient form for reading and binding, and mailed to subscribers on the following

LINNÆUS RATHVON,

22 South Queen Street, Lancaster, Pa.

RATES OF ADVERTISING ... Ten Cents a line for each insertion. Twelve lines to the inch

CONTENTS OF THIS NUMBER.

PENNSYLVANIA RAILROAD SCHEDULE.
Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*	2:40 a. m.	4:05 a. m.
Way Passenger†	4:50 a. m.	7:50 a. m.
Niagara Express	9.35 a. m.	10:40 a. m.
Col. Accommodation	7:20 a. m.	Col. 8:00 a. m.
Mail train via Mt. Joy	11:20 a. m.	1:00 p. m.
No. 2 via Columbia	11:20 a. m.	1:25 p. m.
Sunday Mail	11:29 a. m.	1:30 p. m.
Fast Line*	2:10 p. m	3:25 p. m.
Frederick Accommodation	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom	6:10 p. m.	8:10 p. m.
Columbia Accommodation	7:20 p. m.	Col. 8:00 p. m.
Harrisburg Express	7:25 p. m.	8:40 p. m.
Pittsburg Express	9:25 p. m.	10:50 p. m.
Cincinnati Express*	11:30 p. m.	12:45 a. m.

EASTWARD.	Lancaster.	Philadelphia.
Atlantic Express*	12:30 a. m.	3:00 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation	9.25 a. m.	12:30 p. m.
Pacific Express*	1:20 p. m.	3:45 p. m.
Sunday Mail	2:00 p. m.	5:00 p. m.
Johnstown Express	3:05 p. m.	6:00 p. m.
Day Express*	5:15 p. m.	7:20 p. m.
Harrisburg Accom	5:50 p. m.	9:00 p. m.

The Hanover Accommodation, west, connects at Lancaster with Niagara Express, west, at 9:35 a. m., and will run through to Hanover.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 2:10 p. m., and runs to Frederick.

The Pacific Express, east, on Sunday, when flagged, will stop at Middletown, Elizabethtown, Mount Joy and Landisville.

*The only trains which run daily.
†Runs daily, except Monday.

Rates of Advertising in the Farmer.

	1 in.	2 in.	3 in.	4 in.	5 in.	8 in.
1 mo	$1.00	$ 2.00	$ 3.00	$ 4.00	$ 6.00	$ 8.00
2 mo	2.00	4.00	6.00	8.00	12.00	16.00
3 mo	2.50	4.50	6.75	10.00	13.50	18.00
4 mo	3.00	6.00	9.00	12.00	18.00	24.00
6 mo	4.50	9.00	13.50	18.00	27.00	36.00
8 mo	6.00	12.00	18.00	24.00	36.00	48.00
1 year	9.00	18.00	27.00	36.00	54.00	72 00

☞ Special and business notices 15 cents per line

The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., OCTOBER, 1877. Vol. IX. No. 10.

FARMERS AND THEIR RELATIONS TO THE COUNTRY.

There are in this country 6,900,000 farmers, 1,200,000 trades people, 2,700,000 mechanics, 2,600,000 professional men, 45,000 clergymen, 40,000 lawyers 128,822 teachers, 62,000 doctors, 2,000 actors, 6,2000 journalists, 1,000,000 laborers, and 975,000 domestic servants.

From the above "clipping," from the news columns of a daily paper, it will be perceived in what numerical proportions farmers stand to any other single occupation in the country, and yet they occupy fewer public places, receive less legislative favors, and are subject to heavier governmental burdens than any other single class of American citizens. In numerical strength they are more than all the traders, mechanics and professionals put together, by some hundred thousands, and it would not be hazarding much to say, that, excepting laborers and domestics, there is not a single one of the above classes that has not, proportionally, fifty or a hundred times the political and official influence they have. This is all radically wrong. Under circumstances as they ought to be no one can presume to know what the farmers of the country need by way of protective laws and social and domestic privileges so well as the farmers themselves. If *they* don't know then it evinces that there is something wrong somewhere. It has long since been written that "*knowledge is power*," but where and how is that power to be obtained? Not by closing their eyes and ears against that which is "written," for that would involve the rejection of the oracles of divine truth; and we would further say, that there is no real truth that is *not* divine. Knowledge is, or ought to be diffusive, and the most efficient means for its diffusion is the printing press; and if farmers desire to occupy the social plane for which nature and nature's God designed them, they must avail themselves of the medium of the *press*.

"Here shall the *press* the people's rights maintain,"
"Unawed by conquest and unbribed by gain,"

has become an axiom of universal recognition, in all lands under the dominion of civil liberty; and it behooves every one to read, for it is the only means of preserving social, civil and religious equality. The individual who *cannot* read, is to be pitied; but the one who *will not* read, surely merits something worse; else, why are we admonished to "search the Scriptures," and how search them if we cannot read? Time was, in the most ancient days of the human family, when there were no Scriptures, and man had direct intercourse with his Creator; but when he fell from his original integrity, other means of communication became necessary, and the Scriptures were *written*; and then the obligation to learn to read gradually devolved upon the human family, and has now become a solemn injunction, and will remain so until the end. Returning again to our "text" we find that there are in round numbers, 40,000 lawyers, 40,000 clergymen and 60,000 doctors, either one of which, as the world goes, weighs as much in the social and political scales as the 6,900,000 farmers do, and all because they *read*—indeed it would be impossible for them to become either lawyers, doctors, or clergymen, unless they learned to read. It is the gravest error that any class of men could possibly make, to argue that superior intellectual qualifications only enable those who possess them to become superior adepts in knavery, dishonesty, sin and fraud; for this is only the *abuse* of a noble privilege, contrary to the apostolic injunction to "use all things as not abusing them." The population of our country to-day is supposed to be about 40,000,000, and estimating one-half of these to be females, would leave 20,000,000 of the male sex. Now, the different classes in our text, foot up about sixteen millions in round numbers, leaving four millions of *what?* Perhaps bankers, drovers and *gentlemen*, with a liberal sprinkling of nondescripts that cannot be classified, but who, nevertheless, subsist upon the productions of the farmer. Take up a biographical history of the world, or any separate nation, and it will be found that much the largest number of the lives of the distinguished men recorded therein have been born in some obscure village or rural district, and comparatively few either in a town or city. Many of them sprang from farmer parentage, and when they became distinguished would point to that ancestral origin with pride; and when they have had a surfeit of public or professional life, have returned again with longing desire to the quiet and peaceful shades of the farm. We opine this world, in its civil, social, and economic affairs, will never be quite right, until that class of men who feed the world exercise more of the controling influences that give character to its domestic government—its official administration. But to qualify any class of men for the efficient discharge of their official duties they must read, observe and think. We do not, however, advise farmers to an energetic mental culture for the sake of merely qualifying them for office—indeed (unless like Cincinnatus of old, they are sought after,) we would counsel them against ever permitting their aspirations to run officeward as a speculation. But we would recommend a wider scope of intelligent labor in the development of our agricultural resources; a more intelligent discrimination in the exercise of their political franchises, and a larger and more diversietid field of social culture, as aims far above the aims of office for the sake of office.

"BEES STINGING FRUIT."

There is a great complaint throughout Reading of bees stinging fruit and thereby making it rot. It is alleged there have been many bushels of the most valuable peaches and pears stung by the bees and ruined. The other day a lady in preserving fruit was literally surrounded by bees. They flew about her head in a large swarm, lit upon the stove, clung to the vessel containing the fruit and were also by the dozen on the ladle used in stirring the fruit.

It is said fully a pint of bees were killed while the preserving was going on, and it is fortunate the preserves were not ruined. As it was, dead bees were found in the preserves. Besides stinging the fruit the bees have now attacked the grapes and are ruining valuable bunches of them. It is said the bees come from hives kept in the city, the owners of which sell the honey.

From year to year this business of keeping hives of bees in Reading has grown until the number of hives of bees now kept amounts to hundreds. In the city, outside of the sugar and molasses hogsheads in grocery stores, and scattering flowers, the bees have little else to live upon except fruit, and hence it is that the fruit is stung by them.—*Eagle*.

This is a subject upon which there seems to be a great diversity of opinion, and perhaps no two observers would be able to record the same testimony—indeed the above heading, which we often notice in relation to this subject, is not a true representation of the *fact*, for in the sense in which alone a bee *can* sting, we can assure our readers that it is altogether improbable, if not impossible, that a bee would sting fruit. That they *could* cut the tender skin of a ripe peach, pear, plum or grape, is quite probable, but as to whether they *would* do it or not, there are various opinions, founded upon various experiences. Even if it is certain that they are guilty of this habit, it does not constitute a case sufficiently strong to warrant the total extermination of the bees, for this would be like destroying all sailing crafts because they sometimes capsize and destroy life, or like demolishing all railroad cars because they sometimes run over and kill or mangle human beings. If the question was narrowed down to bees or no bees, sailing vessels or no sailing vessels, railroad cars or no railroad cars, there would be little difficulty in coming to a unanimous opinion, and we feel certain that it would not be an adverse one. Some special admirers of bees, especially if they possess thrifty bees, and have no fruit that they particularly value, will testify not only that bees *will not* cut the skin of fruit, but also that they *cannot:* but this is certainly not based upon a profound knowledge of the character of bees, and of their organic structure. There are certain organic characters that pertain to all the Hymenopterous insects, and some of them possess it in a very high degree, and one of those is their power to cut into and through hard or tough substances, and they all perform this operation with the same instruments; namely, their *mandibles*, or jaws. The common *"Wood-borer," or "Carpenter bee," will cut a hole into a pretty hard piece of wood, although it most generally selects soft pine. Other wood-boring hymenopterous larvæ are known to have cut their way through a dozen plies of black cassimere, in cases where the cloth has been rolled around a piece of wood that previously contained the eggs, or the young grubs in embryo, and on one occasion we obtained the perfect †insects, under these same circumstances. The ‡"Hornet" and the common ‖"Wasp" are well known to possess great mandibular or cutting power, and often lacerate apples, pears, peaches, plums and grapes, destructively, and without much effort. Every woman that has raised roses, has had occasion to deplore the depredations of the little §"Rose-leaf cutter bee," using its jaws as deftly and with as much precision as a practiced garment cutter, in cutting circular disks out of her rose leaves. Now, this last named individual is not far removed from the common ¶"Honey bee," for it belongs to the same family. Indeed when we consider that all Hymenopterous insects have to cut their way out through the pupa skin or cocoon that envelopes them, the integument of which in many instances is infinitely more tough than a fruit skin, especially that of a grape, we need not be surprised that bees would cut grapes, if they had not easier access to other food. We well remember in our boyhood how we used to imprison bees of various kinds in the flowers of the "morning-glory," and other trumpet shaped flowers, just to see how very easily many of them could cut a hole through the side and make their escape. We could cite hundreds of cases illustrating the mandibular or cutting powers of Hymenopterous insects, but let these suffice for the present.

We have never ourself detected bees in the act of cutting the skins of fruit, but we have seen thousands of them extracting honey from fruit, the skin of which had cracked, or had been previously broken through other causes; but from our knowledge of the organic structure of their mouth parts, we are very far from asserting that they *could* not do so, or *would* not do so, under certain provocations which they could not resist.

The editor of a Reading newspaper, some weeks ago, came out in a vigorous assault upon the character of bees, and although all he says of their grape-cutting propensities may be as true as much that we receive from similar sources, yet his preventive recommendations are of a malignant, if not a diabolical type, to speak as mildly of them as we possibly can; and are not justified by a consideration of all the circumstances. In this connec

*Xylocopa Virginica. †Urocerus cyaneus. ‡Vespa Maculata. Polistes Fuscatus. §Cœloxys octodentata. ¶Apis Mellifica.

tion we may remark that bees, like other animals, not even excluding the human species, when they become hungry, in obedience to an instinctive impulse which they cannot resist, will make an effort to gratify their present demands, or future wants, even if they have to steal it. Any human being in health is fully sensible of the goadings of hunger, and regards the idea of starvation with feelings of unmitigated horror. Need we then be surprised that animals, not endowed with reflective reasoning, should purloin those alimentary substances which are so essential to their own healthy development, and the perpetuation of their species? We have the testimony of several intelligent observers, whose reports are altogether reliable, notwithstanding they are somewhat conflicting on a merely superficial examination. One gentleman of veracity and of close observation informs us that, notwithstanding he has kept a vigilant watch over his fruit and the insects that visit it, yet he has never in a single instance detected a bee cutting or lacerating the skins of his grapes, although his observations have been conducted from morning to night, and for several days in succession. He has seen bees extracting the juices of the grapes where the skin had been cut by wasps or hornets, or where they had been broken from other causes. Another testifies that he has frequently seen the larger Italian bees cutting the skins of the grape berries, and afterwards our native species follow them up and continue the work of destruction thus begun. This fact, he states he has witnessed over and over again, but he has never seen our local variety making the original incision. Another one testifies that both varieties of bees, in connection with wasps and hornets, cut the skins of grapes, peaches, and also plums, and that they have visited the fruit in his enclosure apparently for that purpose alone. Now, these things being so, does it not suggest that no one in a large town or city, who has not sufficient land to furnish food for his bees, should be allowed to keep them, more than he should be allowed to keep sheep, pigs, and cows, and let them trespass upon the property of his neighbors for their daily supply of the necessary quantity of food to sustain them. It might also suggest, whether, if bees appropriated the whole crop and converted it into honey and wax, it would not pay as well as to sell the fruit, or convert it into wine, &c.

In conclusion we may state that the question is still an open one, and if it can be discussed with a strict regard to the truth of the matter in issue, some use may grow out of the discussion—at least no harm.

DO SWALLOWS EMIGRATE?

From the Country Gentleman.]

Seeing the remarks of OBSERVER, on page 555, I am led to ask the question whether swallows go, like other birds, to a warmer climate to winter, and where they go. Can the readers of the *Country Gentleman* tell us certainly?

When I was a boy we were cutting some coarse grass in a swampy place, near some small trees and bushes of stinted swamp growth, around a very muddy place, sometimes covered over with water. This was on the 25th of August. All the time we were at work that day swallows sailed and hovered around over the swamp in great numbers. I remember asking my father what made the swallows so thick. He asked me if I knew what day of the month it was, and I replied I did not know. He said he believed it was the 25th, and the swallows were preparing for their departure for the season. I asked him where they went so early in the season. He said they were "going into the mud in this swamp; toward night you can see those bushes and trees around that mud hole, covered with them, and to-morrow you will see no swallows flying about." This was astounding news to me, and I asked if they really went into the mud for winter quarters. He replied, "yes, I know some of them do, and believe all do, for I once helped to excavate mud from an old mill pond, and on one side the mud was quite thin, and in that we dug hundreds of barn swallows in a dormant state, which on being exposed to the air and warmth showed signs of life." This so worked upon my mind that I thought I would see if I could not dig out some, and when I had a leisure time I intended to repair to the swamp hole for the purpose, but rain set in, the mud hole was a bad place to go into, and I did not attempt it.

The next year, about the same time, I was sent to the mill, about three miles, to get rye ground for bread. While it was being ground I was fishing, and in the middle of the mill pond was a peninsula covered with water only when it was very high. On this were dwarf and dead willows completely covered with swallows. I called the old and much respected miller's attention to it, and asked him if they went in the mud for winter quarters. He said that he supposed they did, "for they come there in just such numbers about this time every year, and are not seen afterwards." I watched them while fishing, and could see them fly down and up, but they were so far off, and so numerous, and in such commotion that I could not watch each individual swallow, or see that their ranks were growing thin while I remained. I have many times since seen them gathering around swamps, and noticed their sudden disappearance, and did the present year. Now, am I alone in this (theory) or are there others who think the same? Can those living at the South tell where northern swallows winter?—*L. F. Scott, Litchfield co., Conn.*

The theory of swallows hibernating in mud holes is a very old one, and just as erroneous as it is old; and observations made, "when I was a boy," are entitled to no credence whatever on that account. This theory obtained when *we* were a boy, more than half a century ago, and we believed it, but neither then nor in the long period that has intervened, have we ever seen anything in confirmation of it; and it is astonishing that in the present advanced state of ornithology any person of intelligence should entertain such a notion for a single moment. Swallows and martins depart for the West Indies, Central America, and Northern South America early in September, and there they have been seen many a time during our northern winter seasons. Always gregarious just before their departure, they become more so during the day and towards evening, but separate to their various abodes during the night. They usually take leave of us very early in the morning, and hence if they should have been seen in large or small numbers about a mud hole or a pond of water the evening before their departure, the unwarrantable inference has been drawn that they hibernate in the mud, because nothing is seen of them the following morning. And why do they assemble about mud holes, marshes, ponds and stagnant waters? Simply because about the end of summer such places afford them the greatest amount of food. Swallows are purely insectiverous birds, and they take them mainly on the wing; and where *insects* most assemble *they* most assemble. They confine themselves to the smaller species of insects, and especially the Diptera (two-winged flies) such as gnats, mosquitoes, "gallinippers" and the like, and these breed in stagnant waters, and as summer wanes they are found in greatest numbers in such places. During midsummer, or early in the season, insects fly higher and farther away from their breeding places, but as the weather cools they are most abundantly found near those places. Has it never occurred to the reader that he has suffered more annoyance from mosquitoes after the 1st of September than he has prior to that date; and has he ever reflected that this may have been because the swallows had all left the vicinity of his abode, and consequently the mosquitoes had increased? Are we progressing or retrogressing in scientific knowlege?

A BEET HARD TO BEAT.

We were fortunate enough to become the recipient of the large red-beet which Mr. Henry Kurtz, of Mount Joy, had on exhibition at the meeting of our local society, on Monday, the 1st of the present month. This Chenopodiacean subject of the vegetable kingdom, was of a deep crimson color and of the turnip-rooted variety, measuring nine inches in its vertical diameter, from the base of the leaves to the beginning of the tap roots, and about the same in its transverse diameter, making it about twenty-seven inches in circumference, and weighing fully ten pounds. True, we have seen larger vegetables of the beet kind, weighing from twenty to thirty pounds, and we have read of some weighing from forty to fifty pounds, but they were not of the red or turnip variety, and were too hard, coarse and insipid to be used as human food—only fit for stock—but this specimen possessed all the edible qualities we find in the ordinary sized turnip variety of red-beets. We were also the recipient of some fine Herbamot, Lawrence, Dix, Chinese Sand, Beurres Bose, Anjou, Diel, Clargeau and other pears, as well as apples and grapes, kindly donated by Messrs. Casper Hiller, H. M. Engle, Daniel Shmeych, I. L. Landis, L. S. Reist and others, whose names did not come to our knowledge.

We feel grateful for these tokens of personal consideration on the part of these gentlemen, (both the known and the unknown) and hope nothing may transpire in our relations, to illustrate that they have discriminated falsely in our behalf, either in the past, present or future—and we do assure them that these things, both in their moral and material bearings, afford an agreeable and healthful stimulant to our editorial labors; and the more so because of their unfeigned spontaniety and disinterestedness, qualities which enhance the value of any gift.

But, if "troubles never come single," so neither do favors, for here comes, on this auspicious 8th of October, our genial friend, Wm. Weidle, and lays us under a special obligation for a luscious lot of Lawrence, Erbeniste, Grey Doyenne, Buerre Clairgeau, Buerre Diel, and Buerre Morea pears, and Israella grapes. It is just as difficult to discriminate where everything is good as where everything is bad; nevertheless we cannot refrain from mentioning the superior, juicy, and buttery qualities of the unpretending little "B. Morea" pear. In its melting edibility we realize that rustic description which declares a thing "as slick as goose-grease, and goose-grease as slick as butter, and butter the slickest kind of grease," for so indeed it was. It seems to us that we never before have had such a striking exemplification of the keeping qualities of the Israella grape. It ripens simultaneously with the Hartford Prolific, and yet here on the 8th of October, it was plucked from the vines as plump, as solid, and as luscious as the first clusters that ripened six weeks ago. That surely is a quality not to be disregarded.

FINE TOBACCO LEAVES.

The following is a detailed description of some specimens of tobacco exhibited by Mr. Henry Kurtz, at the meeting of the "Tobacco Growers' Society," held in this city on the 17th of September last, two days after the issue of the September number of THE FARMER. These leaves were eight in number, and although they are not represented as the true average of his whole crop, yet they were all in a vigorous growing condition, and would have increased much in size had they been permitted to remain a week or ten days longer in the field, and might have remained there until the 1st of October, so far as the weather was concerned.

No. 1. Centennial seed, 30 inches wide by 42 inches long; grown in sixty days from the "stock," or planting out.

No. 2. The same seed, 47 inches long by 37 wide, in 60 days.

No. 3. The same seed, 40 inches long by 26 wide, cut September 17th; planted the stock on July 15th.

No. 4. The same seed, 42 inches long by 26 wide, raised from small plants and cut September 5th.

No. 5. The same seed, 47 inches long by 28 wide, planted July 23d from seed stock.

No. 6. The same seed, 45 inches long by 26 wide, planted July 23d, grew 60 days.

No. 7. Hartford seed, 35 inches long by 22 to 26 wide, plants small, and grew subsequently to 46 days.

No. 8. Hartford, 36 inches long by 22 wide, planted July 19th, and cut September 15th to 17th.

Mr. Kurtz's tobacco fields are near Mt. Joy, in Rapho twp., and his crop, on the whole, has done well, which is more than a good many others can say, although the crop in Lancaster county has been, generally speak-

ing, pretty fair. The average weather was too dry up to the 17th of September, but the "latter rains" greatly helped those plants that had not been cut and housed before they occurred.

Mr. Kurtz is a clean and thorough cultivator, and makes a free use of "misht" from the barn-yard. It is becoming every day more manifest that thorough culture, clean weeding, and strong manuring, are essential factors in the raising of tobacco, and that it is not safe to leave anything to chance; but these are not more essential than vigilant "worming."

RECIPE FOR DECORATING EGGS.

Take an egg and cover it over with beeswax. Prick the letters on the beeswax and then scrape all the wax off the shell except where letters are, and then dip the egg into the acid. The shell will then peel off, all but the part where the letters are, thus making what is known as "raised letters." It can be done every time, and done so nicely that even the hen can be fooled into thinking she laid the egg.

Waiving the usefulness of the process contained in the above "recipe," in its details it certainly is as "clear as mud." When the egg has gone through a certain preparation we are instructed to dip it "into *the* acid." What acid? Not the slightest allusion, either by word or implication, is made previously to *any* acid, either nitric, sulphuric, muriatic, oxalic, tannic, formic, prussic, or malic. And then, again, what is the object of such a decoration? With the shell "peeled off" it can be of no use as a plaything for children; and if only intended as an ornament to the table it must be a poor affair, and certainly would go no farther in satisfying human appetite than a plain egg. What occasion "every time" may relate to we are left to guess, and if it even means eternity it would be hardly worth perpetuating if its object is only for the purpose of "fooling hens" into the "thinking they laid them."

SMEYCH'S SEEDLING.

This is a luscious yellow clingstone peach, produced from the seed, by Mr. Daniel Smeych, of this city. A specimen of this peach before us measures over eight inches in circumference both ways, so that it is nearly round. The suture is very indistinct, the stem very short, and the cavity moderately deep—indeed the fruit hugs the branch so closely that it leaves the impression of the latter on the fruit. The flesh is a golden yellow, moderately firm, juicy and pleasantly sweet. The skin is almost as clean as a nectarine, although it has a soft and velvety feel, and it has a moderate blush towards the upper end. As a clingstone, nothing has come under our observation that is superior, and it is worthy of extended culture.

MONTHLY REMINDER FOR OCTOBER.

Earth up celery, dig up potatoes, sweet-potatoes and other roots, as they mature, and store them away for use; collect squashes and pumpkins, and expose them in a dry place to a good airing, previous to storing them away. Blanch endive, hoe and weed out fetticus and spinnach, plant out cabbage and lettuce plants in cold frames.—*Dick's Gardener.*

This is the best season for setting out rhubarb. Divide the old roots, leaving a good bud to each plant, and set in soil made very rich. In taking out sweet potatoes let the tubers lay in the sun an hour or two before putting away. Grapes carefully gathered and placed in a cool, dark, dry cellar will keep for several months. Handle with care and preserve the bloom intact. There is no better time to set out raspberries and blackberries than the month of October. It is preferable to spring planting. A patch of rye sown in this month early, the ground being well manured, will come in good use for feeding milch cows next spring, before the pasture field is ready to turn out upon. Evergreens may be set out now, and the sooner the better. Select small trees, preserve all the fibrous roots possible, and do not allow them to become dry.—*Farm Journal.*

THE CATTLE DISEASE.—No. 1.

The unusual widespreading and fatal epidemic now prevailing in this county, and over a very large portion of the northern and middle sections of the country, must be an apology for the introduction of so much on that subject into this number of our paper. So far it has almost entirely baffled the profoundest skill of the veterinary profession; and if the doctors cannot make headway against it, there seems to be but little prospect of success to the efforts of amateurs. This disease manifests itself somewhat differently in differently circumstanced districts, and is called "splenetic fever," "Texas cattle disease," "pleuro-pneumonia," "murrain," "lung fever," and a number of other names.

"There is now prevalent among the cattle of some townships of this county a typhus disease known as the Texas fever, which has not only caused the loss of many valuable animals, but which is in danger of tainting the milk and beef used by the people of this city. The disease has been located in this section by the importation of Texas cattle, large numbers of which are brought to Ohio to be fattened for market. These cattle are infested by a small parasite, an insect about the size of the common house fly, which burrows in the skin, leaves a poisonous sting which infects the blood, acts disastrously upon the spleen and liver, and, if not arrested by prompt treatment, causes death. On one farm in Brooklyn six valuable cows have died. There are many cases in Parma, and the situation is so threatening that in the latter township the farmers have held a meeting, organized and appointed a committee to ascertain and report the best methods of treatment.

"The disease is making its appearance simultaneously in different and widely separated parts of the country, and owners of cattle may be pretty sure that the Texas or Spanish fever will prevail this fall in neighborhoods where what are called "through" Texas cattle have been fed or pastured, en route to Eastern markets, and that the only cure yet discovered for the disease is to kill at once all the cattle affected by it, and to keep all unaffected herds away from the yards or pastures where Texans have been fed or yarded, until the frosts have disinfected them. More Texas cattle have reached Eastern markets during the last month than for the same period in any previous year, and the favor with which Texas beef has of late been received in all our markets has led to a large direct importation from the plains of Southern Texas and to indifferent inspection of the cattle by the shippers. A general outbreak of Spanish cattle fever this fall would be a calamity at this time. Beef has already made an advance of more than 2 cents per pound, compared with the price of a year ago, and the loss of a small percentage of the present stock in the country would put another dollar per 100 pounds upon our beef supplies.

The above extract from a western paper we find in a recent number of the New York *Tribune*, but we must confess that to our dull apprehension, the more we read it over the more it becomes "as clear as—mud." Cattle are now, and have been for many years, periodically infected with a number of malignant epidemic diseases, known by the names of "lung fever," "murrain," "rinderpest," "foot and mouth disease," "Spanish fever," "Texas fever," but, perhaps, more properly, "pleuro-pneumonia" or "epizooty;" and, although these may fundamentally have their origin in the inhalation of animalculæ, or fungous sporules, yet it seems impossible that they could be caused by the infestation "of a parasite, an insect about the size of a common house fly, which burrows in the skin and leaves a poisonous sting which infects the blood, acts disastrously on the spleen or liver, and, if not arrested by prompt treatment, causes death." It is true, cattle everywhere are infected by "gad-flies," which deposit their eggs on the backs and sides of these animals, and the grubs of these eggs, when hatched, burrow under the skin and then form an irritating pustule or tubercle; but this is only local—not constitutional—and after the grub is fully developed it makes its exit of its own accord, burrows into the earth, and in due time comes forth a mature fly like its progenitor.

It is also true that if these insect infestations become very numerous they might cause the death of the animals they infest, as sometimes occurs in the horse infested with the grubs of the "bot-fly," or sheep with the "sheep-bot;" and it has also occurred that animals have been killed by being numerously stung by bees, wasps and hornets; but these are neither epidemic nor constitutional diseases, they are merely acute cases of local and temporary irritation or inflammation. The diseases among cattle now in this country, and which have been so fearful in their results in England and on the continent of Europe, have an entirely different origin, and those writers who attempt to mix the matter up with "parasites as big as a house-fly," are only mystifying the whole subject. The prevailing disease is, doubtless, *pleuro-pneumonia*, perhaps one of the worst forms of epidemic disease that animal "flesh and blood is heir to." This disease was first imported into Brooklyn, L. I., in 1843, by a Dutch cow; and again, in 1850, by an English cow; into New Jersey, in 1847, by English stock, and into Boston, in 1859, by Dutch cattle; and we have had more or less of it ever since; therefore Texas is not to be considered responsible for *all* of it; and probably did not originate what exists there at this time.

To illustrate how near the disease is to us here in Lancaser county, its fatal results, its nature, and its treatment, we will adduce the substance of a correspondence between Mr. John Patterson, of Chester county, Pa., and the editor of th *Ohio Farmer*, in August last. Mr. P. says: "There is a disease among my cows upon which I should like to have your opinion and your prescription for treatment. Eleven of my excellent herd have already died, including one young bull, for which I had refused $500. It is a fever, similar to typhus, or lung fever, which appears to attack the lungs only. They have generally died in thirteen days from the time they first appeared sick. When opened, after death, a quantity of blood was found lodged around the heart and lungs, and the cells of the lungs were filled with a white mucus, and became perfectly solid. I am anxious to save the remainder of my herd and feel that there is no time to lose."

To this the editor replies: "The disease is *pleuro-pneumonia*, and results from the *hepatization* of the lungs, (that is, the lungs change to a substance that has the appearance of liver,) and it is epidemic among your herd.

"*Treatment.*—Bryonia 2 drs., phosphorus 2 drs., dilute and mix; nux vomica 2 drs., belladonna 2 drs., dilute and mix. Give a one dram dose, alternately, every two hours for the first 24 hours, and then once every six hours for three days thereafter. For each cow get three ounces of the two remedies after being mixed. Administer all the medicine upon the tongue. Allow them all the cold water they want."

All the agricultural papers that have spoken upon the subject, both in England and America, as well as all the societies and the veterinary organizations, concur in the opinion that the disease ought to be rooted out by the most stringent measures, executed by the central governments, and the expenses defrayed out of the national treasury; and that little good can be looked for by isolated action by state, county or township, or by individual efforts. The danger threatens the entire country, and therefore it is a national affair. All the witnesses of every school have practically agreed that in case of a general outbreak of the disease, the necessary measures for its arrest should not be left to local enactments, but should be by all means vested in central authority, which should also be vested with ample powers; and the general conclusion is, that if ever there was an opportunity for the national agricultural department and its commissioners to distinguish themselves as well as the national government, it would be in taking special cognizance of the whole subject, and vigorously prosecuting it with all their powers and their pecuniary resources.

Up to the present date, it is estimated that over fifty head of cattle have died of the prevailing disease in Lancaster county since the middle of July, whatever may be the name or character of the disease.

THE CATTLE DISEASE—No. 2.

A good deal of unnecessary ado is just now being made about a certain large species of tick that is found both on the living and dead cattle; just as if they were entirely a new thing, when in point of fact, these little pests have been in the country ever since cattle have been here—if they were not here before—for there are species that infest not only cattle, but also sheep, dogs, deer, foxes, swine, porcupines, and perhaps also bears, and other wild animals; and everybody that has done anything at "blackberrying" knows full well that there is a minute species that seriously annoys him for several days after he returns to his home; but these are only cutaneous or external infestations, and after a time the ticks leave him, without affecting his general health.

We have three specimens of these cattle-ticks before us, one of which we received from Mr. Robert Dysart, and two from Messrs. Marshall & Rengier. The first was taken from an animal that had died of the cattle epidemic, and the last from living animals owned by Mr. Lorentz Knapp. They are species of *Ixodus*, nearly allied to the English species *crinaceus*, and which in that country are found on cattle, dogs, foxes and hedgehogs. They are of light olive color, have eight legs, and are over half an inch long and a full quarter of an inch broad. On the back some of them are clouded with a yellowish color, and they have the power of inflation and contraction, causing thoracic and abdominal longitudinal dorsal depressions. They belong to the ACARI, their octopedal character allying them to the spiders. But they have no connection with, and are not the cause of, the present cattle disease, which is properly an infection, and not an infestation. How far this disease is due to sporific or animalculous inhalation, is more than we are able to say, for this would require a very careful and expert analysis to determine; but we are confident that no animal the size of these ticks, or of the "flies" alluded to in an article in the *Intelligencer* a few days ago—could produce such effects, and therefore people had better at once begin to deal with the substance, and not exercise themselves so much with the shadow. In addition to the article above alluded to, a very excellent paper, on the same subject, from a writer at Ephrata, previously appeared in the *Era*, and also one from Mr. Stauffer subsequently, from which it appears that the disease is inflammatory, affecting the heart, the lungs, the liver and the spleen—some one or more of these organs, and sometimes all of them. There seems to be some difference of opinion in regard to the remedy for its prevention or cure, but the preponderance of opinion favors the killing immediately of all infected animals, and subjecting others to a rigid seclusion or quarantine, until the colder autumn or winter weather sets in.

This disease (*pleuro-pneumonia*) has a very diverse effect on cattle, accordingly as they inhabit uplands or lowlands, coast or mountain ranges, swampy grounds or those that are dry. It has been known to infect the cattle in one field, whilst those in another field would be entirely free from it, although there may have been only a common ridge, a road, or even a fence between them. It appears also that droves of cattle passing through a district where the disease had not previously existed, have infected those districts very fatally, whilst those in transit have been apparently free from it; also cattle removed from one district to another have become infected, whilst those previously there and acclimated, as it were, have manifested no indications of the presence of the disease. All these circumstances add to the complication of the case; but at the same time they evince that the disease is not caused by insects as large as these ticks, or by others as large as horse-flies. Not that these insects could not produce death if they were present in sufficiently large numbers (for animals have been stung to death by bees), but cattle have died of pleuro-pneumonia, or spleen disease, where no ticks or flies were present, and those infested with both ticks and flies have not been infected at all.

SPLENITIC FEVER.

How it was Introduced—Its Symptoms and Cause—The "Tick" Theory not Tenable. Post Mortem Results.

Several weeks ago a drove of Southern cattle passed through this section of the county, stopping for several days on the farm of Mr. Frederick, proprietor of the Ephrata Springs. During last week four of Mr. Frederick's cows sickened and died from a cause apparently unknown to the owner. The symptoms were clearly those of Periodic or Splenitic fever. The drove of cattle after leaving here went in the direction of Reamstown Station, Schœneck and the northern end of the county, the owners disposing of cattle to farmers, and it is from those parts that we hear of large numbers of cattle dying from the same disease as those of Mr. Frederick.

The Symptoms Described.

On the first appearance of the disease in those animals which we observed, the ears drooped, the gait was lazy or sluggish. In cows that yielded milk, there was a sudden stop in the flow; the animal continued to eat and also ruminated, though only at long intervals; the paunch appeared full, rather as if bloated; there was a general disposition to lie down, the hind legs drawn under the belly, the fetlocks knuckling over behind, the faces occasionally showing slight hemorrhage. As the disease progresses, in some cases the urine became bloody; in two of the animals we noticed the muscles of the flanks and thighs to tremble constantly. There is, in the large majority of cases, a weakness or feebleness of the hind limbs, and when compelled to walk they have a staggering gait, and when lying down and desiring to rise, there is great difficulty in raising the hind quarters from the ground.

A Post-Mortem

of one of Mr. Frederick's cows several hours after death, was made with the following results: A marked cadaveric rigidity; the respiratory passages perfectly healthy; the lungs seemed pale; the left lung was somewhat ecchymosed. The heart was of normal size and consistence; there was a slight ecchymosis over the outer surface; considerable blood in right ventricle; left ventricle contained dark blood; the alimentary canal, from the mouth to the third stomach, seemed in a normal state; the contents of the third stomach were quite soft and small in quantity; the cardiac end of the fourth stomach was of a very dark red color; on the folds yellowish elevations appearing like vesicles, though solid; the pyloric had a normal appearance; the liver and gall appeared generally healthy, with the exception of slight congestion of the gland; the spleen was much enlarged, much thicker in the centre than the outer parts, of a dark purple tint. Not having a pair of scales near at hand to weigh, we should have judged it over three times its natural size, its pulp soft and rotten to the touch; on making an incision into it, its softened pulp exuded without any pressure being made. The kidneys turbid with blood, and the urinary bladder filled wth bloody urine and much distended; its mucous membrane at the fundus was much congested; the cranial contents appeared unusually vascular, though otherwise healthy. The spinal cord in the dorsal and lumbar region was slightly reddened.

Some of the cattle, we are informed, are covered with a species of tick, and to this insect is attributed the cause of the disease and death of those cattle, the tick by eating into the flesh of the animal depositing therein a certain poison.

The Tick Theory Disposed Of.

This "tick" theory is, however, not in accordance with the theories of the most eminent scientists in this country who have investigated those diseases. Prof. Gamgee, who was sent to Texas by the general government to investigate, and, if possible, find a remedy for this fever, says: "The 'tick theory' has acquired quite a renown during the past summer (1868); but a little thought should have satisfied any one of the absurdity of the idea: 1. Ticks are not easily fenced in on a piece of land by a wood fence, as cattle are; a wood fence sufficiently isolates cattle to prevent splenic fever. 2. We have seen Texan cattle, both alive and dead, and also dead western, quite free from these parasites. There has been no relation whatever between the abundance of ticks and the severity of the disorder. The malady has been quite as malignant where few or no ticks occurred. The tick is not confined to gulf-coast cattle, which we know communicate this disease, but it is met with in various parts of the States where cattle are reared that never cause splenitic fever. Why should the ticks not communicate the malady from western cattle to other cattle if they can induce it by crawling from the Texan to the western stock?"

The Only Sure Preventive.

The great desiderata in this disease seems to be "prevention," as after our native cattle once have taken this fever there is apparently no cure, no alternative but death. Then no matter whether it is "tick" or "periodic," die they must, and the best plan that we know of is that given in the *Prairie Farmer* in 1868, in which a correspondent says:

"Talk to a Missourian about moderation when a drove of sick cattle is coming, and he will call you a fool, while he coolly loads his gun and joins his neighbors, and they intend no scare either. They mean to kill, do kill, and will kill untill the drove takes the back track, and the drovers must be careful not to get between their cattle and the citizens either, unless they are bullet proof. No doubt this looks a good deal like border-ruffianism to you, but it is the way we keep clear of the Texas fever. Texas stock should not be allowed to cross the 35th parallel of north latitude alive."

This, doubtless, is a very effective measure, and any man driving Southern cattle through should be given the cold shoulder, and he and his drove escorted beyond the county limits.

Other Theories Advanced.

From our Reamstown Correspondent.]

Farmers in this part of the country are considerably alarmed about an evidently new disease which only a few days ago made its appearance among the cattle. Several farmers between this village and Lincoln have within the past few weeks suffered severely from the ravages of this much dreaded disease. Farmers are of the opinion that it is the result of poisoning from Paris green, which had been sprinkled on potato patches, which in many instances are in oatsfields, and are now, as potatoes are being taken up, being pastured.

Veterinarians,

however, contend that the cattle is infested with an insect of the species *acarus*, commonly called *tick*, which have undoubtedly been imported with Texas cattle, and that the bites or stings of these insects are venomous, and that this is probably the cause.

We were to-day shown one of these pestiferous fellows, which, when full grown, are about the size of a potato beetle, by our affable veterinarian, Mr. Geo. Fry, who had it corked up in a bottle. He said they are very tenacious of life, for nothing but carbolic acid would kill this one.

Nothing but Splenitic Fever.

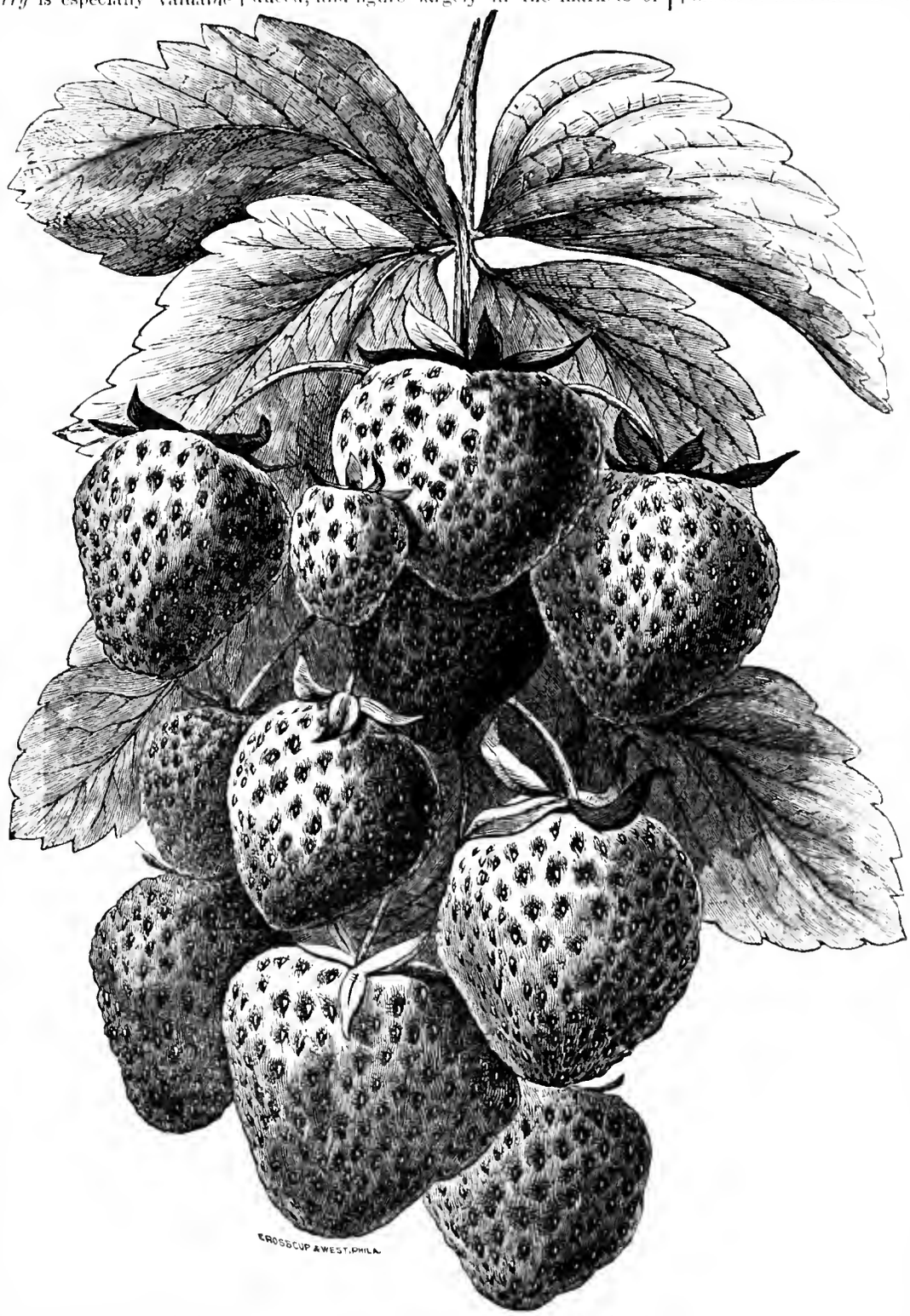
Mr. J. G. Garman, one of the most successful veterinarians in this county, dissents from the above-named theories, and says the disease is nothing but *splenitic* fever, for which no reliable cure has yet been discovered. Upon examination he found the spleen, in all cases, double the size than when in a normal condition. He thinks the disease is contracted through malaria generated during the drouth among the withered and decaying vegetable matter, and inhaled by the cattle while grazing.—*The New Era.*

THE CONTINENTAL STRAWBERRY.

The accompanying illustration represents a single fruit-stalk of the "Continental" and its fruit, photographed from nature, and is one of the Centennial prize-berries; and for which a *medal* and *diploma* were awarded to Messrs. Gibson & Bennett, Florists and Fruit-growers, of Woodbury, New Jersey, who cultivate and have for sale nursery stock, roses, grape vines, &c., &c. This berry was recognized by the committee as one of the very best market berries on exhibition, and also one of the *best paying*, which is a desirable quality. The *Continental Strawberry* is especially valuable on account of its great productiveness, large size, firm texture, delicious flavor, and late ripening; fruit very large, obtusely conical; color dark red; flesh very firm, and it might be said unequaled in its mild, exceedingly agreeable and delicious flavor. Many of the berries attain a length of nearly two inches, a transverse diameter of over two inches, and a circumference of six and a half inches. Its late ripening is one of its greatest merits, because it continues in the market when most other varieties have become exhausted, and this is a great *desideratum* with those who grow berries for profit. This exceedingly fine variety of the strawberry was originated by Mr. Oscar Felton, of Camden county, New Jersey, who is a practical, enterprising, and successful fruit-grower, having produced hundreds of excellent varieties of not only strawberries, but also raspberries and other fruits, during a period of twenty-five years of horticultural experience. The Continental is so much superior as a profitable market berry, that many growers are, for the first time, ready to discard the Albany seedling altogether. The importance of growing the finest fruit for market is becoming more apparent every year, and it becomes all fruit growers and market men to select carefully, and grow and patronize the best only. The advantages of this policy may be readily understood when we compare the prices obtained in the Philadelphia markets, last summer, for the "Albany" and the "Continental," the former only bringing from 6 to 8 cents per quart, whilst the latter readily brought 25 cents per quart. Many of the fruiterers in and about Philadelphia give their testimony in favor of the *Continental*. The plants are of a very vigorous and robust habit, run well and multiply rapidly; foliage very heavy, standing up from ten to fifteen inches above ground; fruit stalk very large and strong, standing well up, showing the blossoms and green fruit above the foliage, generally supporting the ripe fruit up from the ground, but sometimes bending under its unusual weight.

Judging from the reception these berries have already met with thus far, and from the character of their originator, and those who cultivate the stock for sale, they will most undoubtedly win favor wherever they are introduced, and figure largely in the markets of the great cities in our country, and also in those not so great.

Thrifty plants may be obtained at $3 per dozen; $15 per hundred; $100 per thousand; by addressing orders to GIBSON & BENNETT, Nurserymen, Woodbury, New Jersey.



UNAVOIDABLE circumstances have delayed this number of THE FARMER beyond the usual time of issue, but we hope to avoid this in future.

QUERIES AND ANSWERS.

Salicaceæ—Willowworts.

"O meet me in the willow glen,
When the silver moon is beaming."

An anecdote is related of a very irascible carter, who was in the habit of swearing most inordinately at every trifling adverse occurrence, who, on nearly reaching the top of a steep hill, on one occasion, when the "tail-gate" of his cart fell out, and twenty bushels of loose apples went leaping down a half mile hill, like a whole academy of school boys in pursuit of a rabbit—his anger was immediately excited to its highest pitch, and those about him expected that things around them would become "sulphurous." But there he stood and stared until the last apple bounded out and off, like a culprit released from a calaboose, when he caught again his breath, which seemed to have gone after the apples, and remarked with emphasis—"Well, there's no use in swearing. I can't do the subject justice."

On several occasions Mr. J. M. M. has brought us branches of a tree during the present season in its various stages of development, including bud, bloom and foliage, and it was only when the latter was fully matured that any approach could be made towards the determination of its species, although its family we apprehended from the beginning. In short it is a species of willow; but when we referred to the family and saw its magnitude, like the disconcerted carter, we felt that we "could not do the subject justice." They have almost every form of leaf, from an almost perfectly circular to the most delicate lanceolate. The family also includes the poplars, and it is sometimes difficult to distinguish between them.

Louden, in his Cyclopedia of trees and shrubs, describes one hundred and seventy species belonging to the genus *Salix* alone, besides many varieties, and gives illustrations of the leaves and flowers of a large number of them. Johnson, in his Gardener's Directory, catalogues two hundred and thirty species belonging to the genus, and gives the original localities of all of them, and also the dates of their discovery and description. Mr. M.'s species is the *Salix nitans*, or "shining-leaved willow," blooming about the 10th of April,

and is a native of Scotland. Louden inserts it in his 18th group, Bi-color, in which the upper surfaces of the leaves are a shining green, and the lower surfaces velvety, and whitish green; characters which are conspicuous in many of the poplars and maples.

The term *salix* is from the Celtic *sal*, near, and *lis*, water, which is its natural place of growth, and, accordingly, there is perhaps no tree or shrub that is more easily cultivated. A ripened shoot need only be inserted in the soil, in either spring or autumn, and it is almost certain to grow and will soon form a tree, especially if the ground is moist or marshy—indeed we have seen vigorous shoots strike out from a willow trunk one or two years after it had been cut down, if kept in a moist or shaded place.

PROF. S. S. RATHVON: I send you a specimen of a fly, infesting the corn. Please state in next issue of the FARMER, also in *The New Era*, the name, habits, etc., of this insect. Yours, *Erastus Reynolds, Chestnut Level, Sept.* 13, 1877.

The fly and your communication were duly placed in my hands—the former still living, but the latter almost killed, by the—to us—mistaken idea of its "infesting the corn." We have been acquainted with the fly for more than thirty years, and have never known it to possess that habit. In short, it is a parasite—one of the "gad-flies," and extraordinary as it may appear, it is unusually parasitic upon the bodies of squirrels. This specimen is the *Cuterebra buccata*, or "squirrel bot."

Its history is this: The parent fly deposits her eggs on the body of a squirrel—black, gray, red or striped—and when the grub is hatched, it burrows into the body of the squirrel and remains there for several weeks or months, feeding on its tissues. It is generally located about the loins, but sometimes occupies the scrotum of the male, and it is supposed to be the cause of his occasional emasculation. Some time during the month of August the grub, or maggot, completes its larval development, and passes out of the body of its host and falls to the ground, when it almost immediately burrows in the loose earth and is transformed to a pupa, similar in form to that of the common house-fly, only many times larger. In ten days, or two weeks thereafter the perfect fly is evolved, of which you sent us a specimen. We knew one instance where five of these parasites infested the body of the "ground squirrel" (*Tamias striatus*), and they almost destroyed him; but after they left him he recovered his usual activity. Very likely they hibernate during the winter in the pupa state under ground, if they do not pass the winter in the larval form in the body of the squirrel. Many animals are infested by a parasite of some species, including horses, cattle, sheep, swine, rabbits, &c. We think you may be mistaken about its *infesting* the corn.

The Hair Worm.

Mr. I. L. L., of Manheim township, some days ago, placed in our possession a "long, slim, slender," hair-like worm, still alive, almost as white as chalk, and which had been taken out of the solid head of a cabbage between the third and fourth outward concentric layers. This is a species of "hair-worm," and we have alluded to it on a former occasion as *Gordius aquaticus var. albinus*, if it is not a distinct species. These singular animals are found under a variety of circumstances, and they have a very singular history. The white varieties have been usually obtained from cabbages, but at least on one occasion a specimen was found inside of an apple. The black and brown varieties we have found in stagnant pools of water, in marshes, in garden walks after a shower, in moist and deeply shaded places; on several occasions in the bodies of recently defunct and also in living grasshoppers, and on one occasion in the body of a large water-beetle. They are sometimes found swimming about, snake-like, in pools of water, but more frequently they are tangled up in a sort of knot, and hence they have been called *gordius*, in allusion to the "Gordian-knot," which Alexander the Great opened by cutting through with his sword.

These animals belong to the class *Articulata*, section *Vermes*; subsection *Nematoids*, and family *Gordiacidæ*. They are only "once removed" from the *Entozoa*, or intestinal worms, which belong to the same subsection; and "twice removed" from the earth-worms or angle-worms, which belong to the *Annelides*.

All the Gordians, in what may be termed their larva state, inhabit some part of the bodies of other animals, but not in their adult state. They are commonly called "hair-worms," from their resemblance to the hair in a horse's mane or tail, and many people, who are unacquainted with their history, suppose them to be horsehairs animated, or transformed into worms, but this is altogether a mistake.* They are distinct organisms and have a distinct development. We have female specimens in the Linnæan collection that are full of eggs, and we have one specimen in which the eggs are deposited like a tangled string of minute beads, adhering to her body. Allied species, in addition to the animals we have already named, have been found in the bodies of calves and pigs, in the brains of owls, hawks, nightjars, and in the eyes of horses. The worms that cause the "gapes" in fowls have a family alliance to them, and they have been found in the eggs of fowls. It would be difficult to describe just how they got into such places, but there they are, and we have seen them protruding an inch or two from the bodies of grasshoppers, and have witnessed their entire escape. Of course a good deal concerning their histories is yet involved in doubt, but their identity is unquestionable.

S. S. RATHVON.—The excrescence which I send, grew about four feet from the ground, in the side of an icehouse. If thee considers it worthy of notice, please mention through the *Farmer*. Respectfully, *J. C. M.*

QUARRYVILLE, 9th mo. 26th, 1877.

The box and "excrescence" were duly received, but the latter is so new to us and of such an extraordinary character, that we cannot attempt to say anything definite in regard to it now, any farther than that it is a *fungoid*. We have sent it to a distinguished fungiologist, and await his reply. A year ago he wrote thus: "There is no list of American *Agaricus* in existence. There is no person living who can make such a list at present. Mr. Frost has published a list of *Boleti*. There is no manual that will tell you the names of American *Fungi*, and it is useless to hope for one for many years to come. Those who pretend to recognize all of our species of *Agaricus* and their allies, you may be sure are humbugs, as the subject has not yet been sufficiently studied to allow any one to be sure of the species." Should we receive any further instruction before this number of the FARMER goes to press, it will be therein recorded.

Since writing the foregoing, we received the following from Dr. Farlow, of Cambridge, Mass., to whom we had sent the fungus for identification.

"The fungus is *Phallus impudicus*. It developed while in the box, and ripened, giving off the horrible odor characteristic of the group to which it belongs." This result we anticipated, although we do not know enough of them to determine the species, because of the paucity of the fungiological literature of the United States. This group contains some extraordinary species.

Mr. J. M. W.—Your brownish insect about an inch and a-half long, and half an inch broad over the widest part, is popularly known as the "Wheel-bug," (*Reduvius novenarius*) and is about the best representative of the order of true "bugs" that we have in the United States, for all insects are not bugs, although they may be popularly known by that name. Without at this time describing the difference between a beetle and a bug, it may be sufficient to say that this insect belongs to the predaceous raptorials, and therefore is not injurious to vegetation, but preys exclusively on other insects, and therefore, without regard to his appearance, it should be protected. It is called wheel-bug because the central ridge of the thorax bears some resemblance to a portion of a cog-wheel.

Dear Sir.—I send you by this mail a triangular package, about the contents of which I will have an opportunity to speak with you at the next meeting of the Linnæan Society. Yours truly,

T. R. B.

MILLERSVILEE, Sept. 20, 1877.

The package and contents came safely to hand, and consisted of a beautiful bright green chrysalis, ringed and spotted with gold, suspended by the anal end to a dry leaf.

This is the chrysalis of *Danais archippes*, the *larva* of which is dull green, transversely banded with black, and has long, black hairy pencils, projecting from each end. It feeds on the various species of *Asclepias*, known as "milk-weed," or "wild cotton." The *imago* is a large papillonaceous butterfly, two inches in length, expanding four and a-half inches from tip to tip of the anterior wings, of a dull orange color, veined with black, and spotted prettily with white.

Mr. L. S. R., Oregon, Lancaster Co., Pa.—Your singular animal from Texas, is the "Horned Toad," (*Phrynosoma cornuta*) called also the "Horned Frog;" although in truth, it is neither a toad nor a frog, but is a SAURIAN, whilst toads and frogs are BATRACHIANS. It is no more a toad or a frog, than a chameleon, an iguana, or a lizard is. If we had had the first popular naming of it we probably would have called it the "Horned Lizard," because in our vernacular that is just what it is. But even that name would not be sufficiently definite for scientific recognition, for there are several species of them, all of which are horned. We have been informed that in their native locality they feed on ants. Try them.

IS THE yellow crab-apple tree a good subject to graft apple or pear on. Which or what kind might be the best, that would keep equal growth with the crab-apple wood?—*A Subscriber, Mt. Joy, Oct.* 3, 1877.

This is a question so much depending upon practical knowledge that we prefer to place it on record, to be answered by some one or more of our experienced patrons, rather than attempt an answer ourselves. But as top-grafting is usually done in the spring, and root grafting (for nursery stock,) may be done during the winter, we hope some friend of "diffusion" will favor us with the information above solicited, in time to meet the necessities of a "subscriber."

SOUTHWEST MISSOURI.

SPRINGFIELD, Mo., Sept. 14th, 1876.

EDITOR.—The soil and climate of southwest Missouri are well adapted to grain, grape, fruit and wool-growing, as the experience of those who have for several years been engaged in these industries proves. Some of whom testify as follows: Mr. J. Zinc, of Worcester, about five miles west of here, says, that he has been farming in this region during the last nine years, and raised wheat every year, his crops averaging about twenty bushels to the acre. He is satisfied that by good farming, rotation of crops, manuring, clovering, etc., an average of thirty bushels can be produced. The winter wheat is of superior quality. His farm is on high, rolling prairie. The innumerable, clear, rapid streams give a vast area of rich valley lands which yield from fifty to one hundred bushels of corn to the acre, and from thirty to sixty of oats.

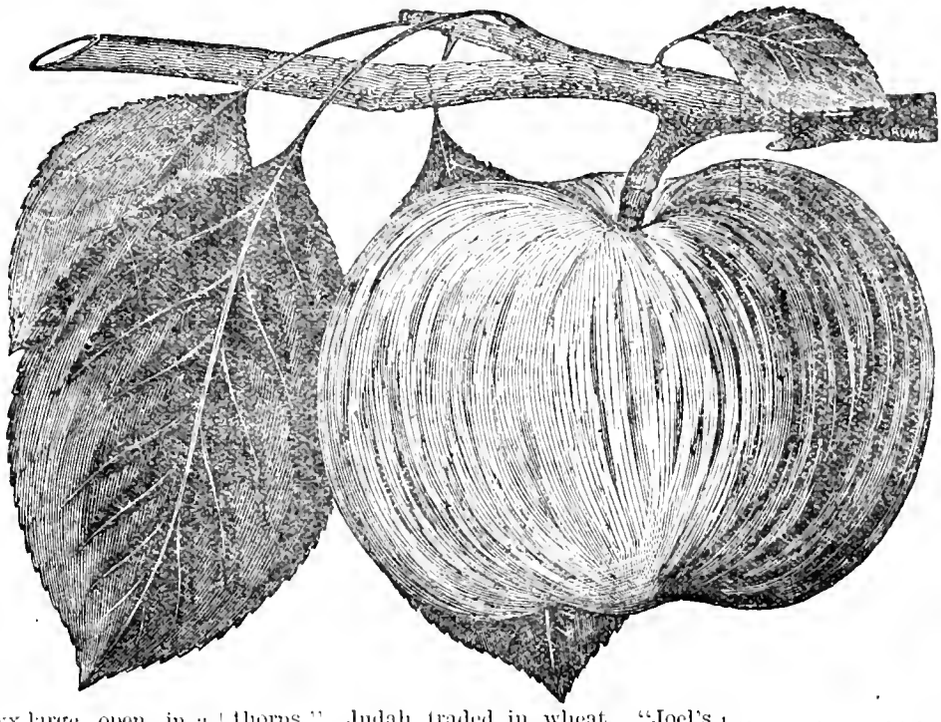
Mr. Albert Newman, of Rolla, says that the soil of all the southern slope of the Ozark Mountains is especially adapted to grape

*On several occasions, more than thirty years ago, we essayed the transformation of horse hairs into "hair-worms," and although our experiments covered from three to six months, in every instance we signally failed, with all our persevering care.

growing, as it contains potash, soda, lime, magnesia and phosphoric acid, all of which are found in the vine itself; showing that it cannot thrive unless these elements exist in the soil. The long, dry autumns preserve the vine and bring the grape to its greatest perfection. The net profits on grape growing are from two to five hundred dollars per acre each year.

The mild, short winters, the abundance of blue grass, unfailing, pure running water, an altitude of from 1,500 to 2,000 feet above the sea, all conspire to give excellent facilities for wool growing. Concerning this industry, several sheep raisers corroborate Mr. Hazeltine's statements. This gentleman has lived near Springfield for six years, and says that the climate is uniformly delightful, and there is so little snow to keep sheep from the grass that they do well with very little grain. He is now keeping about 2,000 sheep, mostly Merinos. Thinks small flocks need very little feeding, but large flocks require some grain between the first of December and the last of March. It costs only two cents a pound to ship wool to Boston, New York or Philadelphia. Mr. Hazeltine also has 2,000 apple trees, 500 peach, 300 pear, and one hundred cherry trees, all of his own planting and all bearing, except some pear trees. The apple-trees mature several years earlier here than in the east, and continue bearing much longer. The grains and fruits ripen several weeks earlier than any place north or east, which with the facilities for transportation afforded by the St. Louis & San Francisco railroad to St. Louis in a few hours, insure an opportunity of securing the highest prices for early marketing. Unimproved land may be bought near the railroad here at from two to six dollars per acre on long credit.—*Examiner.*

THE GRAVENSTEIN APPLE.



The fruit is large; flattish round; the skin very smooth and fair, of a whitish-yellow ground, mostly covered with a brilliant red, generally in stripes; stems short, rather stout, in a deep, rather broad and somewhat uneven cavity; Calyx large, open, in a wide, deep, uneven basin; flesh whitish, very juicy, crisp, of a sprightly vinous flavor; rather acid early in the season, but when fully ripe and mellow it becomes mild and pleasant. It is excellent both for the table and for cooking. In use during September and October, and even into the middle of November, in this latitude. The tree is remarkably rapid, vigorous and erect in growth; and very productive. It is classed with autumn apples, and is rarely sought for, or of much account, outside of the months of September and October. But as an apple in its season it stands very high, there only being a few preferred before it, and even not without qualification. It has become a staple stock, and can be obtained at almost any first-class nursery in the Northern and Western States. Its cultivation is similar to the "Hubbardston Non-Such," mentioned in a former number of this journal.

THE *Poultry World* has introduced a new feature in issuing a full-page Chromo-lithographic plate of choice breed of fowls with each month's paper. The price of these 12 pictures is but 75 cents to subscribers who have paid $1.25 for the magazine, or $2.00 only for the dozen pictures and the paper for one year. Address, H. H. Stoddard, Pub'er, Hartford, Conn.

WHEAT AND ITS CULTURE.*

Wheat was spoken of to Adam in the Garden of Eden, and for violation of the command of God he was driven out of the garden to till the ground from whence he was taken. "In the sweat of thy brow shalt thou eat bread until thou return unto the ground; dust thou art, and unto dust thou shalt return." Wheat, therefore, was the staff of life in the earliest history of man. The next reference to wheat we find when Reuben, in the days of the wheat harvest, found mandrakes in the field; next in Exodus, 9: 32, "when wheat was not smitten, for it was not grown up. Again, in Numbers 18:12, "and of the wheat, the first fruit of them which they shall offer unto the Lord." And, Deut. 32:13,14, "He made him ride on high places of the earth, that he might eat the increase of the fields of wheat." Sidon thrashed wheat, Judges 15. Samson was a bad fellow in the time of wheat harvest; he caught 300 foxes and tied firebrands to their tails and burnt up the wheat of the Philistines. Ruth gathered wheat. I Samuel, 6:13; "They of Beth Shemesh were reaping their wheat harvest in the valley," Job 31:10. "Let thistles grow instead of wheat," Prov. 27:22. "Though thou shouldst bray a fool in a mortar among wheat;" "ships were lightened by throwing out the wheat into the sea," Jer. 12:13. "They sow wheat but shall reap thorns." Judah traded in wheat. "Joel's floors shall be full of wheat," Matt. 3:12. "He gathers his wheat into his garner, but the chaff he will burn up with unquenchable fire," Luke 3:17. "The enemy sowed tares among the wheat," Acts 7:13. Tares, we think, is cheat, that looks like wheat and yet is not wheat; the blade looks like wheat, but the kernel is bogus, as the Pharisee is to the Christian. The Saviour said, "do no root up the tares lest you root up the wheat also." And Ch. 22:31, "Satan may sift you as wheat." John 12:24, "Except a corn of wheat fall into the ground and die it abideth alone, but if it dies it brings forth much fruit." The Saviour makes mention of this seed: "And some fell on stony ground, which had no root, some by the wayside, and some on good ground and yielded one hundred fold." This shows it must have good ground to root to bring good crops.

Much more could be referred to in Holy Writ which shows that it was always considered the most important product of the soil, and is often used to exemplify the working of religion on the soul of man. The soil must therefore be well broken so the seed may take good root; and as the word of God must take deep root in our heart or there will be no fruit from sixty to one hundred fold.

Wheat, or weitzen, may be raised on all sorts of soil, but heavy, yellow, stiff lands are the most suitable for it. The varieties of wheat are perpetually changing, in consequence of variations of culture, climate and soil, those most in use being distinguished by different local terms; they may be divided into two classes, Red and White, the latter being superior in quality while the former excels in production and hardiness, as the grain is frequently cultivated on very inferior soil after very imperfect preparation, and yet gives a very fair yield, which varies materially in different counties and districts; it is also very liable to injury from bad seeding time, a wet winter, mildew, blast, disease of plant, or a blight during the period of its blossoming, which is the most prevalent cause of failure in wheat crops, and yet even a greater enemy to this great staple we achieved in the Revolutionary war; we fought ourselves free from the English yoke and placed ourselves under the heavier yoke imposed by the Hessian fly, which is a heavy tax on us ever since, more than a ten per cent. tax would be. The farmers of the United States would pay a large amount of money to get rid of the Hessian fly. We live in dread of this fell destroyer every year; sometimes whole crops are destroyed by these pests; for this evil we recommend late sowing. Another evil is the field weevil, of which we had but little for some years. Also, smut and rust, from which the wheat suffers some this year, and is owing, we think, to the wet weather during the flowering time of the plant. Some think that water lying around the roots is injurious to the plants; there is a general impression that too much water is injurious to the plants, but the fact of the impression is seldom felt as it deserves to be; water lying around the roots does not always kill the wheat plant, but many of the plants are injured, and the few that are left are not able to do the work that all were intended for, hence the half-filled grain turns into smut. If any one will dig up a wheat plant in the spring, which stood all winter in a wet place, he will readily observe the damage done by water. The English people appear to understand this water injury better than we do, and provide against it on wheat lands by numerous furrows through wheat lands. It is supposed by many that whether we have a good wheat season or not depends more on the quantity of rain it gets during its growth than on the condition of the ground and the plants at the time rain falls. If the rain goes away through the ground rapidly it is good for the plants, though in large quantities, but if it lies long it is an injury; thus, if a piece of land is rather flat and the ground is frozen, and stays frozen after the surface has thawed, thereby keeping the water from passing away, it proves very detrimental to the roots and consequent crop. Observation proves that sloping ground, that allows the water to pass off, produces the best crops of wheat; hence we say, that to secure the best results every precaution should be taken to carry off surplus water from flat lands. There is a prevailing opinion that Pennsylvania is behind the average in the culture of wheat; and while farmers' clubs and agricultural papers are busy discussing the causes of failure they fail to point out the remedy to recover to us the vantage ground of

*Read before the Lancaster County Agricultural and Horticultural Society, October 1, 1877, by Henry Kurtz, of Mt. Joy.

the past. It is argued that our soil is exhausted, lacking that essential which feeds and develops the kernel to a marked degree, and that the land should have rest, so as again to recuperate this kernel-developing element. The idea that land must have rest, the same as a horse, is erroneous, but land must be fed as well as a horse to become strong, or a cow to give good milk.

One hundred years ago more rye was sown than wheat, and rye bread and rye coffee was used by the best of farmers; some farmers had but half an acre in wheat, and the balance of the best land in rye, the wheat always being raised by good cultivation and good ploughing, (not with "an ox and ass together," Deut. 22:10, which was forbidden in the old law). In our day the ass is often at the plough. We read much about ploughing in the good book, and also about plough-shares; so they must have had iron shares at that time or they would not have been ordered to beat them into swords. I have seen wooden ploughs, with but very little iron on them, in fact no iron shares at all; and wooden pins in the harrows, yet with such rude instruments I have seen good crops of wheat raised, as good as at the present day. In the vicinity of Mt. Joy, 40 years ago, 42 and 52 bushels of wheat and rye, respectively, were raised; it keeps us busy to do it now. The best way to cultivate wheat in limestone soil is to plough well—not too soon after harvest—land medium dry; have the grass well turned under, if cloddy; roll well and break the clods, and cultivate with shovel-harrow, as we call it, and follow with the harrow and drag; then sow from $1\frac{3}{4}$ to 2 bushels per acre, not over three inches in the ground and not too close in the furrow, on or soon after the 20th of September, to avoid the fly; be careful to have the land in proper condition to receive the grain, which is medium dry; sooner wait two weeks than make a mistake in this matter; and if there is manure and lime in the soil and no providential intervention you are sure of good crops of wheat. Good judgment is necessary in the cultivation of loose gravel or sandy soil; it must not be too loose for wheat; the farmer should therefore be careful to roll it well before seeding, and forty bushels to the acre will be the result of his pains.

About the year 1816 seven hundred bushels of wheat was raised on a 14 acre field—surveyor's measure—on the farm now owned by Mr. Benj. Hershey, one mile east of Mt. Joy; the kind was red beardy wheat; the farm was then owned by Mr. Alexander Patterson. We might here go into a chemical analysis of the kernel of wheat, the male and female plant, how different kinds may be propagated, and the element in the soil that germinates and carries to perfection this most important cereal. Whatever this principle is is of no consequence; what you want to know is, how to produce perpetual good crops of wheat, which lesson is summed up in a few words, after having carefully observed the rules already given you as to drainage, land, cultivation and seed time, together with prime, full-grown seed sown; use plentifully of that most potent and infallible agent for the propagation of any of the cereals—*lime* and well prepared *stable manure*.

For The Lancaster Farmer.

ITALIAN vs. BLACK BEES.

After a trial of two years I would add my experience to the conflicting testimony concerning the superiority or inferiority of the Italian compared with the black bees.

I have always been skeptical when hearing reports in praise of the Italians, believing them to come from queen propagators, whose interest might have influenced their judgment. After a careful comparison of the two varieties in the same apiary, for two years, I am satisfied the Italians have some advantages. The most prominent difference is that the Italians are more docile. Within a month or two, since the stocks have become strong and the hives full of honey, a time when bees are always more difficult to manage, this has been particularly noticeable.

In going over the hives, with the work of exchanging and arranging the combs, after having opened a number of Italian hives I would approach a stock of blacks without noticing or thinking of them being different, I would blow in a few whiffs of smoke and proceed to open the hive, as I had been doing, when the black rascals would pour out at every opening and sting me through the clothing, so that I would be compelled to retreat until they had become somewhat quiet. Had I noticed they were black bees, in such cases, and this has occurred several times with me, I would have given them treble the amount of smoke and seen that they had "given up" before opening the hive. I have frequently opened Italian hives without smoke or protection, at times when honey was plenty in the fields, a thing I never attempted with the black bees.

This difference in docility would not be a matter of much consequence to the man who has his bees in box-hives and only approaches them when he wants honey; but to the practical apiculturist it is of great importance, because it saves him much time and trouble. I have found, however, that when the Italians are once made thoroughly cross they are more difficult to master than the blacks.

They are more persistent when robbing, as they are in stinging when cross, and this characteristic makes them more energetic in obtaining stores from flowers; but this difference is not so great, I think, as has been represented. I cannot perceive any difference in the hardinesss of the two varieties. The Italians seem to be more prolific, but probably do not live so long. The bright color of the queens makes them more easily distinguished when among the workers, a fact which would be of some advantage to those who do much at artificial swarming. The Italians are a trifle larger when bred in combs of their own building.—*W. P. Bolton, Liberty Square, Lancaster county, Pa., Oct. 8, 1877.*

For The Lancaster Farmer.

FORESTS—THEIR DESTRUCTION AND RESTORATION.

This is one of the most vital questions now arising in the United States of North America; and especially since our people are becoming (as the saying is) a "fast people," in everything they undertake. Forty years ago, it took a man, with a good horse under him, about a day and a-half to go to Philadelphia from Lancaster, but now he can reach that city in less than three hours. To haul a load of flour to the same place it then took three days, but now that feat can be accomplished in less than four hours by steam. It required two weeks to carry a load of goods to Pittsburg, but now it only requires a day and a-half. It took one week to convey a letter by mail from New York to Washington, but now it only takes five hours, and messages by telegraph only five minutes; and to Europe it required from three to six months, but now messages may be sent there in thirty minutes.

Just so, in proportion, has the destruction of forest timbers increased in forty years. It is just about forty years since steam navigation was first introduced, and railroads and steamboats have been rapidly increasing in their time-tables down to 1873.

Very few people are able to realize the immense destruction and consumption of our native forests annually, and that the demand for lumber for building purposes, railroad ties and fuel is far in excess of the annual growth of timber trees. For railroad ties alone, the country requires annually about 94,500,000 cubic feet, equal to 738,500 cords of wood, to supply which, at least 2,000,000 cords of standing timber have to be cut down. The annual yield of forest timber is about fifty cords to the acre, so that about 40,000 acres of woodland are annually cleared, to supply our railroads with ties. Railroad building is still increasing, notwithstanding the depression of the times. About 50,000,000 cords of wood, demanding perhaps 600,000 acres of woodlands, are annually consumed for fuel. Many engines on railroads remotely situated from coal mines, use wood altogether for fuel. The New York Central is, and always has been, the greatest timber destroyer in the United States. It employed one and two engines constantly, in bringing ties and fuel for that road alone, destroying hundreds of acres of timber to meet its demands. The southern and western railroads use wood, almost exclusively, for fuel.

There are over sixty occupations enumerated in the census of 1870 which depend wholly, or in part, upon wood as their raw material, in manufactures and in commerce, employing a total of 476,985 working men, and most of them use engines as a motor power to conduct their business. Perhaps more than 2,000,000 operatives of all kinds find employment in the whole business, composing the following trades: Carpenters, 242,950; coffin makers, 7,000; cabinet makers, 29,225; chair makers, 6,340; sawyers, 15,000; mill-wrights, 9,063; ship-carpenters, 13,397; coopers, 43,625; wheelwrights, 32,695; piano makers, 2,578 and coachmakers, 19,180; thus proceeding until the sixty classes are named, and besides those enumerated add fencing for 3,000,000 farms. 25,000,000 acres of woodland were destroyed to fence the country, and it requires 3,000,000 of acres annually to keep the fences in repair. The total annual consumption of forest is about 5,500,000 acres. Our forest lands have already been denuded of timber in an amount equivalent to the product of 380,000,000 acres, and at the present rate of consumption it will take less than seventy-five years to exhaust the whole. The annual consumption of the country is 20,000,000,000 feet, representing 2,000,000 acres.

The question of foresty in Lancaster county is perhaps treated as being premature, like the man who himself feels comfortably warm, and imagines everybody else to feel the same. We may have at present for immediate use timber enough, and from our proximity to rich coal fields, may enjoy cheap fuel for many years to come, but we cannot all live in eastern Pennsylvania or Lancaster county. A western man came here recently from one of the prairie States, whose ancestors had lived in Lancaster county. He frequently remarked to his friends, that they should thank God that they could live in Lancaster county. Many of the western States have a rich soil, but they are almost timberless for miles on miles, and especially in Nebraska for nearly two hundred miles along the Platte river. All those States are now beginning to fill up very fast, and will be compelled to draw on the eastern States for timber and lumber for building purposes. The central Pacific States for hundreds of miles have nothing but sage bush.

At one time, Pennsylvania was considered a great timber State, but its timber is fast disappearing from the northern and western regions of the State, and it will require ages to replace the slow growing pines and other timber trees, and consequently timber will never again become cheap for building purposes after the present decade. The timber question is therefore one of great importance to our country. We have many farms that are entirely treeless, not even a shade tree in the fields for the protection of men and beasts, much less as harbors for the birds. Let us then become informed on the subject of forestry, and give some attention to it, and it seems to me that now is the time to commence gathering seeds and nuts of forest trees. All nuts, including acorns, should be planted in the fall, or buried near the surface of the ground in the fall and taken out early in the spring, and planted in rows in the nursery, although occasionally nuts may grow when planted in the spring. I obtained two large "shell-barks" last spring, which were on exhibition on the Centennial grounds, which I planted in April, first partially cracking them, and to my great surprise they both grew, and one of them is at this time over a foot high. I planted walnuts in 1875 and they did not come up until the spring of 1877, but they were in a very dry state when I planted them.

Apple and pear seeds should be kept in moist sand or in moderately dry earth during the winter.

I am pleased to know that the question of forest culture is being agitated throughout the entire country. At a meeting of the "American Nurserymen's Association," held at Chicago the present year, a committee of eleven members, belonging to as many States, was appointed, of which John A. Warder, of North Bend, Ohio, president of the "American Forestry Association," was made Chairman—to memorialize Congress and present the following preamble and resolution:

Whereas, In view of the vast importance of the future forest interest of America, and in consideration of the lamentable ignorance which it must be admitted prevails among us as to an enlightened system of forestry, and in view of the rich treasures of information that may be gathered by a proper investigation and report upon the forests of Europe; therefore,

Resolved, That in the opinion of this society it would be eminently proper for our government to take speedy action in the matter, and provide for sending a commission to examine the present status of the forests of Europe, and to state the means by which their perfection has been reached, and finally to give the results to our fellow countrymen, in a suitable report, with the data furnished by observations made by scientific men in those countries, as to the influence exerted by forests upon the climate, conditions of the land, &c." —*L. S. R., Oregon, Sept.* 1877.

For The Lancaster Farmer.

HARD TIMES.

This subject has been so hackneyed of late that it is very probable most persons will look at the heading of this article and read no further, and even if they should I will not guarantee that they will find anything new advanced.

During the war there were no hard times for anybody willing to work or fight, and this state of affairs continued long afterwards, though had any person taken time to watch the signs they would have discovered that everything was tightening up, but so slow and imperceptible was the onward advance that many shrewd men were caught unawares in the financial crash of 1873. From this date hard times actually appeared, and though there was not at once any blackness about it, because of the savings made by many working men in more prosperous times, yet when they continued three years and more the little stock was all expended and thus many of those who were at first helpers to those that were thriftless or not so fortunate, were gathered into the ranks of the great army of unemployed. We read, from time to time, that business is looking up, that trade and manufactures are recovering, but this much is certain, that many classes of persons are now in greater stress than has been known in this country for years: in fact very few can tell from experience of anything like it. That some of this hardness has been intensified by the selfishness and criminality of a few persons, does not lessen the sadness of the case or pity for their condition.

All classes have been touched, many smitten to the very ground, with hope and energy destroyed, and all along the coast of active human life they lay, stranded wrecks which will no more sail on the seas of commerce and trade. By many the slow and plodding life of the farmer is looked upon with contempt, because of the years and years which must elapse before easy competence is reached; but when the tornado came the farmer stood as behind a rock which no adverse wind could reach, and he saw those that were so scornful leveled with the very dust, while on him the the storm cast but the down of the thistles, the thistles' sting not becoming known.

The farmer seems to have had the best of it since 1873, for though his farm would not bring as much in money to-day as it did four years ago, and thus he can hardly call himself any richer than he did then, yet the farm is there, and most likely some money to boot. This we call getting along in the world, for a man that keeps what he has and adds more to it, is simply doing a sum in addition, and proves that the sum of any two or more numbers is greater than either of the numbers.

To-day the farmer gets a good price for his wheat, corn and other staple crops, probably more than the average since the days of inflation are over. Some years ago he could buy for one bushel of wheat perhaps ten yards of print, now fifteen; then three yards of cottonade, now five; then five pounds of coffee, now six; then twelve pounds of rice, now fifteen; then twenty-five pounds of nails, now thirty-five to forty; then the labor of a man for one day, now the labor for one and a half to two days. While his own production may bring some less than it did in some of those years, it was the meagre crops then that raised the price above the average; now, with bountiful crops, the prices received are nearly as great, and the productions of others that he needs he buys for much less, in some cases for less than two-thirds of what he did then.

This state of affairs, as far as regards farmers, are not the result of unusual circumstances, which may change without a moment's warning, except, perhaps, the war between two of the great powers of Europe. This may cease at any time, but the effect on the prices of farm product will not be much felt for a long time to come, as the waste must be repaired before their farm productions can again come in competition with ours. War is at all times to be deplored, but this much is certain, that war between any two or more of the great powers of Europe is pretty sure to accrue to the profit of the American (U. S.) farmer.

The other circumstances that favor the farmer are in the way of legitimate trade. Our Centennial Exhibition was thought by many to start nearly everything into active life, but these hopes were abandoned soon after its commencement; but too much was expected. It has done a great deal for this country and will do much more, as many parties interested in manufactures can attest, who have received orders for their wares. These orders led to orders for other kinds of products, and now our farm products are taken to places where they had never reached before. The wider the gates of trade are opened the greater will be the flow. And to the staple farm exports of years ago are now added others, many among which were then classed among the perishable; we bought their raisins, prunes, &c., and paid for them in money; now we pay in dried apples, peaches and other fruit; we sent our gold for their cloth, now we send them fresh beef and canned meats; the former we will retain, as neither South America nor Australia are situated to compete with us; canned meats they can sell cheaper, ours will bring a better price, just as all superior goods bring more than the increased cost of getting them up.

With the increased demand our farmers bring into play better styles of farming, and thus increase the supply. In other countries, at least some, the government pays a few well educated men to study up the welfare of the whole people, and their farmers (peasants) are not neglected, but as soon as one of these government servants thinks he has discovered something of importance the government is informed of the fact, and if the advisers of the government think it will do then the information is imparted to the farmers, and they are expected to profit by it. In this country each farmer can, and many of them do, study and direct their operations as skillfully as any business man can.

As a class our farmers may not be able to raise the crops that some English farmers do, nor do they as yet employ the same means, but this is owing to the accidents of climate and soil. When moderately large crops were raised at a minimum cost from our virgin soils there was no call for trying to take all that could possibly be raised from their farms, for the increased cost would have lessened the profits. But now, with increased demand, higher prices and less fertile soils our farmers are beginning to raise larger crops than before by their more intelligent and improved methods. In some of the eastern and sea-coast States the system of farming is not one whit behind any part of the world.

We started out with hard times; by reading the above one would think that farmers did not know anything about them, and they do not; and what is more, the times are getting better for the farmer and will continue to do so, and the effects will sooner or latter be visible on the improved times all round. Farmer, don't mind the times but stick to your trade.—*A. B. K.*

LETTER FROM NORTH CAROLINA.

Salisbury, N. C., Sept. 25th, 1877.

Editor Lancaster Farmer: Since I wrote you last we have had a fine season in this section of country for all kinds of crops. Wheat, oats, corn, cotton, tobacco, Irish and sweet potatoes will all yield well, so far as I have seen and heard. Garden vegetables did well generally. Grapes and fruits of all kinds raised in this climate produced an abundance. Never since in this or any other country have I seen so much green fruit, such as apples, peaches, prunes, plums, gages, grapes (all kinds), melons (musk and water), and cantaloupes so plentiful as this season, all at low prices; dried fruits, such as apples, peaches, (peeled and unpeeled,) so abundant and low in price. Dried blackberries are short by one-fourth this year to what they were heretofore for some years past. Everything in the eating, drinking and wearing line is plentiful, but money has been and is now very scarce in this country, and we judge it is scarce everywhere in these American States, generally speaking. For tobacco and cotton the season has not so far been as favorable as desirable, owing to much rainfall. Housing tobacco and gathering cotton has commenced, and when sold we expect to see money more plentiful and business brisk. No disease among cattle here now, but some folks are losing their hogs and chickens from cholera or some other disease; different remedies have been tried, but of no avail so far. Can and will any of your readers give (through The Lancaster Farmer,) a remedy to prevent, or, if contracted, to cure those diseases?

Money is very scarce with us, but we look for easier money matters when tobacco, cotton and other crops are brought into market. I have now given you the truest information I could gather from sight and hearsay.

Some time since a subscriber to The Lancaster Farmer, living in this, Rowan county, solicited us, as as one of three persons, by special invitation, to take a seat in his carriage and traverse Franklin township, this, Rowan county, and inspect the lands, crops of tobacco, cotton, corn, grass, &c., &c., but previous engagements prevented me from accepting. This same subscriber (E. A. Bopst,) to The Lancaster Farmer told us that he had gained a good deal of information through The Farmer. So far so good. *Heavy* heads of wheat *always hang low.* M. R.

AROUND THE FARM. No. 2.

An old farmer told me the other day that he would not feed pumpkins to hogs any more, as they are too watery, and tend to bloat them. "How did you feed?" I asked. "Raw." "There is where you made the mistake," said I. "We feed ours cooked." I cut them in small pieces, put in a barrel with six or eight gallons of water and three pecks of bran, steam till soft, when it is a capital feed for small pigs, or for fattening large ones. This "mush" I consider worth twice as much as pumpkins in the raw state, and am satisfied it pays well for the labor and fuel it takes.

Hog-Styes.

In order to make the best grades of pork, cleanliness in the stable is of the first importance. We cannot expect to raise good pork if our hogs are allowed to wallow in their

own filth knee deep. In order to overcome this difficulty I put a platform in the stable, about eight inches high, and wide enough for two to lie on comfortably, and bedded clean straw on it every evening, which they kept clean and dry, and I had no trouble. The pig is considered a very filthy animal, but if given a chance they are not as filthy as some people suppose.

Cornstalks.

Many people leave their cornstalks stand until winter before they cut them off. This plan is objectionable chiefly on account of inconvenience in hauling the corn and fodder off, and also in husking. I think there is a better way—that is, cut them off before husking. With a sharp, heavy hoe they can be cut very rapidly. I think it better to delay husking a few days, in order to do this necessary work, than to husk early and leave them standing.

The Papaw.

Most people are acquainted with the papaw, (*Asimina triloba*) but very few have as yet cultivated it. As an ornamental shrub it compares favorably with the more costly ones imported, besides it has a most delicious fruit. As the shrub is quite common in our county, I think it would be well to plant a few "around the farm," if not in the lawn, for the fruit. It belongs to the family *Anonacæ*, to which belong the custard apple and Cherimoya, two of the most esteemed fruits of the tropics. The papaw is the only species of this family which grows north. I think if our nurserymen would take the matter in hand, they might produce some very fine fruit in time, as the original fruit is much more promising than many of those which have been so long cultivated and are now so highly prized.—*Ruralist, Oct. 1st.*

For The Lancaster Farmer.

NEBRASKA NOTES.

Editor: Nebraska is not only a great agricultural State, but is also an excellent grazing country, especially the western half, where there are about one hundred varieties of grasses, including the famous Buffalo grass, which, after nourishing the hundreds of thousands of cattle, sheep and horses all summer, in autumn dries without decay, and becomes hay on the ground for all winter. It has been estimated that this great grazing region, between the Missouri river and Rocky Mountains, sustained fifteen millions of buffaloes, besides, perhaps, a greater number of elk, deer, antelope, wild horses and all herbivorous animals, twenty years ago. However nearly correct this estimate may be, the fact is, Nebraska could sustain at least six hundred thousand more cattle, sheep and horses. Throughout the State the present wheat, oats, barley, rye and millet crops, which have just been harvested, are the best ever raised. The acreage of corn is large, crops good, and too nearly matured to be injured by drouth or insects, neither of which have damaged anything this year. Potatoes, squashes, melons and all kinds of vegetables are doing well; and fruits, where cultivated, are promising. Young fruit trees grow so rapidly, and so late in autumn, that the unhardened wood is likely to be winter killed; but by planting on northern slopes, and cultivating a compact belt of forest trees around the orchard, apples, pears, peaches, plums, cherries and all kind of berries may be raised here in abundance, as is proven by the success wherever fruit growing has been tried. In a soil so well drained, an atmosphere so pure, a sunshine so bright and genial; in a land so free from fogs, sleet and untimely frosts, all manner of delicious fruit, will surely soon abound. The facilities for manufacturing are excellent, as the water power is abundant and everlasting, and the resources unlimited for producing materials for flour, oil, starch, sugar, salt, soda, cheese, cloth, paper, ropes, paint, crockery, cement and bricks. When fully developed, Nebraska's chief wealth will consist of flour, meat and cloth, as her principel productions are wheat, cattle and sheep. The population of the State is about three hundred thousand, and during the last fifteen years these people have built sixty thousand houses, besides dug-outs not a few; broke and cultivated more than a million acres of prairie, surveyed over forty million acres of public land, defined and organized seventy-five counties, constructed over twelve hundred miles of railroads, built about one hundred mills and about four miles of bridges, opened six hundred and fifty post-offices, connected by eleven thousand miles of post road, established and published over one hundred newspapers, built two thousand five hundred school houses, a State House, a State University, Normal school, insane asylum, blind institute, deaf and dumb institute and about two hundred churches. The through freight and passage business over the Union and Central Pacific railroads is immense, and rapidly increasing, and enables these roads to make very low rates for the people along their lines; unlike all other roads that have no trans-continental business, must live from their local traffic. Recently two trains, carrying over one hundred tons of tea, passed over these roads, from San Francisco to New York. Most of the teas and spices imported to this country pass over this great World's Highway, because the importers can in this way get their goods through much quicker and without loss from moisture and change of climate. The advantages of living in Nebraska, which is midway between the Atlantic and Pacific oceans, within the great central belt of population, wealth and Christian civilization which encircles the earth between the 39th and 44th parallels of North latitude, are many and great. Excellent valley, agricultural land, within a mile of railroad, may be bought here at from two to six dollars per acre on long credit—is cheaper for cash. Mr. O. F. Davis, of Omaha, can give full information about the twelve million acres of land being sold by the Union Pacific Railroad Company, in Nebraska, Wyoming and Utah. The best route to this country is over the Boston and Albany, New York, New Haven, Hartford and Springfield, New York and Erie, Atlantic and Great Western, Chicago, Burlington and Quincy, and Union Pacific railways, as the Chicago, Burlington and Quincy, and Union Pacific roads from Chicago give special, greatly reduced rates to immigrants; and the Eastern roads mentioned are the quickest, cheapest and most comfortable.—*Examiner, Omaha, Neb., Aug. 23, 1877.*

POTOMAC FRUIT-GROWERS' ASSOCIATION.

September Meeting.

A large and varied collection of Fruits and Flowers on exhibition, Jno. Saul leading off with 60 varieties of Pears.

Dr. McKim read a paper on

Fruits in Disease.

I do not intend reading a medical thesis for professional criticism, but a practical essay for popular use; and though I shall run counter to many prejudices, yet am satisfied that facts invite investigation, and truth fears no criticism.

Many people walk through the world backward, having their faces turned in the direction whence they came, and not looking the way they are going. Many are surrounded by the walls of prejudice, the result of education or preconceived views; and as the walls are leveled, so as to enlarge the range of their vision, they bend their knees, or bow their heads, lest the conceived orthodoxy of their views be changed.

The prejudice against cold water, as a suitable drink for fever patients, has not entirely yielded to common sense and reason—for almost daily the question is put, "Doctor, can he have cold water?" So we find a popular impression against the use of fruits and vegetables, and many partake of these healthful and necessary articles of diet "in fear and trembling." That there is usually an increase of deaths during the months that fruits and fresh or new vegetables are in the markets is granted, but let us investigate the cause.

The Dr. then quotes from the health reports of Dr. Snow, health officer of Providence, R. I., showing that in July, 1863, the number of deaths was one less than in the previous month; that of the 30 deaths of natives, 9 were under 5 years; that of the 31 deaths of foreigners, 17 were under 4 years; making a total of 26 under 5, out of a total of 61. About one-half were of cholera infantum.

Notice, if you please, the significant disparity between the mortality rate of the children of native-born and foreign-born parents. This fact at once indicates causes due, not to fruit-eating, but to the want of due regard to proper sanitary and hygienic regulations.

In his report for July, 1869, Dr. Snow says: "We are treated at this season of the year with the usual amount of cautions in the newspapers against the use of fruits and vegetables, and are called upon to believe that the increase of mortality which always occurs during hot weather is almost wholly caused by eating them. It is quite likely that eating unripe and wilted fruits and vegetables causes disturbances in the stomach and sickness, but it is of a temporary character, and would generally cure itself if no other cause was present. It is quite as well to use caution in the selection of fruits and vegetables, avoiding those that are wilted and decayed, but it is not well to be unnecessarily troubled and frightened about them, and it is still worse to avoid them altogether.

The slightest examination of the causes of death, given above, shows that fruits and vegetables had almost no influence whatever in the mortality reported from summer complaints. Nearly all the decedents from these causes were very young children who do not eat fruits and vegetables at all. All but five of the decedents from summer complaints, in July, were under two years of age, and only two of the whole number were over four years of age. In certain seasons, when epidemic cholera may be present, and when the systems of the people may be prepared for disease by the poisoned air they breathe, it may be possible that wilted fruits and vegetables may be the exciting causes of fatal sickness, but even then the air that is breathed is more truly the cause of death than the food that is eaten. In ordinary seasons, when no epidemic is present, impure air causes a thousand-fold more mortality than fruits and vegetables. In fact, it is probable that total abstinence from fruits and vegetables by the whole community would produce more fatal sickness than the most unlimited indulgence in them. The safest rule is, however, "temperance in all things." October, 1869, he says:—"Children are killed by the manner in which they are dressed and by the food that is given them as much as by other causes. Infants of the most tender age, in our changeable and rough climate, are left with bare arms and legs and with low-neck dresses. The mothers, in the same dress, would shiver and suffer with cold, and would expect a fit of sickness as the result of their culpable carelessness, and yet the mothers could endure such treatment with far less danger to health and life than their tender infants. A moment's reflection will indicate the effects of this mode of dressing, or want of dressing, on the child. The moment the cold air strikes the bare arms and legs of the child, the blood is driven from their extremities to the internal and more vital organs of the body. The result is congestion, to greater or less extent, of these organs. In warm weather the effect will be congestion of the bowels, causing diarrhœa, dysentery or cholera infantum. We think this mode of dressing must be reckoned as one of the most prominent causes of summer complaints, so called."

In his report for July, 1873, Dr. Snow says:

"Of the 55 decedents in July, from diarrheal diseases, 22 were American and 33 of foreign parentage. According to age there were 41 under 1 year, 10 from 1 to 2 years, and 4 over 50 years, making a total of 55 decedents from diarrheal diseases. It is certain that these infants under 2 years of age, nearly all of them under 1 year, did not contract their disease from eating fruits and vegetables. We have several times in past years analyzed the mortality from diarrheal diseases, with precisely similar results. As we find, therefore, that considerably more than three-fourths of all mortality from diarrheal diseases, except Asiatic cholera, in Providence, is found in infants under two years of age, we are compelled to believe that, in this city, at least, neither ripe nor unripe fruits and vegetables have any perceptible influence upon the mortality of these diseases. The infant decedents from diarrheal diseases are killed by the effects of heat and impure air, especially the latter.

In the District of Columbia the mortality for July, 1877, was 479—being 78 less than for the corresponding month of last year. The mortality from cholera infantum was 85. When we recall the fact, that the range of temperature for July in this District was much less than the average in former years, we can easily and naturally account for the low rate of mortality during the month. Dr. W. H. Vail publishes an article on summer diet, and starts with the following argument: "God, in his providence, has stocked the Polar regions with the seal, the whale and the bear, all the personification of fat and oil—while vegetation is comparatively unknown. On the other hand, as you approach the tropics, oranges, bananas, lemons and all our luscious fruits greet you on every hand, and vegetation runs wild. The disposition of Providence teaches us, what our appetites confirm, that in cold weather our diet should consist mainly of oily substances, or such food is converted into fat

by the process of digestion, while in the summer we should select such articles of diet as are not convertible into fat." Dr. Vail adds, "that vegetables, the edible parts of which ripen under ground, such as potatoes, carrots and parsnips, are heat-producing, while those that ripen above ground are cooling. The latter, including especially asparagus, lettuce, peas, beans, tomatoes, corn and all fruits, should be freely eaten. Meat should not be eaten oftener than twice a day, and lean is preferable." He particularly recommends tomatoes. Assuming from the facts set forth, by such authority, that my hearers are prepared to grant the wholesomeness of fruits, in health, I will turn to a brief consideration of their uses in diseases.

There is scarcely a disease to which the human family is heir, but the sufferings therefrom would be greatly relieved by the use of the very fruits which are now so strictly forbidden. Further, many of these diseases would be conducted to a safe termination under the free use of fruits, because of the acids they contain. When our troops were fighting the Seminoles in Florida, many sick with diarrhœa and dysentery cured these diseases by stealing from the hospital into the fields and eating fruits, blackberries especially. Since our very pleasant and profitable excursion of last month, I have sent several children, suffering with cholera infantum and with dysentery, to the peach orchards, with most gratifying results; and where they could not be carried to the orchards to pick and eat the fruits fresh from the trees, I have had the little sufferers fed with sound fruit, with equally good results. Typhoid fever, in the treatment of which such extraordinary care is enjoined as regards diet, here fruits are not only highly grateful to the patient, but even work very favorable results. A physician who had been sick some weeks with typhoid fever, says his diarrhœa was cured by peaches. Says he, "I first ate half of a large peach, and feeling no ill effects I ate the other half, then one or two more, and the next day as many as I desired." He adds, "My bowels got better at once, and my recovery was rapid." Since our last meeting, a typhoid fever patient, who had been about three weeks sick, and though improving, was allowed no diet but beef tea or milk punch, came under my care for a few days. I immediately ordered the free use of peaches and grapes, and the diarrhœa at once ceased; and at the end of five days, when I relinquished the care of her, she was convalescent. My impression is, the disease runs a shorter course under the free use of fruits than under the usual method of treatment, and I think the use of stimulants rarely required when fruits are freely used. In the treatment of scarlet fever and diphtheria our summer fruits and many of the vegetables are most useful, and to the list may be added some or in fact any foreign fruits. There is scarcely a disease, accompanied with fever, but grapes and bananas can be freely given to the patient. In the treatment of dysentery I would greatly prefer ripe, sound fruits, peaches especially, to any medicine that can be suggested. And thus, Mr. President, I could go on in this crude manner, which is intended to be suggestive merely, and occupy the time of the Association. This is not the time or place for an exhaustive article, and my desire is to invite the spirit of investigation, and relieve the unnecessary sufferings of the sick. If you ask for the philosophy of the use of the articles in sickness or in health, I again invite your careful perusal of Dr. Vail's article above, and the admirable essay, read at our last meeting, to which I could add nothing; and if I shall have turned one face in the right direction, or lifted one individual above the fence of prejudice with which he is hedged, my work is done.—*G. F. Needham, Washington, D. C.*

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

A stated meeting of the Lancaster County Agricultural and Horticultural Society was held on Monday, Oct. 1st.

The following members and visitors were present: Calvin Cooper, president, East Lampeter; Johnson Miller, secretary, Warwick; Levi W. Groff, West Earl; Henry M. Engle, Marietta; Casper Hiller, Conestoga; D. M. Kendig, Manor; Daniel Smeych, city; Henry Kurtz, Mount Joy; Dr. P. J. Roebuck, Warwick; I. L. Landis, Manheim; Robert Dysart, city; W. J. Kafroth, West Earl; Levi S. Reist, Manheim; Prof. J. Stauffer, city; Wm. McComsey, city; Henry Erb, Warwick; B. Frank Landis, East Lampeter; John H. Landis, Manor; Mr. Martin, East Lampeter; John Huber, Warwick; Henry Erb, Manheim; Aaron H. Summy, Manheim; Henry Wolf, Warwick; Joseph Witmer, Paradise; Wm. H. Brosius, Drumore; Ellwood Griest, city; Eli K. Hershey, Manor; F. U. Gantz, East Donegal; Simon P. Eby, city; John Miller, Manheim; John Gingrich, East Hempfield; J. Hartman Hershey, East Hempfield.

The minutes were read and adopted.

American Pomological Society.

Martin D. Kendig, one of the delegates from this society to the American Pomological Convention, lately held in Baltimore, made a report from which it appeared that H. M. Engle and Levi S. Reist (who were also delegates,) were exhibitors of some fine pears; that the society numbered 338 members, in the several States and Territories, of whom 100 were present; that there are 4,500,000 acres of land in the United States planted in fruits and the last annual product was $138,216,170. He said:

The representatives of this society, appointed at our last meeting to attend the American Pomological Convention at Baltimore, September 12, 13 and 14, would say that they have attended the sessions, which were held in Concert Hall, at the Academy of Music. The attendance was quite fair, though not so large as might have been expected. Over one hundred members answered to roll call, representing the greater portion of the States and Territories.

The president, Hon. Marshall P. Wilder, being absent on account of indisposition, the chair was occupied by C. M. Hovey, of Boston, and Benjamin G. Smith was Secretary *pro tem.*

The address of the President, Marshall P. Wilder, was read, showing the growth, progress and influence of the society. It contains now on its roll the names of three hundred and thirty-eight members, and its field of operation embraces a territory extending from Nova Scotia to California, and from Canada to Texas. The estimate of the number of acres under cultivation in orchards, vines, and small fruits is 4,500,000; the grand total value of the products of all the fruits, $138,216,700 or nearly equal to one-half of the value of our average wheat crop.

After the reading of the address, the balance of the first day was chiefly consumed in receiving reports on credentials from the various organizations represented; also, reports of the different fruit committees, which will be published for the use of the members. Mr. P. Barry, of the general fruit committee, reported the best varieties of apples for general use are red astrachan and maiden blush, which are common in thirty-four States. Of pears, Duchess D'Angouleme stands first, and Bartlett second. At the evening session, held by invitation in the dining room of the Carrollton House, it was decided to hold the next biennial session at Nashville, Tennessee.

The second day was mostly taken up in discussing the value of fruits named in the catalogue, which contains upwards of 800 varieties of apples, pears, peaches, cherries, plums, grapes, raspberries, blackberries, strawberries, etc., striking out such as were not considered worthy and inserting others of approved merits.

The session closed in the evening to accept the invitation of Mr. Perot, President of the Maryland Horticultural Society, to join in a steamboat excursion on the following day to Riverside, Kent county, to visit the extensive peach farms of Col. Edwin Wilkins.

The joint exhibition of fruit and flowers by the society, held in the Fifth regiment armory and annexes, was considered by some of the older members to be the finest that has yet been seen in this country. The display of Franklin, Davis & Co., of Richmond, Va., was one of the larges; Marshall P. Wilder exhibits about 400 varieties of pears; Elwenger & Barry, of Rochester, N. Y., had a very fine assortment, including about 40 varieties of plums; C. Hovey had 320 varieties of pears; Capt. Nath. Atkinson, of North Carolina, about 100 varieties of apples of immense size and beauty, including a large pyramid of fall pippins, the finest display of any one variety in the exhibition. Two of your committee, Messrs. Engle and Reist, were also exhibitors, the former of a fine variety of pears; the latter of a plate of the famous Gloria Mundi apple. Of grapes there was an almost endless variety of the choicest kinds. And last but not least were the flowers and plants. The annexes that contained them were a perfect paradise.

Crop Reports.

H. M. Engle said there was not much to say this month in regard to the crops. Farmers had held back from seeding on account of the long continued drouth, but since the late copious rains a great deal of wheat had been sown. The warm and damp weather has caused the young grain to grow rapidly and it looks very well. The young clover also is coming along finely—much better than was generally expected. Rainfall during the month, 5 10-16 inches.

Levi W. Groff said that inquiries for tobacco were slower than heretofore, the cause being that reports were current that much of the green tobacco was rotting on the poles. A careful examination proved that this was not the case in his neighborhood. The wheat he said was pretty generally sown and looks fine, the warm weather and damp soil giving it a good start. He has sowed most of his own, and some of his neighbors say he uses too much seed—two bushels and a peck to the acre. His experience has been that heavy sowing produces a heavy crop, and thin sowing a light crop.

Henry Kurtz said seeding was not quite over in his neighborhood. He believes in late sowing, anyhow, as the ravages of the fly is thus escaped. Some farmers who sowed early, he learns, are going to plow down their young wheat and sow it again on account of the damage done by the fly. There are reports that the tobacco crop has been much damaged by pole rotting, one of his neighbor's loss being reported at $1,000. He has seen some that fell from the stem and is worthless.

Martin D. Kendig said there was not much grain sown in his neighborhood before the 15th of September; it looks well; the pasture is fine; there are no winter apples; the raintall the past month was 4 8-10 inches.

Essay on Wheat.

Henry Kurtz read an essay on "Wheat and its Culture," tracing it from the garden of Eden to the present time and quoting copiously from the Scriptures to prove its long acknowledged importance as a staple. He gave at some length a statement of the several varieties of wheat, the diseases and insects that infest it, and the best mode of cultivating it. His plan in brief was to use the most approved seed, plow well, but not too early, carefully turning under the grass and dead weed, drain the land of surplus water; sow from one to one and a half bushels of seed not earlier than September 20, and not more than two or three inches deep; fertilize the land with plenty of lime and barnyard manure.

The thanks of the society were voted to Mr. Kurtz for his essay.

Death of a Member.

Prof. Rathvon asked that the rules of business be suspended to enable him to announce to the society the decease of Levi Pownall, a member of the society.

Leave being granted Prof. Rathvon read the following paper:

Mr. President: It is with a feeling of sadness that I am called upon to announce to this society the recent death of one of its most intelligent and valuable members, in the person of Levi Pownall, of Sadsbury. Only one short month ago he was in attendance here, in the very prime of life, and had he been spared he doubtless would have been amongst us today, for he took a deep interest in all that relates to agriculture and the general welfare of the society. Mr. Pownall was a most amiable and estimable man and citizen, and commanded the unqualified respect of all who truly knew him, and especially the fraternal regards of his neighbors, and those who had been longest in familiar intercourse with him. He was quiet, dignified and affable, and although without ostentation, he was a man of more than ordinary intelligence, and possessed rare habits of practical observation. He was an industrious student in natural science, and manifested much interest in practical entomology in its relations to agriculture, and had made commendable progress therein. In his mortal dissolution we have again realized that "In the midst of life we are in death."

Although it become us to bow with humble resignation to the wisdom of that Divine Providence who has removed him to another sphere of being, yet under the dictates of natural affection we cannot resist a feeling of sadness that he has been called away, and that the social chain which had so harmoniously existed in the past, will be broken in the future to be re-united on earth no more. We, therefore, unanimously acquiesce in the sentiment, that in the death of Levi Pownall his family has lost an affectionate husband, father, friend and brother; the community an honest, amiable and estimable citizen, and this society an intelligent, useful and worthy fellow member. And, furthermore, we willingly make this record of our sympathies with all who have been bereaved, and direct this testimonial to be entered into the proceedings of this meeting, and that a copy of the same be sent to the family of the deceased.

The resolutions were unanimously adopted.

Mr. Eagle said that he and Mr. Pownall and a few other had organized this society some sixteen years ago; and of all the members of the society, there was not one more intelligent or more highly esteemed than Mr. Pownall. His countenance and manner proclaimed him an honest man. Mr. Pownall was present at our last meeting, and it was hard now to realize that he was dead. He read, in conclusion, the closing part of the last address of the venerable Mr. Wilder, president of the American Pomological Society.

Levi S. Reist said he remembered well when President Wilder, five years ago, then 80 years of age, read an address before the society, in which he said he supposed it would be the last time he would ever meet the members; and yet at the recent meeting in Baltimore he was present and exhibited 300 plates of as many different varieties of pears, the finest display in the exhibition.

Fattening Stock.

"Does it pay to fatten stock when we get no more than the market price for the grain fed?" was the question next discussed.

The discussion was participated in by Messrs. M. D. Kendig, Henry Kurtz, Israel L. Landis, C. L. Hunsecker, Henry M. Engle, Jacob Stauffer, Joseph F. Witmer, Levi S. Reist, Levi W. Groff, Wm. H. Brosius and Wm. McComsey. The debate was very discursive, but almost all agreed that the feeding of grain to cattle and the making in this way of large quantities of barnyard manure, was the surest and most profitable way of keeping up the fertility of the

soil, and when a vote was taken on the question under debate it was unanimously agreed that it was profitable to feed stock if no more is received for the meat than the market price of the grain fed.

S. P. Eby, the librarian, presented a diploma awarded the society by the late Centennial Exposition for display of apples by members of the society.

Mr. D. Kendig made report of an experiment he had tried with Clawson's white and Fultz wheat. He had seeded the two varieties on strips of ground side by side. The seed was put in at the same time, in the same quantity, and received the same care, and the result was that the Clawson wheat yielded at the rate of 28¼ bushels to the acre, and the Fultz at the rate of 43 bushels. He was astonished at the result, and carefully re-measured and re-calculated it, and found it to be as stated.

Henry Kurtz presented specimens of Champion, Amber and Fultz wheat, the former of which yielded 40 bushels to the acre and the latter only 22.

The Cattle Disease.

President Cooper called attention to the cattle disease, of which so much has been heard, suggesting that some action be taken on it.

William McComsey, Israel Landis, Levi S. Reist, Henry Kurtz and Peter S. Reist, discussed the matter, but no facts were elicited that have not already been ventilated in the newspapers.

Fruit Committee.

Henry M. Engle, Jacob Stauffer and Joseph Witmer were appointed a committee to test and report on the fruits on exhibition before the society.

They made a report to the following effect:

John Huber, a bunch of very fine Triomph grapes—a new variety and worthy of attention.

John H. Landis, a large sized grape—Rogers No. 19 supposed—dark, say black.

Daniel Smeych, nine varieties of very fine grapes, viz: Rogers No. 33, deep claret; Diana, light color; Clinton; Union Village; Concord; Allen's Hybrid, amber translucent; White Syrian; Black Hamburg; Tokay, foreign exotic.

Seedling peaches, viz.: A large, fine yellow clingstone (seedling), white free-stone excellent quality.

Ten varieties of pears, viz.: Howell, Glout, Morceaux, Sheldon, Duchess, Buerre Diel, Buffum, larger than ordinary; Louise Bonne, Muhlenberg, Beurre Clairgeau, a new deep yellow variety.

Apples—a large one to name—fine cooking.

Casper Hiller, seven varieties of pears of good quality, viz.: Lawrence, Urbaniste, B. Bose, B. d' Anjou, Dix, Beurre Clairgeau, Chinese sand pear.

Potatoes planted by Levi W. Groff, July 17, 1877; of a good size, considering that they are a second crop, and apparently of good quality.

Catawba grapes, by Calvin Cooper; fair quality.

H. M. Engle, eight varieties of pears, very fine, viz.: Urbaniste pear, very luscious; Kingsessing, also a B. Bose, very tender; Howell, a superior pear; Mount Vernon, Russet, very good; Danna's Hovey, Sheldon, marked flavor; Buerre d' Anjou.

Levi S. Reist, twelve kin s of apples, of fine size and quality.

H. Kurtz, monster red beet, 10¾ pounds; Fultz wheat and Amber wheat, a fair sample.

M. D. Kendig, Clawson white wheat; Fultz wheat, of fine quality; Erianthusi Ravenna, ornamental grass; Eulalia Japonica Variegata, remarkable for its diagonal yellow stripes, or bands alternating with fine green on its leaves.

The above list is briefly given. More might be said in commendation of the fine collection before the committee, but further praise is not required.

Questions for the Next Meeting.

On motion the thanks of the society were voted to the committee.

The following questions were read by the secretary as having been proposed for discussion at the next meeting:

"Does it pay to apply salt as a fertilizer to the wheat ground in the fall?" Referred to Israel L. Landis.

"What is the best means of preserving manures?" For general discussion.

"What measures should be taken by the farmers to arrest the spread of the prevailing cattle disease?",

There being no other business the society adjourned

TOBACCO GROWERS' ASSOCIATION.

The society met in the room in the third story of city hall, on Monday, September 17. Owing to the alterations being made in the city hall to accommodate the post office, the members were obliged to clamber over piles of brick and mortar and climb up a shaky ladder to reach their room. Some of the more timid declined to go up, but nevertheless there was a pretty good attendance, the following members and visitors being present: M. D. Kendig, president, Manor; W. L. Hershey, secretary, East Hempfield; I. L. Landis, Manheim; P. S. Reist, Manheim; Henry Kurtz, Mount Joy; Sylvester Kennedy, Salisbury; Prof. S. S. Rathvon, city; Henry Shiffner, Upper Leacock; W. D. Hoar, Salisbury; J. H. Hershey, East Hempfield; D. G. Swartz, city; C. L. Hunsecker, Manheim; Eph. Hoover, Manheim; Alex. Lane, Neffsville; J. M. Johnston, city; Aaron Summy, Oregon; John Brady, Millersville; C. Herr, Manor; J. Willis Frantz, Oregon; John H. Beiler, Intercourse; Alfred Trout, Paradise; Simon Hostetter, Oregon; Amos Minnich, East Hempfield; Abe Summy, Manheim; F. R. Diffenderffer, city; Clare Carpenter, city.

The minutes of last meeting were read and adopted.

Crop Reports.

A call was made for crop reports from the several districts.

Henry Shiffner, from Upper Leacock, reported that most of the tobacco had been cut and housed. That which is cut early is safe and curing nicely. That which was cut lately is suffering from the recent warm and wet weather and is rotting to some extent.

Peter S. Reist, Oregon, Manheim township, reported nearly all the tobacco housed. Some late patches are uncut. The crop is a full average. All the tobacco sheds are full and growers complain that they had some difficulty in securing enough lath to hang it on. The tobacco yet out is in danger from the ravages of worms, which are worse now than earlier in the season.

Sylvester Kennedy, of Salisbury, reported the crop in his township nearly all housed and curing satisfactorily. The long spell of damp weather has moulded to some extent that which has been recently cut. The worms were quite numerous two weeks ago, but are not so bad now. The tobacco yet uncut was planted very late, and will not be housed for a week or more.

Israel L. Landis, of Manheim, corroborated Mr. Reist as to the condition of the crop in that township.

Henry Kurtz, of Mount Joy, reported the tobacco in his township nearly all housed except a few small patches. The late tobacco has grown wonderfully within a week or two. All growers seem well pleased with the crops. The lumber yards have been "cleaned out" in supplying lath for hanging tobacco. Some of the crop cut early is curing rather lighter than desirable. He mentioned a firm in Maytown that had sold 700 cases of 1876 tobacco at good prices, but he could not give the figures. John L. Sigler, of Maytown, has a stalk of tobacco which is a curiosity; it contains 72 leaves and shows no sign of going to seed.

J. H. Hershey, of East Hempfield, reported all the tobacco in the neighborhood of Rohrerstown well-housed, except a few patches that were planted after haymaking. That which has been cut is curing nicely, except a small quantity near Landisville, which he hears has been damaged by the late spell of wet weather.

John Brady, of Millersville, said the crop in that vicinity was nearly all housed and is curing well. He heard a prominent tobacco dealer say he never saw tobacco look better. On the last Thursday in June he planted a small lot that is not yet ready to cut, but is growing finely.

Jacob M. Frantz, of Manor, said that most of the crop in this section had been housed from six to ten days ago, and is generally in good condition. The wet weather which has prevailed for some days past will be apt to injure that which has been housed only a few days. He has heard of some lots in Lampeter that had to be taken out of the sheds to prevent rotting. It was put in in damp weather and in green condition. He had seen some recently cut and left hanging on the scaffold, and it looked better than that which had been housed recently. That which was cut early is in good condition; the hot weather and high winds may have cured it a little too rapidly, but the present wet weather is helping it again. The late tobacco will cure well if the wet weather does not continue too long. He thought the tobacco in the vicinity of Strasburg the best in the county. There is a prevalent opinion that if the late tobacco had made its rapid growth at an earlier day it would have been better.

Henry Kurtz exhibited about a dozen very large leaves of tobacco of the "Centennial seed." Most of the leaves were 45, 46 or 47 inches in length, and from 22 to 27 inches in width. He said that the largest of the leaves had matured within sixty days, and some of the smaller ones had been planted only twenty-one days ago. He argued that tobacco would mature in sixty days, and that under favorable circumstances three crops could be grown on the same ground in a single year.

W. L. Hershey, of East Hempfield, reported most of the crop well housed and curing well. Some of that which has been recently cut will have to be removed from the sheds to prevent it rotting. Only two or three of the lower layers, near the ground, seem to be seriously affected. These have a light, leaden look, but may improve under favorable circumstances. Some of the earlier cured looks a little mouldy, and the ribs have a "bloated" appearance, supposed to be caused by imperfect ventilation. In good, dry barns and sheds there has been none of this trouble.

The Society's Anniversary.

The president called attention to the fact that this meeting was the first anniversary of the organization of the society, and he called upon Mr. Jacob M. Frantz to make a speech in honor of the event.

Mr. Frantz responded at some length, stating the objects of the society and felicitating it upon the great good it had accomplished in furthering the tobacco interest and in disseminating useful information among tobacco growers. Nothing is better adapted to further any cause than combination and organization. Unhappily farmers are too apt to ignore this fact and "go it alone," and often "go it blind." He assured farmers that they would help themselves by joining the society, which was not designed to benefit the few but the many.

C. L. Hunsecker followed in an able congratulatory speech, showing the wonderful amount of wealth the tobacco crop was bringing into the coffers of the growers and dealers, and also into the national treasury. This should cause Lancaster county farmers to take an increased interest in its growth, and avail themselves of the advantages of the society to acquire useful information as to its cultivation.

Israel L. Landis, Henry Shiffner, Henry Kurtz, Sylvester Kennedy, Peter S. Reist, Aaron Summy and President Kendig, all made speeches encouraging members of the society to go on in the work they had commenced, until Lancaster county should everywhere be acknowledged the best tobacco district in the world. The only difference among the speakers was that some of them thought the farmers should devote themselves exclusively to *growing* tobacco, while others thought it necessary that they should also acquaint themselves with the best manner of packing it.

New Members Elected.

John Shenk, of Manheim, and R. W. Shenk, city, were elected members of the society.

Debate on Preparation of Soil.

The deferred questions, "How soon after stripping should tobacco be cased?" "How should tobacco sheds be managed?" and "How best to hang tobacco?" were, on motion, dispensed with, and the question, "What method of preparation of the soil is best to promote tobacco culture?" was taken up.

Peter S. Reist said: Prepare the soil and manure it in the fall; or if that is inconvenient manure it in the spring with barnyard manure. If that cannot be had use no other fertilizer. He has tried several commercial fertilizers; some of them did no good, and some of them killed the young plants. He had heard of good results from plowing down green rye and sowing bone-dust broadcast, and he had heard of this plan failing entirely. He recommended that no more tobacco should be planted than could be well manured with barnyard manure.

President Kendig, Aaron Summy and John Moore, spoke of the good results of sowing manure broadcast and plowing down green rye, the straw of which tends to keep the ground loose and moist.

John Brady favored a free application of lime. He instanced a case in which $3,600 worth of tobacco had been grown on three acres of ground in two years, the grower manuring heavily and using 200 bushels of lime per acre.

Jacob M. Frantz said there was a great difference in soil and this should be looked to in growing tobacco. Washington borough and vicinity is celebrated as a tobacco district. The soil is alluvial and was at one time the bed of a river. As we can't all have river lands to grow tobacco on, it is very important that we should know what is next best and what kind of manures are best adapted to tobacco growth. He believed in selecting a soil that observation and experience showed to be the best and then manuring it thoroughly with arn-yard manure. He had had great success in plowing down green rye before planting tobacco. In New Jersey he understood it was a common practice to plow down rye before planting melons. He had no doubt that melons, tobacco or any other rank growing vegetables would be improved by this process. Mr. Frantz said he had turned down a field that had been for twenty-five years in pasture, and received from it a splendid crop of tobacco. He recommended that no more tobacco be planted that can be thoroughly manured with barnyard manure. Then the soil will not deteriorate, even if it is used year after year in the growth of tobacco.

Mr. Kennedy favored rotation of crops, and said he believed it would cost no more for manure to raise a crop of tobacco and follow it with a crop of wheat than it would to grow the wheat alone. He recommanded that the land be well manured and planted in tobacco: after the tobacco is cut off, sow it in wheat. The one manuring will not only serve both crops, but the wheat that follows the tobacco will be better than if the tobacco had not preceded it. He believed the substance drawn from the soil in the growth of tobacco is not the substance necessary to the growth of wheat.

John Moore corroborated Mr. Kennedy. He said he had for four years in succession planted tobacco on a certain patch of ground. Then he sowed it in wheat and received 39 bushels per acre. He had afterwards grown splendid crops of wheat on ground that had been for two years preceding in tobacco.

Plowing Down the Stumps.

Mr. I. L. Landis asked whether it would not be an advantage to cut off and plow under the tobacco stalks after the crop is cut off, so as to prevent a second growth; and whether this plan would not

tend to kill off the horn worm with which the second growth is apt to be infested.

MR. FRANTZ said he thought it would. He had already plowed down fourteen acres of tobacco stalks and seeded the ground in rye, which he would again plow down next spring. Nearly all the rest of his tobacco land he had already plowed down.

Business for next Meeting.

The following questions were proposed:

"What proportion or per cent. of a farm can be planted with tobacco and keep the farm in good condition of fertility?" Referred to President Kendig.

"Into how many grades should tobacco be stripped to make it most marketable?" For general discussion.

Subscription to Newspapers.

On motion the society renewed its subscription to the *U. S. Tobacco Journal* and the *Tobacco Leaf*.

Thanks to Brother Kurtz.

On motion a vote of thanks was tendered to Henry Kurtz, of Mount Joy, for the beautiful specimens of leaf tobacco exhibited by him before the society.

On motion, adjourned.

THE BEE-KEEPERS' SOCIETY.

[Although the Bee-Keepers' Society has thirty-eight names on the roll, no more than six were present at the meeting. We are unable to account for this. The study of the busy workers is certainly as interesting as that of tobacco-growing or curing, yet scores of members attend the latter while not more than a corporal's guard can be got together at the former. The subject is certainly not beneath their notice, for it requires a far higher degree of intelligence to understand the nature and process of bee culture than to grow ten acres of "the curse," as our friend H. M. Engle once called the narcotic weed. Perhaps the matter may be explained by the fact that there is not quite so much money in bees as in tobacco, and that we suspect is the true secret of the slim attendance at the meeting. We hope when the society next meets that some of the old time interest may be shown in the proceedings by there being a better attendance of the members.—REP.]

The semi-annual meeting of the Lancaster County Bee-Keeper's Society met in the Athenæum rooms at 2 o'clock Monday afternoon, October 8.

The following members were present: E. Hershey, W. B. Detweiler, J. F. Hershey, H. H. Myers, P. S. Reist, I. G. Martin.

The meeting was called to order by the president, Peter S. Reist.

The minutes of the previous meeting in May were read by the secretary, H. H. Myers, and, on motion, approved and adopted.

Reports on the success of bee keepers during the season were then called for.

J. F. HERSHEY said his bees did well during the spring. They did not come out of the winter strong, but he made some sixteen artificial swarms, and got about five hundred pounds of honey. If the swarms had been stronger in the spring, he would have got one thousand or fifteen hundred pounds of honey. When they did get strong, the honey season was over.

ELIAS HERSHEY stated that his bees were strong in the spring. They swarmed freely, but the season was too dry to make much honey. He tried the comb foundation, and thinks it is a success. The combs will be filled in about half the usual time when the foundation is used.

W. B. DETWEILER said he wintered eighty hives, but was quite unfortunate. About twenty-five died, and he was also badly troubled with the miller moth. He only got about two hundred pounds of honey. He has about seventy-five swarms now. He also thinks the patent foundation good.

ISAAC G. MARTIN reported that his hives were weak in the spring; he had eight, and now has fifteen, all by natural swarming but one, which he raised by artificial swarming. They made about eighty pounds of comb honey and two hundred and forty pounds of extracted honey. The bees still have about twenty-five pounds per swarm to winter on. He has prepared his hives for winter; he did so by making boxes larger than the regular hive, then placed the hives in the outside boxes, filling the space between the two with chaff. This will keep them warm and dry. He has been quite successful with this plan.

P. S. REIST said he lost about 20 per cent. last spring; his hives were not very strong then but they are now; he got about three hundred pounds of honey from his forty hives. They have ample provision for the winter. Perhaps he could take still more from them and still leave them enough to winter on.

H. H. MYERS wintered eleven colonies, but lost three, and now has fourteen. He is trying to winter a queen in a small colony. Some of his hives have too much honey he thinks; he got eighty pounds from one colony, and that one swarmed. He will pack his hives away in outside boxes and chaff. The bees are in good condition for winter.

W. B. DETWEILER thinks if the bee-keepers are not careful they will lose many swarms by this method of wintering. He wintered fifty swarms one year in that way; for a while they did well, but at last it got too warm; they began to sweat and the hives began to mould. If kept too warm they will leave their hives. Corn husks were better than wheat chaff; they admitted more air and there was better ventilation.

H. H. MYERS said that one hive packed in chaff last year, was his boss hive this spring; they did very well; they remained in the hive more closely than the rest; he made arrangements for ventilation and there was no sweating.

MR. DETWEILER said compound hives are far better than the common ones. He thinks it is a great risk to winter hives in this way.

P. S. REIST said the nearer bees are kept to their methods while in a state of nature, the more successful the experiment will be.

H. H. MYERS remarked that small swarms sometimes do best as honey gatherers. His largest swarms sometimes do the poorest.

ELIAS HERSHEY said much depends on the queen; sometimes she is not very prolific and the swarm does no good. He winters his bees on the summer stand. He has tried the packing method, but not with much success. He believes in building bee houses; less honey is consumed—enough is saved in fact to pay for making the bee house. He described his underground bee house at some length.

W. B. DETWEILER said that even if hives have young, fertile queens in the spring, all will not be the same in the fall; some will be stronger than others; if the queen is prolific the swarm will grow strong, but not otherwise.

ELIAS HERSHEY did not think it all depended on the queen. Some bees were better honey gatherers than others.

J. F. HERSHEY raised queens from good workers, and found it to answer well.

H. H. MYERS tried an experiment of feeding a swarm with a young queen, all they would eat, and the result was very satisfactory. The queen proved very prolific and the swarm strong.

J. F. HERSHEY thought queens should always be raised from old queens. He tried to raise from young queens for a series of years and the bees gradually deteriorated—got smaller and weaker.

H. H. MYERS thought the drones are sometimes inferior and deteriorated; may not be the failure in the queen by attributed to these weak drones?

P. S. REIST said one of his colonies swarmed three times and all are doing well. He did not think there are by twenty-five per cent. so many bees in the United States to-day as four years ago.

H. H. MYERS said the patent hive men are to blame for the decrease of bees; they tell you they can winter bees on a quart or two of honey in their hives and in this way kill them off.

J. F. HERSHEY said if fed on honey they do better than when on sugar.

ELIAS HERSHEY fed some on cheap sugar for a while last year and then on good white sugar, and they did very well. He thinks too much stress is laid on feeding honey.

The question "What is the cause of dysentery in bees," was put by Elias Hershey and replied to by J. F. Hershey, who said that young swarms are more likely to take it than old ones.

J. F. HERSHEY said he fed sugar to bees for three months at a time, and none were attacked by dysentery.

There being no no further business, the society adjourned until the second Monday in May, 1878.

I. G. MARTIN had on exhibition the patent comb foundations, and also such foundation twenty-four hours after it had been placed in the hive in a movable frame. During that brief period at least one-quarter of an inch had been added to the patent foundation on both sides. Their use saves both time and material, and gives the bees a longer period to gather honey. It is stated that as much as twenty-five pounds per hive additional can be produced in this way. It is certainly worthy of the attention of bee-keepers everywhere.

THE LINNÆAN SOCIETY.

A stated meeting of the Linnæan society was held on Saturday, September 29, President J. S. Stahr in the chair; ten members present. After the minutes of the previous meeting and monthly dues were attended to, the

Donations to the Museum

were examined. Seven bottles, marked from A to H, and one No. 40, containing insects, larvæ, fruit, fungoids, etc., collected by or sent to Prof. S. S. Rathvon.

A number of minerals and fossils were donated by Rev. C. L. Houpt, from caves in the vicinity of Sinking creek, Giles county, Virginia, per Rev. G. H. Trabert, such as crystalline and stalactitic formations of carbonate of lime, red oxide of iron, black oxide of manganese. Fossils of the cretaceous period—Rhynchonellidæ, Lingulidæ, &c. Mr. Houpt also had for inspection a series of very fine copies of medals of a number of the Popes, from the year 1566 to 1846; of Luther and other medals struck in commemoration of events and actors. Prof. Dubbs, Revs. Geissinger, Houpt and Stahr added desirable historical information in relation to the same. Rev. D. H. Geissinger donated various combinations of copper ore, such as sulphuret, blue and green carbonate dentifric and efflorescent—if not misunderstood—from Swatara Gap, Lebanon county—unless that referred to the residence of Rev. C. H. Trabert. Rev. J. S. Stahr had a pressed specimen of the *Solanum rostratum*, found last August by Prof. J. W. Andrews, of Colerain, Lancaster county, on the farm of Mr. Albert Worth, in the southeast part of said township. A plant that, like the *S. heterodoxum*, which two, Dr. Gray says (in his late School and Field Book of Botany) grow wild west of the Mississippi; this also grows in Kansas and Colorado, and is said to be the original food of the potato beetle. The plant is a weed, perhaps not so bad as the "horse nettle," *Solanum Carolinense*, which is in the county, but just as prickly. We fancy, if introduced, the *doryphora-10-lineata*, of Say, or Colorado "potato-bug," would hardly leave the *Solanum tuberosa*, or "potato vine," for the stranger weed, which is not wanted, although curious as to how it came to Colerain. Mr. W. T. Bolton had a vine with a bean pod on it, supposed to be a *glicine;* true, it was the *glicine apiod* of Linnæus, now known as *Apios tuberosa*. It seems that he overlooked the string of tubers on the root. These are like small potatoes, and when sliced and roasted on a hot stove taste like potatoes, being evidently rich in starch, as the writer has tested. Why has no one yet tried to cultivate these tubers? Simply because the mere botanist pays no attention, and others who would do so are ignorant of the plant. Mrs. Zell also had on exhibition a well developed leaf of the side-saddle plant, hunter's cup or pitcher—the *Sarracenia purpurea*—with which species the leaf corresponds. It gets purple flowers; the *S. flava*, yellow flowers. This leaf was from plants raised by Dr. Davis, on Prince street, this city, he having prepared a pond to cultivate them in his yard. The proper pitcher plant is quite different, the *Nepenthes distillatoria;* but no more curious or interesting. The *Sarracenia purpurea* is found in a very few localities in our county, and is quite rare.

TWO copies of THE LANCASTER FARMER, and sundry book notices and printed circulars, all that refers to the library.

Papers Read.

Rev. J. S. Stahr on the *Solanum rostratum*. J. Stauffer illustrated a strange growth in a certain peach tree, brought to him by Mr. Rathvon, who gave an account of it in his paper, No. 572. A miscellaneous record of all the articles deposited this day under subject matter A: *Amygdalus persica*, he says, an ordinary peach tree on the premises of Mrs. Miller, Reading, Pa., a branch of which with both kinds of fruit upon it was given to Mr. Rathvon by Mr. Bruce of this city. This tree blooms in spring like others, but develops two distinct kinds of fruit opposite each other on the same branchlet, as was the case in the sample; the one an ordinarily full grown peach, flesh and flavor fine, stone deeply pitted—the other a diminutive peach, no larger than a plum, gets ripe and mellow, but lacks in flavor. The stone is equally small, flattish, nearly smooth, and said to be abortive. What produces the annual differences of the fruit is a question we cannot now discuss, but simply record the fact.

Subject B describes a singular puff-ball, like fungus, from Mr. J. C. Maule, of Quarryville, in this county, found growing in an ice house. Mr. Rathvon, to avail himself of the numerous illustrations in London, and those collected and figured by Mr. Stauffer, failed to find any thing of the kind, when it was advised to forward the same to Dr. Farlow, the distinguished Fungiologist of Boston, Mass.

Mr. Stauffer illustrated this fungus, and on a close inspection of the interior arrangement, when cut in two, found it more in appearance like that of a fruit with a central placentæ, surrounded by seeds, and fleshy walls surrounding them, and having a jelly-like substance between the walls. He suggested the idea that he might be an undeveloped Phallus. Mr. H. L. Zahm found one in his garden, this city, October 6, 1876, which had a basal socket of a round form, with a jelly-like substance, and a singular stripe, with a head and gauze-like veil cover. A figure of this was sent to Dr. Farlow, who named it *Phallus inclessiatus*. We hope to hear from Mr. Farlow. Our suggestion may be at fault, and yet many things thought species or even placed in a different genus, on subsequent research were found simply the young of quite another creature—changed as a "tad-pole does to a frog." Bot. C, described Lepidopterous Larvæ. D, *Bombus Americana*. E, different insects on the wing in the evening, captured in his study. F, on a *Gordius*, of a white color, "hair-snake," taken from a head of cabbage—from Mr. I. L. Landis. G, on the pupa of *Danias Archippes*, from Prof. Baker, of Millersville. H, on cattle ticks collected and described. Bot. No. 40, Sunday Spiders with notes on them under new business.

Rev. Jas. Y. Mitchell, pastor of the Presbyterian church was nominated and unanimously elected an active member of this society.

The committee appointed at the last meeting reported and recommended that a semi-monthly meeting should be held, say at 7½ o'clock on the second Friday evening of each month, to enable some of the members to meet whose business occupy their attention on Saturday afternoon and prevents their at-

tendance. This was agreed to, and the treasurer authorized to procure lamps and oil for the occasion. The first meeting will take place the second Friday evening in October next (the 12th,) without further notice.

Under scientific miscellany, various topics connected with matter brought before the meeting was discussed and a pleasant time had. The meeting adjourned to meet statedly on the last Saturday in October, the 27th, 1877.

AGRICULTURAL.

Wheat-Growing in America.

"Wheat-growing has not paid on the greater part of the land in England for some time. It is a question whether it will more than just pay even at the minimum cost of production, with the aid of the most perfect machinery upon large areas. The cost of production beats the English producer, and the tendency is rather toward increased expenses, as both land and labor are getting gradually dearer. The English farmer cannot compete with the colossal corn-growers of America, whose wheat fields of rich virgin soil are said to be sometimes so large and long that ploughing one furrow out and back again is a good day's work for a plough team. The Crimean war had the effect of hastening on this crisis, and prematurely developing the enormous corn production of the United States. The American scholar, bibliopole, philosopher, George Ticknor, whose letters and life form one of the most interesting works of current literature, wrote on this point in 1855, the following prophetic words to John, King of Saxony: 'Your short crops in Europe are filling the great valley of the Mississippi with wealth. * * * Indeed, your European wars are not only making the States in the valley of the Mississippi the preponderating power in the American Union, but you are making them the granary of the world.' Wonderfully has this prediction been fulfilled. Year by year since the date of those words has the great sea of waving corn steadily advanced through the fertile valleys of the States. It is still advancing, and will advance. We cannot resist it. We must accommodate ourselves to the circumstances as well and as quickly as possible, taking the tide at its turn. The transition state will be tedious, and fraught with loss and suffering to many, in various classes of society, and it will be imperative that all concerned should endeavor to use mutual forbearance." The above, from the *Agricultural Gazette*, is full of significance to the American farmer. The United States is now the granary of the world, and wherever wheat is wanted, there the hungry look to us for a supply. The surplus of America goes to fill all deficiencies in Europe. What we have to do is to cheapen our product, so as to enlarge our profit or enlarge our products without increasing the cost per bushel, which is the same thing. To retain a hold upon the markets we have captured we must do this.

Home Manures.

A writer in the Utica *Herald* puts this question in good shape as follows:

The most successful farmers within the writer's acquaintance are those who make the most home-made manure, who depend mainly upon sod, a heavy turf, which means heavy crops, whether of grass or of grain, if the sod is inverted. Here, all the way from seventy to a hundred tons per acre of rich material is turned down to rot and form pabulum for the crop to succeed, and of a nature exactly suited to plant growth, containing all the properties, being in fact a reproduction in the growth. Here no art is necessary to compost or select for the different soils, adapting manure to ground or product. Sod supplemented by the manure of stables, answers all the purposes, and is of a high fertility, lacking but little of the highest if the manures are kept under cover so as to retain and concentrate their strength. All the elements are always in good proportion. It only needs applying properly what is made, on all the land, the soil originally (in its mineral composition) not materially defective, which embraces most of our drift and all our alluvial soil. And this mode can be prosecuted successfully for an indefinite period. We know farms on which it has been practiced, uninterruptedly, for more than thirty years, where adjoining land has been incorporated, sometimes of a reduced and almost worthless character, and, in a few years, made as good as the rest, the whole forming the most successful, the most profitable farming within the writer's knowledge, continuing, unabatedly, its high yields up to the present. We see more or less of this all over our dairy section.

It needs but concentration, an adoption of the full method, to reach the highest success in farming; this is because the manure is obtained cheaper, and a full use is made of it—all the land will bear.

Hungarian Grass.

The *Scientific Farmer*, Boston, has a good word for Hungarian grass, saying: "We recommend a bushel of seed to the acre, on rich ground. On poorer ground the quantity may be decreased. Yet fertile land is desirable for this crop, as well as others, and a dressing of dung or fertilizer will be apt to bring its reward in a thick and luxuriant crop. Hungarian is a more difficult crop to harvest than hay. Always cut during a dry time, if possible, for it will take three good hay days to prepare for the barn. We do not always, however, have our choice, for as the crop ripens very rapidly, and should be cut when just in blossom, a little delay at the critical time, in order to secure favorable weather, is apt to result in over-ripening, or the formation of seed. Dead-ripe Hungarian is poor stuff for food, and may even act as poison, or at least as an injurious food, when fed to horses, and hence it is preferable to harvest rather early than too late." This is good advice; but better advice would be to substitute an acre or two of sugar corn, sown broadcast. For fall food it comes just in the nick of time; or to cut for fodder just before it gets into tassel, and curing it for winter feeding. It is relished exceedingly by cattle, and especially so by horses, and is very wholesome. The fodder crop of corn, when Lucerne and Hungarian grass is under consideration, should always be borne in mind and allowed its full weight.

Soiling Doubles the Acreage.

The American farmer has a great desire to increase his area of land. He can seldom resist the temptation to add his neighbor's farm if opportunity offers. But how much better for him to double the production instead of the acres. And as stock-keeping is necessary to increasing fertility, the soiling system will enable him to double his number of animals, and thus double the paying product of his farm. One acre of good grass, well cured into hay, will winter a cow in the latitude where the cold term requiring fodder lasts half of the year, and yet, in that same latitude, it takes on the average three acres to pasture a cow during the warm season, although the German chemist Wolff found 46 per cent. of insoluble fiber in clover hay, and only 29 per cent. in green clover, thus showing a still greater loss by pasturing. If, then, one-half acre in good condition will furnish green food for a cow during the pasturing season, and one acre for the winter season, it will be found that a proper management of land under the soiling system will enable a dairyman to keep two cows upon the same land that now keeps one. In many portions of Germany this statement has been more than realized, as a little ten acre farm often feeds ten cows.

Liquid Excrement.

How strangely we overlook the liquid excrement of our animals! A cow, under ordinary feeding, will void 20,000 pounds of solid excrement and 8,000 pounds of liquid. The comparative money value of the two is but slightly in favor of the solid. This statement has been verified as truth, over and over again. The urine of herbivorous animals holds nearly all the secretions of the body which are capable of producing rich nitrogenous compounds so essential as forcing or leaf-forming agents in the growth of plants. The solid holds the phosphoric acid, the lime and magnesia, which go to the seeds principally, but the liquid, holding nitrogen, potash and soda, is needed in forming the stalks and leaves. The two forms of plant nutriment should never be separated or allowed to be wasted by neglect. The farmer who saves all the urine of his animals doubles his manurial resources every year. Good seasoned peat is of immense service to farmers, when used as an absorbent, and the stalls of the animals should be so constructed as to admit of a wide passage in the rear, with generous room for the peat to be used daily with the excrements.—*Journal of Chemistry.*

Hints to Growers of Tobacco.

From a reliable and authentic source (*Deutsche Industrie Blatter*, Germany,) we take the account of experiments which have been made in some of the tobacco producing districts of Germany (Schlesien and Pfalz) with decided success. At the time the plant is ready for cutting, judgment should be used in determining the body and texture the leaves possess at such time. If the leaf should be of a weak character, the whole stalk, including the root, should be extracted and nailed or hung up in the barns with the tips of the leaves hanging downward. This will greatly benefit the leaves, as the sap contained in the root and stalk will gradually diffuse itself into the leaves, and add considerable to their strength and the coming sweating process. If, on the other hand, the leaves should be of a thick, heavy character, then only the leaves should be cut and hung up. This will reduce the surplus of sap, deprive the leaf of too great an accumulation of strength, and turn it out a thinner and more of a desirable texture after sweating.

For promoting the fertility of fruit trees, root pruning is an operation now generally restored to. If properly carried out it is, perhaps, the most certain way to reduce a luxuriant tree to a fruitful state.

HORTICULTURAL.

The Original Seckel Pear Tree.

Mr. Editor: The old tree, the source from which sprang this well-known and world-renowned variety, I visited last week and found still standing and bearing fruit. It is on the Girard estate, east of the Point Breeze Park, in the lower part of the city of Philadelphia, and to this tree we are indebted for our Seckel Pear, so widely disseminated over the world and acknowledged to be the standard of quality in testing other varieties. It is the richest and most exquisitely flavored pear known. Samples sent to Europe by Dr. Hosack in 1819 were pronounced by the London Horticultural Society to exceed in flavor the richest of their autumn pears. The old pear tree must be between 125 and 130 years old, for fruit has been gathered from it (according to the following account published in Downing's "Fruits and Fruit Trees of America," compiled in 1845) for from 110 to 112 years.

"The following history may be relied on as authentic," says Downing, "it having been related by the late venerable Bishop White, whose tenacity of memory was well known. About eighty years ago, when the Bishop was a lad, there was a well-known sportsman and cattle dealer in Philadelphia known as 'Dutch Jacob.' Every season, early in the autumn on returning from his shooting excursions, 'Dutch Jacob' regaled his neighbors with pears of an unusually delicious flavor, the secret of whose place of growth, however, he would never satisfy their curiosity by divulging. At length the Holland Land Company, owning a considerable tract of land south of the city, disposed of it in parcels and 'Dutch Jacob' then secured the ground on which his favorite pear tree stood, a fine strip of land near the Delaware. Not long afterward it became the farm of Mr. Seckel, who introduced this remarkable fruit to public notice, and it received his name. Afterward the property was added to the vast estate of the late Stephen Girard."

The old tree is about thirty feet in height and two feet in diameter. The trunk is much decayed in the heart and one side is entirely gone. When I visited it some twelve or fifteen years ago it had a fence around it and a stout prop put on the decayed side to support it; but now, to the disgrace of the pomologists and city officials there is not a rail to protect and preserve this grand old pear tree, which still bears fruit and may with care survive for many years.—*S. W. N., Jenkintown, 1877, North American.*

Grafting and Its Effects.

It has long been a debatable question among horticulturalists as to what influence, if any, the graft exerts upon the stock, or the stock upon the graft, in their after growth and development. While it is claimed by some that there is no change, but that the growth from the graft retains all its distinctive characteristics of variety of foliage, fruit and flavor, and that the stock below the graft also remains unchanged, others believe that changes do occur in both directions. The latter opinion is probably correct; for, although both graft and stock retain their original and individual characteristics, there are often evidences that each has in some way been influenced or modified in growth or habit by the action of the other. Cases have been reported where varieties of apples and other fruits have been apparently affected both in flavor and time of ripening by the influence of the stocks upon which they have been grafted. As it is a well-known fact among nurserymen that apple trees grafted upon seedling stocks not only follow the habit and form of variety in the top growth, but that the roots growing from the stock also assume the habits and distinctive peculiarities of the graft. So, if a lot of apple seedlings, as nearly alike as possible in size and habits of growth, are selected and grafted with, say crabs, and other kinds of apples, it will be found in their after growth that the crabs have their usual crab roots, and also that where any other varieties have peculiarities in their root growth, they will be so perfectly developed in the different kinds that skillful nurserymen will select and recognize them by their roots alone. For these and some other reasons I am inclined to doubt the entire success of grafting the foreign vine upon our hardier natives as a remedy for the injury to the roots by the phylloxera.

Salt as a Fertilizer.

Only yesterday, says a correspondent of the Utica *Herald*, one of our most intelligent and successful farmers informed me that when he took possession, some years ago, of the farm which he now works, he found it impossible to raise good oats; 30 bushels of poor light oats were all he could get from an acre, while his straw was dull or rusty. Acting on the advice of a friend he salted an acre liberally as an experiment. The result was the corn nearly doubled on that acre and the rust disappeared, while the unsalted portions of his oat field were rusty, and the crop hardly worth harvesting.

Six quarts of soot to a hogshead of water makes a serviceable manure for watering forced plants—as well as for most bulbs, flowering plants and shrubs.

DOMESTIC ECONOMY.

Weight of Milk.

X. A. Willard, some months since, stated that on the authority of Gail Borden, the patentee of the milk condensing process, that an average quart of milk at a temperature of sixty degrees would weigh, if we recollect aright, a fraction over 2.14 pounds to the quart, but Dr. Sturtevant in one of his public lectures, in which he urged farmers and experimenters to drop the practice of reporting milk by measure, as quarts vary so much that one never knows certainly how much a cow gives by the measure, reports, and to adopt the weighing system instead, gave 2.15 pounds as his standard In practice, it being more convenient to use than the exact fraction, and near enough for all prretical purposes. Since that time, the public generally have adopted 2.15 pounds as the practical measure for a quart of milk, usually, however, weighed warm from the cow. So a cow which gives 53¾ pounds of milk in a day is a twenty-five quart cow; but such cows are scarce. Few of us become very weary by the slow process of measuring our milk, especially when we have but one cow.

Effect of Tea on the Skin.

If you drop a few drops of strong tea upon a piece of iron—a knife blade, for instance—the tannate of iron is formed, which is black. If you mix it with iron filings, or pulverized iron, you can make an article of ink. If you mix it with fresh human blood it forms with the iron of the blood the tannate of iron. Take human skin and let it soak for a time in strong tea, and it will become leather. Now, when we remember that the liquids which enter the stomach are rapidly absorbed by the veins and absorbents of the stomach and enter into the circulation, and are thrown out of the system by the skin, respiration and kidneys, it is probable that drink so common as tea and so abundantly used, will have some effect. Can it be possible that tannan, introduced with so much liquid producing perspiration, will have no effect on the skin? Look at the tea drinkers of Russia, the Chinese, and the old women of America, who have so long continued the habit of drinking strong tea. Are they not dark colored and leather-skinned? When young they are fair complexioned.

Rest Before Eating.

Civilization and hunger are incompatible. All the virtues and graces of humanity—certainly of male humanity—fly before an empty stomach. It may be possible for a man to be hungry and amiable at the same time, but it is not safe for any wife to presume upon so unlikely an occurrence habitually. Just before dinner is the worst possible time to bother a husband with questions or complaints, or even with effort to be aggressively agreeable. Then is the time above all others when social silence should grace the home, and make it seem to the tired man the most delightful and restful place on earth. Half an hour of quiet just then is the best possible preparation for the social enjoyment of the coming meal, for then the nervous tension and mental strain of business care and anxiety can be gradually relaxed, and the entire system brought into conditions for enjoying food and the amenities of social life.—*Scientific American.*

Convenience

The successful farmer is he who provides conveniences for the care of his property and the performance of his work; he counts time as an important item in the yearly calculation, and care of all his various effects as a factor in the annual returns. When he puts the horse in the stable there is a place for the harness, where it will be safe from weather or any other damage; his wagons and tools are provided with coverings to preserve them; about his premises will be found a little shop or room where he keeps saws, hammers, vises, augers and the various tools that are needed to mend and put in order the different machines he uses. These simple articles prevent days and weeks of delay, besides adding to the length of the time implements will last. It pays to have conveniences, and also get what you do buy, of good quality.

Old Frames.

Frequently old buildings are bought for the purpose of using the frames in new ones; and the price paid is often about as much as new timber would cost, while the labor in remodeling the old frame is double, perhaps, what it would be to frame the building from new timber. I do not consider that a man would be much, if any the gainer, if the timber of an old building were given to him, for the purpose of being used in a new one, even if it were perfectly sound, and of a quality to last as long as new hemlock. It does very well to buy an old building for a "song," from the materials of which some cheap out-house can be made entire except the roof, but it is always better to buy new timber for a dwelling house.

Household Receipts.

Starching Linen.—Use one teaspoonful powdered borax to one quart of boling starch; it will improve the stiffness and gloss.

Whooping Cough.—Two thirds castor oil, one-third syrup of ipecac. Dose: Half a teaspoonful from two to six hours apart. Shake the mixture well before using. It is almost infallible.

Bronze Paint for Iron or Other Metals.—Take of chrome green, one ounce; ivory black, one ounce; chrome yellow, one ounce; good japan, one gill. Grind all together and mix with linseed oil.

Peach Marmalade.—Peaches too ripe for preserving answer for marmalade. Pare and quarter them, allowing three-quarters of a pound of sugar to each pound of fruit, and half a pint of water to each pound of sugar. Boil one hour and a half, stirring constantly.

To Cleanse Jewelry.—Use hot water and a clean brush; rub a very little soap on the brush, then dip it into powdered borax and scour well; rinse in hot water and rub dry with a clean towel—a chamois is better.

Rust in Tin.—To prevent rusting of tin rub fresh lard over every part of the dish, and then put it in a hot oven and heat it thoroughly. Thus treated any tinware may be used in water constantly and remain bright and free from rust indefinitely.

How to Get Rid of Warts and Corns.—Warts are very troublesome and disfiguring. The following is a perfect cure, for even the largest, without leaving any scar, and has been tested by many: Take a small piece of raw beef, steep it all night in vinegar, cut as much from it as will cover the wart and tie it on; if the excrescence is on the forehead fasten the beef on with a strip of sticking plaster. It may be removed in the day and put on every night. In one fortnight the wart will die and peel off. The same prescription will cure corns.

Buckwheat Cakes.—At night take sufficient warm water for a little more than the amount of batter required. Thicken this with buckwheat flour; a little graham meal is an addition; stir in a teacup of fresh yeast, and let it stand till morning to rise, when it will be fit for use. Leave enough batter to mix in again at night without yeast. After a day or two the batter will require a half-teaspoon or so of soda to sweeten it, put in just before baking. It is nicer to mix your batter in a stone jar and pour off every morning what is required for use, and not put the soda into the whole. The addition of a little milk will make the cakes brown if desired. The batter should be occasionally renewed. Now, as to baking cakes, it is one the fine arts. Some heedless cooks use so much grease, to keep the cakes from sticking to the griddle, that they fill the room full of smoke to the discomfort of all concerned. A cloth sewed fast to a fork is the most convenient greaser, and just as little grrease should be used as possible. The fire should be neither too hot nor too slack. Nothing is better relished on a cold winter morning than well prepared cakes of this kind.

To Pickle Red Cabbage.—Wash very clean; remove the coarse leaves and cut into shreds; put into a jar and cover with hot brine; when cold renew the brine, and when again cold, drain. Allow one cup of white sugar to every gallon of vinegar; tie into a cloth whatever spice you choose, and when just boiling throw over the cabbage.

Pickled Peppers.—Remove the seeds from large green peppers, by making a small incision at one side; soak in salt and water three days, changing the water each day; stuff with a mixture of nasturtiums, chopped red cabbage, cucumbers, tomatoes, seasoned with whole mustard, cinnamon and cloves; with needle and thread secure the opening, place in jars and cover with hot vinegar.

Potatoes which attain their full growth and ripeness in the fall are never soggy; nor are they if kept at so low a temperature during winter as to prevent the eyes from starting. If they begin to grow in March, the dry character is lost, because the sap becomes active preparatory to growth. A soggy potato is either immature or premature. Mealiness is a consequence of perfection in a state of rest.—*N. Y. Herald.*

Scotch Sago Cream Soup.—Make a strong stock by boiling an old fowl till all the strength is taken from the meat. While boiling add some whole white pepper and a small piece of mace. Strain and skim the stock. Set it away to cool. When quite cold remove every particle of fat that has risen and hardened on top. For every two quarts stock take three ounces sago or tapioca; wash in hot water, and boil it in the stock one hour. Then break the yelks of two eggs in a basin, add to them half a pint of cream or milk. Beat them together, and while beating pour in gradually a little of the hot stock; then turn all back into the stock or soup. Let it heat after putting in the cold milk till just up to the boiling point, but take care it does not boil, lest the soup curdle. Then dish and send to table. Veal, rabbit or fowl answers for this stock, or all three put together.—*Christian Union.*

LIVE STOCK.

How to Break Colts.

A minister who seems to have had considerable experience in breaking and harnessing colts, thus writes to the *Golden Rule:*

When the foal is fifteen months old we begin to educate him to harness. Most colts are timid; they are born so. The first day, we simply put a saddle without the back-strap on, buckling up the belly-band loosely. This is done many times, increasing the pressure. Then we take the neck collar, and put it over his head, first permitting him to smell of it, and touch it with his nose, until he is entirely convinced that it is not calculated to hurt him. In like manner we add part to part, until the colt is fully harnessed. He is then allowed to stand with the harness on until he has time to reflect upon the whole matter, and become accustomed to the pressure of the harness against his sensitive skin; for we must remember that all this performance seems very queer to him, and startling. When he has fully composed his mind, and settled down into conviction that everything is all right and as it should be with him, he is then walked about, the harness still on, and brought back every few minutes to the spot where he is to be unharnessed, and taught to stand as long as it would naturally take to remove the harness. Straps are loosened, buckle-tongues started, saddle and collar eased; in short, everything done that would be done in unharnessing, save removing the harness. After several times, this standing still while being unharnessed has come to be, in his mind, a part of the programme, and he understands it and assents to it as such. Once learned, in the case of an intelligent horse, is always learned. This same process should be gone through with in the case of a high-spirited, valuable colt, once or twice each day, for a week at least. And remember that he is learning many lessons in one, including that, the greatest of all a colt can learn, viz.: to have confidence in and yield his will to man. Have great patience at this point of his education, and proceed step by step, advancing no farther than your pupil's success justifies. During the harness exercises, accustom the colt to pressure against the breast and shoulder by tying long cords into the buckle either side of the collar, and pulling gently, causing him to brace himself, as he would naturally do, against it. This gives him the idea of drawing weight somewhere behind him, and, by permitting him to pull you along, he will grow to feel that he can pull anything.

The Cow for Small Farms.

Do men who own small farms keep three or four cows for the purpose of raising calves for sale, or for the butter the cows produce? Of course the reply is, for butter. Then the breed to be selected is that best adapted to butter. Observation and experience both go to prove that the Jersey, commonly called the Alderney, is above all others, the butter cow. They are eastly kept, very docile and beautiful, giving milk of superior richness, from which is produced finely colored, solid butter, having an unequal texture and flavor.

There are prodigies in any breed, but the ordinary Jersey cow can be relied on to give one pound of butter per day, to average that the year round. They do not go dry long; oftentimes it is difficult to dry them off before calving. A record from ten to sixteen pounds of butter per week is not at all rare. How much better then for the housewife who aids her husband in his efforts to gather around him the comforts of a true home by purchasing household necessities by the sale of the dairy product, to have cows that reward her labors by giving a quantity of rich golden butter, so solid and waxy that it will command a few cents extra on the pound.

A Jersey cow costs less to keep than a common cow; if she produces a heifer calf, it a grade, it is worth more than the butcher will give for a scrub calf; if a thoroughbred, at five days old it is worth from fifty to one hundred dollars. On large farms where the raising of cattle for beef is an object, the short horn is the cow needed, but on small farms, on all farms where the butter is made for market, the Jersey cow is exactly what is or should be a necessity.

How to Grow Pigs.

With proper attention to three things pigs may be kept growing and thrifty all winter, and these things are:

1. A dry, warm place to sleep.

2. Good drink, either warm slop or fresh pumped water.

3. Not too many hogs in an enclosure, and they as nearly as possible of a size. If you have large and small together, the big ones will run over the little, and they will not get their share of food. There is much more danger of colic or epidemic diseases where the conditions mentioned above are disregarded than where hogs are kept thrifty and growing, and certainly there is more profit. A dry, warm bed is a cheap luxury for hogs in winter, and every farmer should prepare a shed and plenty of material in the fall.

POULTRY.

Packing Poultry for Market.

The French mode of killing, by making an incision in the roof of the mouth, is preferable when the head of the bird is to be left on, but that is not necessary, neither is it always desirable; but the custom in the market to which the fowls are sent determines this matter. When, however, the head is taken off the skin should always be pulled over the stump and tied. The mode of picking while the bird is warm is called "dry picking," and is the favorite method of dressing poultry for the Philadelphia market. There is one objection to this system, that it does not improve the appearance, although it does the flavor; but while cooking it will "plump up" and come out of the oven looking much finer than when it went in. In addition, it will keep much longer than when dressed by the other mode.

Another plan is, after the bird is picked, as above described, plunge it in a kettle of very hot water, holding it there only long enough to cause the bird to "plump;" then hang it up, turkeys and chickens by the feet, and geese and ducks by the head, until thoroughly cooled. This scalding makes the fat look bright and clear, and the fowl to appear much fatter than it would if picked dry. This is the usual mode of dressing for the New York markets.

All poultry should be thoroughly cooled before packing. Then provide boxes, for they are preferable to barrels; place a layer of rye straw that has been thoroughly cleaned from dust, on the bottom; commence packing by placing the head of the fowl against the end of the box, the bird lying on its breast, with the legs extended behind it; the last one of the layers must be reversed, the feet passing under each other, so that the heads are against the other end of the box. This gives a uniformity of appearance, and a firmness in packing, that will prevent moving during transportation. Over this layer place straw enough to prevent one layer coming in contact with the other; then add other layers, packed in the same manner, until the box is filled.

Care should be taken to have the box filled full, in order to prevent any disarrangement of the contents; for, should it become misplaced, the skin may become so badly disfigured as to cause a depreciation of the value to its owner. Those having extra fine poultry to send to market should put paper over each layer before placing the straw on it; this prevents the dust from settling on it, and adds much to its appearance.

The box should have the initials of the consignor, the number and variety of the contents, as well as the name of the consignee, marked on it. The necessity for marking the number and variety of contents is, that in case the box is broken open and any portion of the contents missing before delivery to the consignee, he will be able to make a correct bill for the missing poultry. Another advantage is, that the consignee knows by a glance at the box whether it contains the desired variety he wishes; if not he need not open it, and the contents will not receive a needless handling, for some parties prefer a mixed box, while others do not, and all dealers prefer to sell the entire contents of the box to one person, as it avoids error in weighing and keeping the accounts.

Those wishing to market capons, must bear in mind that they should be dry-picked, with the feathers on around the head and the tip of the wings; also the tail feathers left in; the small or pin-feathers should all be removed.

Persons living at a distance from this or any other city, and wishing to send their poultry to market for any particular occasion, should forward it a day or two ahead of the time needed for transportation, for it is better that the dealer should receive it even a couple of days too soon, than an hour too late.—*Rural New Yorker.*

"Plymouth Rocks."

Plymouth Rocks, being a composite breed, have some peculiarities that render them difficult to breed by the ordinary amateur, for if a pair that are perfectly mated for exhibitions be put into a breeding pen the almost certain result will be a lot of nearly black, dark-legged pullets, with cockrels that may be good in color of plumage, but will be very apt to fail in color of leg and beak. In fact, we know of no standard variety that requires more judgment and care in mating up for breeding than the Plymouth Rocks.

There is no question but that Plymouth Rocks are now attracting more attention than any of the new varieties, at least it is so in the Western and Southern States, and they are destined to become more popular as the economic merits become known, combining in themselves, as they do, large size, good laying and table qualities, handsome plumage and extreme hardiness. Being good mothers, with not too great propensity for sitting, there certainly would seem to be nothing further to be desired. But, of course, while the general average of excellence is high, the Plymouth Rock does not equal some of the non-sitters as egg producers, nor some other varieties as a table fowl, but in these two respects it will be pronounced "good enough," and as a general utility fowl the Plymouth Rock will hold public favor.

Charcoal and Lime.

Permit us again to urge all breeders of poultry who wish healthy fowls, to be liberal in supplying their fowls with charcoal. It is one of the best preventives of diseases amongst fowls that can be named.

Even if the fowls are not confined, but especially so if they are, charcoal pounded up into fine bits or pieces about the size of a grain of corn, or a little finer, should be put around in small piles where the fowls can have easy access to it, and they will soon make use of it. The cost of charcoal is but a trifle and where the distance from town or city is so great as to prevent it from being readily obtained therefrom, the ashes from a wood stove may be sieved out and the small bits of charred wood or charcoal used in the place of that made in the regular way. Especially during the spring and early summer months, is it advisable to use charcoal freely. Lime, too, is valuable in many ways. In the form of whitewash it begets cleanliness, freedom from disease, and laying hens should have lime where they can make use of it, in assisting in the production of eggs.—*Poultry World.*

To Preserve Eggs.

Dr. W. D. Monroe, in the *Fanciers' Journal*, gives the following:

I have experimented with many nests of eggs this year, and find that butter or grass of any kind with me will certainly keep the eggs clear, but incubation will not begin. I have tried a solution composed of glycerine and olive oil, with the same result. If you wish to keep eggs fresh for six months, take four ounces of the best olive oil, shake well up together and rub on the eggs. I had some eggs at breakfast that were put down last January in a cool cellar, that were treated with a coat of this egg preserver, and packed, the large end down, in fine sand or salt, and you could not tell them from freshly laid eggs. Out of twenty-four dozen that we used this month, that were put down in that way in January and February, only five bad ones (and they only had a strong musty smell, not rotten, my wife said) had been found among them.

An exchange says: "If you want chickens to get well of the cholera in two days take good clear water and put in a bucket of any kind; then get white oak bark—that from an old tree is the best—put it in the water and let it steep until the water is of a copper color, and then pour it in your drinking vessels or fountain and not let the fowls drink any other water. Give them the usual feed, and a cure will be effected in a short time. I have tried this for five years, and it has never failed."

If a hen's spur is hard, and the scales on the legs rough, she is old, whether you see her head or not, but her head will corroborate your observation. If the underbill is so stiff that you cannot bend it down, and the comb thick and rough, leave her, no matter how fat and plump, for some one less particular. A young hen has only the rudiments of spurs; the scales on the legs are smooth, glossy and fresh colored, whatever the color may be; the claws tender and short, the nails sharp, the underbill soft and the comb thin and smooth.—*Rural New Yorker.*

LITERARY AND PERSONAL.

Brown Street Wharf Market on the Delaware.—The greater extension of Philadelphia northward and northwestward than in other directions, has necessitated a more northern wholesale market on the river front than now exists.

Owing to its proximity to the Delaware river; to the Germantown, North Pennsylvania, Kensington and other railroad depots; to the Vine street and Shackamaxon street ferries; as well as to its accessibility by the horse cars and the new Delaware avenue steam railroad; the above is believed to be an unequaled point for the receipt and distribution of market supplies by river and rail.

Ground and wharves have been secured to ensure every facility for a market of large proportions, and to extend the same as increased business may call for it.

There will also be stores in the vicinity, suitable for produce dealers, and extensive storage for articles in barrels is already provided.

A market house at the foot of Brown street, extending from Beach street to Delaware avenue, will be erected immediately, and be ready for use next spring, and extensive accommodations provided on the opposite wharf.

There will be a telegraph office on the premises, by which dealers from all parts can secure deliveries of oysters, fish, produce, fruit, etc., with the utmost despatch, and the convenience of those engaged there consulted as far as possible.

The Second and Third street cars (taking passes via Brown street) and the Green street and Fairmount avenue cars reach the place.

The Mount Joy Herald.—Of all the folios—not included in the specialty of agriculture—there is none that comes to our desk more promptly and more welcomly than the *Mount Joy Herald*, and none that reflects a higher moral and domestic tone. Its literary selections are pure and practical; its editorials fair and liberal, and its local columns a faithful epitome of the events of its neighborhood. But this is not all, for it caters for more than the merely material wants of man—it endeavors to lift up and expand his moral nature—to be not only "a lamp to his feet," but also "a light to his path." "The sayings of Honest John," emanating from a more pretentious source, would long since have been quoted as superior and less selfish than those of "Poor Richard." But more still, regularly every week, side and side with its practical Agricultural and Domestic column, are its contributions to the edification of the spiritual man, and it is refreshing to see, in a secular journal, this constant and living recognition of men's spiritual nature through "Our Diary." $2.00 a year, in advance, for the *Herald* and The Farmer.

The Art of Propagation.—A hand-book for Nurserymen, Florists, Gardeners and everybody. Price, 50 cents. Published by the Jenkins Grape and Seedling Nursery, Winona, Columbiana county, Ohio, 1877. This is a fairly printed octavo of 36 pages, including covers and 25 finely executed illustrations. No work that we have ever seen seems to be better entitled to "*Multum in parvo*" than this little work on a most useful and interesting subject. The whole subject of propagation is contained in a "nut-shell," and from a practical standpoint. We will furnish the Farmer for 1878 and a copy of this valuable treatise, *to all who desire it*, at $1.25, to those residing within the county of Lancaster, and at $1.50 to those who reside beyond its borders, whether they are old subscribers or not.

The Poultry World.—Poultry fanciers and farmers who raise fowls for market will find this magazine very useful, as it is devoted exclusively to the discussion of matters pertaining to the breeding and rearing of poultry and such other matters as are connected with the pursuit. Its appearance is very attractive, as it is adorned with numerous fine cuts, and, in addition, the publisher furnishes to his subscribers at a nominal price, *twelve magnificent Chromo-plates* of modern varieties of fowls. Subscription, $1.25 per year, or $2 with the chromo-plates. Address, H. H. Stoddard, Publisher, Hartford, Conn.

St. Francis Nurseries.—We have received the illustrated wholesale price list of nursery-grown European larch, evergreens, fruit, ornamental, shade and deciduous tree seedlings, cultivated and for sale by H. M. Thompson & Son, St. Francis, Milwaukee county, Wisconsin. An octavo pamphlet of 40 pages, with a large folded plate, of shelter-belts and ornamental hedges, and 11 other illustrations of choice evergreens, and besides giving an unusually large amount of statistical, historical and instructive matter on the subject of tree culture.

Dear Old Homestead, is the title of a new song, by Miss Anna C. Hilts. This song has taken a strong hold on the popular fancy. No doubt there are thousands who never forget the "Dear Old Homestead," where so many happy hours were spent in joyfulness and glee, during their childhood days. Price, 40 cents, with splendid lithograph of a country homestead.

'Tis a place I shall ever remember,
Should I live to be fifty years old;
'Twas the home of us all in our childhood,
And we prize it, yes higher than gold.

Address all orders to F. W. Helmick, publishers, No. 50 West Fourth street, Cincinnati, Ohio.

N. B.—Over 200 second-hand pianos for sale cheap.

Extensive Art Gallery.—Next to the Bible no book is more useful than Webster's Dictionary. The Unabridged is *an extensive art gallery*, containing over three thousand engravings, representing almost every animal, insect, reptile, implement, plant, etc., which we know anything about. It is a vast library, giving information on almost every mentionable subject. It, indeed, has been well remarked that it is the most remarkable *compendium of human knowledge* in our language.—*Household Advocate.*

Received, for 1877 and 1878, descriptive catalogue of tulips, hyacinths, crocuses, lilies, and other spring-flowering bulbs, with supplementary addenda of winter-blooming plants, fuchsias, geraniums, roses, chrysanthemums, &c. For sale by F. K. Phœnix, at the Bloomington Nursery, Bloomingtou, McLean county, Illinois. Also, wholesale price list and wholesale club rates.

The Advertisers' Guide, a magazine devoted to the interests of advertisers and newspaper publishers, by N. W. Ayer & Son, Times building, Chestnut and Eighth streets, Philadelphia, Pa. A very handsome royal octavo of 20 pages and filled with interesting and instructive matter on its specialty.

Centennial prize medal and diploma, awarded to Gibson & Bennett, for exhibit of fine fruit, Florists and Fruit-growers, Woodbury, N. J. Illustrated description and price list of the four best market berries, nursery stock, roses, grapevines, &c., for sale.

Wholesale price list of grapevines, fruit trees, &c., for Autumn, 1877. T. S. Hubbard, Fredonia, New York.

Rochester Commercial Nurseries, Wm. S. Little's semi-annual circular of wholesale prices for the Autumn of 1877.

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CITY LIST
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THE LANCASTER FARMER

DEVOTED TO AGRICULTURE, HORTICULTURE, DOMESTIC ECONOMY AND MISCELLANY.

"THE FARMER IS THE FOUNDER OF CIVILIZATION."—WEBSTER.

Prof. S. S. RATHVON, Editor. LANCASTER, NOVEMBER 15, 1877. LINNÆUS RATHVON, Publisher.

THE FARMERS HOME ORGAN.

The Lancaster Farmer;

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PRACTICAL ENTOMOLOGY

Made a prominent feature, with special reference to the wants of the Farmer, the Gardener and Fruit-Grower.

Founded under the auspices of the Lancaster County Agricultural and Horticultural Society.

Edited by Prof. S. S. RATHVON.

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All subscriptions will commence with the January number unless otherwise ordered.

All communications intended for publication should be addressed to the Editor, and, to secure insertion, should be in his hands by the first of the month of publication.

All business letters, containing subscriptions and advertisements, should be addressed to the publisher.

THE LANCASTER FARMER having completed its eighth year under various vicissitudes, now commences its ninth volume under, it is hoped, more favorable auspices than attended its former volumes. When the publishers of the last two volumes assumed the responsibilities of its publication, it was with a determination to make such improvements as would place the farmer's organ of this great agricultural county in the very front rank of agricultural journalism. That this has been accomplished we think our readers will bear cheerful testimony. If reasonably sustained, our aim is to make it still more interesting and instructive under its new proprietorship. In this, however, we need the co-operation of every friend of the enterprise.

The contributions of our able editor, Prof. RATHVON, on subjects connected with the science of farming, and particularly that specialty of which he is so thoroughly a master—entomological science—some knowledge of which has become a necessity to the successful farmer, are alone worth much more than the price of this publication.

THE FARMER will be published on the 15th of every month, printed on good paper with clear type, in convenient form for reading and binding, and mailed to subscribers on the following

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PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*	2:40 a. m.	4:05 a. m.
Way Passenger†	4:50 a. m.	7:50 a. m.
Niagara Express	9:35 a. m.	10:40 a. m.
Col. Accommodation	7:20 a. m.	Col. 8:00 a. m.
Mail train via Mt. Joy	11:20 a. m.	1:00 p. m.
No. 2 via Columbia	11:20 a. m.	1:25 p. m.
Sunday Mail	11:29 a. m.	1:30 p. m.
Fast Line*	2:10 p. m	3:25 p. m.
Frederick Accommodation	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom	6:10 p. m.	8:50 p. m.
Columbia Accommodation	7:20 p. m.	Col. 8:00 p. m.
Harrisburg Express	7:25 p. m.	8:40 p. m.
Pittsburg Express	9:25 p. m.	10:50 p. m.
Cincinnati Express*	11:30 p. m.	12:45 a. m.
EASTWARD.	**Lancaster.**	**Philadelphia.**
Atlantic Express*	12:30 a. m.	3:00 a. m.
Philadelphia Express†	4:10 a. m.	7:00 a. m.
Harrisburg Express	7:35 a. m.	10:00 a. m.
Columbia Accommodation	9:28 a. m.	12:30 p. m.
Pacific Express*	1:20 p. m.	3:45 p. m.
Sunday Mail	2:00 p. m.	5:00 p. m.
Johnstown Express	3:05 p. m.	6:00 p. m.
Day Express*	5:18 p. m.	7:20 p. m.
Harrisburg Accom	5:50 p. m.	9:00 p. m.

The Hanover Accommodation, west, connects at Lancaster with Niagara Express, west, at 9:35 a. m., and will run through to Hanover.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 2:10 p. m., and runs to Frederick.

The Pacific Express, east, on Sunday, when flagged, will stop at Middletown, Elizabethtown, Mount Joy and Landisville.

*The only trains which run daily.

†Runs daily, except Monday.

Rates of Advertising in the Farmer.

	1 in.	2 in.	3 in.	4 in.	5 in.	8 in.
1 mo	$1.00	$ 2.00	$ 3.00	$ 4.00	$ 6.00	$ 8.00
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1 year	9.00	18.00	27.00	36.00	54.00	72.00

☞Special and business notices 15 cents per line.

The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., NOVEMBER, 1877. Vol. IX. No. 11.

NOTICE EXTRAORDINARY.

To every new subscriber who sends in his name, and the regular amount of subscription, between now and the first of January next, we will send a copy of THE FARMER for 1878 and include the numbers for November and December of the present year. See our PREMIUM LIST in another column.

OUR patrons, and especially the members of our local society, will bear in mind that the "Pennsylvania Fruit-Growers' Society," will meet in the borough of Williamsport, in January next, and, judging from the spirit of the place in other active enterprises, they may expect a *live* meeting and a good time. Our society should not omit to appoint delegates at least at its December meeting.

TO OUR DELINQUENT SUBSCRIBERS.

There are a large number of subscriptions on our list that are still unpaid, and we need every cent of it to keep our chin, financially, above water. Only a trifle more than one-third of the subscriptions for 1877 have thus far been paid. We are publishing THE FARMER without any marginal profit; and, if every penny now due us was paid up, it would do nothing more than cover our expenses. Will our patrons be kind and considerate enough to give heed to these things? We need not only present help, but we need an increased subscription list, to sustain us through the coming year. Shall we be able to make a more satisfactory record in our December number?

DO BEES CUT OR STING THE SKINS OF FRUIT?

It is said that on a certain occasion four blind men desired to have a practical demonstration of what an elephant was like, and, as *sight* was out of the question, they essayed to have it by *feeling*. The first advanced and happened to seize the animal's tusk, when a ray of light seemed to illuminate his countenance and he exclaimed, "Ah! now I know what an elephant is like; it is like a great horn." The second approached, and by the same blind chance seized its tail, when he remarked, "Ah, brother, you are greatly mistaken, for an elephant is not like a *horn*, but like a heavy rope." The third seized the animal by one of its huge legs and exclaimed, "No, brothers, you are both most egregiously mistaken, for an elephant is like the trunk of a tree." Then the fourth approached, and happened to get hold of one of its great ears, when he, with some feeling, alleged that they were *all* mistaken, for an elephant was like neither a horn, a rope nor a tree trunk, but, on the contrary, it was like a leather apron. Now, these men were all specifically right, but generically wrong; for, having demonstrated the subject from different standpoints, they were only able to render a partial judgment, and this seems to be the category in which the gentleman are who have recently been ventilating the subject of bees stinging fruit through the columns of the *New Era* and other newspapers. Although we have said as much as we deemed necessary to say (in the October number of THE FARMER,) on this subject, yet, as it seems to have become an important one, even involving the grape crop of the country, we have concluded to place the different views of the gentlemen we alluded to in our article, on record; because we are well acquainted with all of them, and believe them to be honest in their views, and that their experience, up to the present time, has just been as they say. The season is now past, but another season will give them an opportunity to confirm their views or disavow them. The matter involved is a local one, and is discussed by local writers and observers, and whatever ultimately may be determined as "the truth, the whole truth, and nothing but the truth," will be of general interest to the whole country. We have arranged these papers numerically as they appeared in print from one to six, and would admonish our patrons in reading them not to omit our paper on the subject in the number of THE FARMER above alluded to, because it contains some suggestions on the subject which they do not appear to have duly considered, and may assist them in solving the problem.

Do Bees Destroy Fruit? No. 1.

As regularly as the autumn comes around we are treated with long accounts of the depredations committed by that industrious honey-gatherer—the bee. The charges brought against them are not only many, but as serious as they are numerous. Nine times out of ten these charges are brought by persons incapable of pronouncing an opinion, but who swell the hearsay cry of denunciation merely because it is popular or in consequence of some unreliable information received at second hand. The result of all this is, that the poor bees have a hard time of it. It is to relieve them from at least one, and that the most serious of all the accusations against them, that we write this article.

No opinion seems to be more generally prevalent than that bees tear open the outer skins of grapes, plums, peaches and other fruits for the purpose of feasting on the sweet juices within. Because they are found on these fruits in the act of committing a trespass, they are condemned without a hearing or any consideration whatever. It is most commonly said they *sting* the fruit. This is the result of sheer ignorance. Neither the bee nor any other insect employs its sting for such purposes; they have them for other uses, as a means of defense against enemies, and use them solely as nature designed that they should. It is as impossible for a bee to *sting* open a grape as it is for it to open a walnut or a shellbark by the same process. Its only means to commit the deed of which it is accused, is the proboscis with which it is armed, but this, although perhaps capable of tearing open skins of ripe fruit, is never used for that purpose, its functions, like those of the sting, being far different, and confined exclusively to the ends designed by nature.

Although the charges are based mainly on the fact that at this season large numbers of bees are seen on the grapes on our vines, busily employed in helping themselves to the palatable juices, yet we assert very positively that none of the persons who bring this charge of *stinging* the grapes, have ever seen the insects depradating on a sound grape or attempting to tear one open. They always select those already injured and never perpetrate an original injury. A rainy spell followed by warm weather very frequently causes grapes and other fruits to burst, and it is to the fruit thus injured that the slandered bees pay their attentions.

At a late meeting of the Bee-Keepers' Society of this county, Mr. Fleckenstein, who is not only our largest apiarist, but also a most intelligent and careful observer, stated positively and unequivocally that his hives were surrounded with grape vines, and the fruit hung all around them, and yet his bees never damaged it in the slightest degree. Surely the experience of such a man is worth the idle declamations of a thousand theorists.

There appeared in the Reading *Eagle*, a few weeks ago, a most violent denunciation of the bees and their owners in that city. The old accusation of stinging fruit was revived, and the opinions of various fruit growers were given to add point to the necessity which it urged was required to put a stop to the nuisance. We are sorry that our usually sound and reliable cotemporary should have not only fallen into this error, but in its uncalled for indignation has indulged in several recommendations to the citizens to rid themselves of these supposed pests, that are indefensible both in law and morals. After saying that some persons suggest the wholesale poisoning of the bees, it adds, this method of getting rid of them would also poison the persons who buy and eat the honey, and is therefore not feasible, but it advises methods so startling and reprehensible that we cannot but denounce them in the strongest terms. In advising that beeswax and rosin be melted and run into wide dishes into which the bees would crowd, and where, after the composition cools, the bees will stick fast, when hot water can be poured over them, scalding them to death—in telling fruit growers to set out a composition of honey and flour for the supposed depredators, in order that the latter, after being mixed with the honey in the hive, may ferment and destroy the sweet store laid up—these recommendations are simply barbarous and unworthy of the consideration of any man.

Remembering Mr. Fleckenstein's statement, and reading the broad charges of the *Eagle*, we began a close investigation of the question, lasting through a series of days. On the grapes of a vine growing in our yard hundreds of bees were literally swarming, their home being in a neighbors's yard, not twenty paces distant. We sat hour after hour watching closely the proceedings of the industrious insects. There was not a single raceme on the whole vine, but was visited by dozens of bees, who examined every grape on it in search of a bursted one whose juices were accessible. After a most careful search and finding none such, they would immediately leave and continue their search elsewhere, until the berry they desired was found. On all the defective fruit clusters bees were gathered, but we failed utterly in detecting in a single instance any thing like an attempt at trying to tear open a perfect berry; their investigations were hasty but thorough, and when the desired spoil was not found no time was wasted in useless delay. There can be no mistake about this matter; our observations were careful and prolonged, and must certainly have resulted in detecting the harm complained of had any been done. That none was done we are positively certain, and we feel that these hard workers deserve a good word in return for the odium cast upon them by theorists and careless observers. They ought not to be held responsible for the harm said to be done by wasps, hornets and other hymenopterous insects, although we do not know that those mentioned are more harmful than the bees themselves, although said to be so.

About the propriety of persons living in cities keeping bees when they have no means of supplying them with their proper food, we have nothing to say. That is a question such people must decide for themselves and with which we have nothing to do. But we do most decidedly protest against the injurious charges against these harmless friends of man, and against the means recommended for their destruction by persons entirely incompetent to discuss the question we have been considering from personal knowledge.—*F. R. D.*

Do Bees Destroy Fruit? Yes. No. 2.

I saw an article in last week's issue of THE NEW ERA headed as above. Now, I do not know who the writter may be who can fill

a whole column of the paper trying to prove that bees do not destroy fruit. For aught I know, the article may be editorial, or written by an apiarist or entomologist. But be he who he may, I protest in toto against such a conclusion as the writer attempts to prove. As the writer did not choose to attach his name, it appears plausible that he was not quite so confident as he pretends to be that bees do not sting or cut the cuticle of grapes.

Only a few weeks since I was talking with a gentleman in Lancaster on this very subject of bees cutting the grapes. He told me that his father and himself had kept bees for many years; that they had grape vines bearing lots of fruit, and that the bees never touched the grapes until within a few years back. Did bees injure the fruit? Now, he tells me, since the Italian, or crosses of that variety of bees have been introduced, they are so destructive of the fruit that they can no more grow grapes as formerly. Such also is my experience. For over fifty years I had from five to forty hives of the black bees in a season. I then also had lots of grapes, but the bees did not molest the fruit. For the last six or eight years I have had no bees on my place. Now, within the last four or five my neighbors' "little busy bees" have made a regular onslaught on my grapes. Though my neighbors who have the Italian variety are from half to a mile distant; yet before sunrise, and after the sun is set, these little rascals were as "busy as bees" on my grape vines, day after day, from the middle of August up to the middle of September, or until the last berry was sucked dry. I can assure the writer of that article had he been at my place any time from the middle of August to the middle of September, he need not "have watched them for hours" until he could have seen them, not sting, but cut with their mandibles the berries as neatly and expeditiously as it could have been done with a penknife.

I had a splendid crop of grapes of many varieties this last season, yet as soon as the earliest varieties became sweet, these little rascals came in crowds, and as soon as any of the grapes became nearly ripe, they set to work with a will, and cut and sucked out the juice of the berries, thus spoiling the whole bunch. I would have had many bushels of perfect and delicious grapes, yet from the depredations of these little pests I do not get a single perfect and perfectly ripe bunch of grapes! I cut off some of the bunches of special varieties before the grapes were fully mature, to get a taste of some new varieties, but these did not give their true flavor. No amount of shaking the vines, or trying to drive them off, had any effect for they would just light on some other part of the vine in all haste. You might as well try to make me believe that the sun rises in the west, as to convince me that the "busy bee" does not cut the berries. They do not sting them, as they have other uses for that member.

As to wasps and other insects cutting the grapes prior to bees feasting on the juice, that is contrary to my experience, as I did not see a single wasp, hornet, yellow-jacket or bumble-bee on the vine during the season, and I was a pretty close observer. The fact is, where there is such a crowd of honey-bees no other insect dare approach. Either this nuisance must be abated, or we may as well cease growing this delicious and reliable fruit.

I am not sure but I may another season apply Prof. Riley's recommendation, and give these thieves a taste of Paris-green, or what may be more to the purpose, strychnia. If they get a taste of this drug, mixed with honey, they will not be very likely to carry the poison to their hives, but drop down at once, and no longer depredate a neighbor's property.—*J. B. Garber, Columbia, Pa., Oct.* 10, 1877.

Do Bees Destroy Grapes? No. 3.

As the little busy bee, that poor, industrious little worker, has been greatly abused and unjustly charged with crimes of which I believe it innocent, I thought it should not be condemned without a defender at the hearing. We plead not guilty. My respected old friend, J. B. G., of Columbia, is sure the bees generally are guilty, but the Italians in particular. Of the latter I know very little, as there are none in this neighborhood, (I do not mean a far west frontier neighborhood of 15 or 20 miles,) but as friend Garber says, from half to a mile distant.

I have several colonies, or hives, of black bees, and close by several varieties of grapes, and never before this summer did they in large numbers visit the grapes, but this season, when the grapes ripened, the Clintons in particular, being the most perfect, full and large for the kind, burst their skins, many half way round, from some cause unknown to me, so that the air around was filled with the delicious sweet smell of the ripe fruit, which naturally invited the bees to come and regale themselves, and sip the nectar now open to them. Concords near by were not near so perfect this year, and few *burst* their skins when ripening, and few bees gathered about them. Delawares, nearest to the hives, were also very perfect, but none *burst* their skins, and no bees visited them. Now, if the bees had *cut* the grapes open, is it not natural and reasonable that they would have also *cut* the other and sweeter kinds, as more to their taste, particularly the Delawares.

Some varieties of apples, when perfectly developed and fully ripe, also sometimes *burst* their skin, as my friend Garber, that prince of fruit growers and professor of pomology, no doubt has noticed.

The question whether the bees have an apparatus at all to *cut* the skin of the grape, I refer to my friend, Prof. Rathvon. Their sting does not *cut*, and is used only to defend.

Your correspondent, W., from Strasburg, complains also of the destruction of his grapes this year by the bees, but admits that "he don't know whether the bees *tear* the skin or not," and throws ugly hints at the Italians; but that they destroyed his grapes he is quite sure. Now, if the skin is *burst*, from whatever cause, would not the grape go to speedy destruction if no bees came near it? Friend W. says, "thousands of bees were constantly on his grapes from early dawn till dusk," which he can prove by any number of witnesses. This is not denied. So there were on mine, but no Italians among them all, but all our own black bees, or others as much like them as one bee can be to another bee. If the bees have only now discovered that they can *cut or tear* the skins of grapes, they will, no doubt, soon find that they can also cut the long tubes of the red clover blossom. What a flow of honey there will be when they strike that bonanza!

Our Clinton grapes were so thin skinned this year that many could not be removed from the stem without *bursting*. Is it not enough that we rob this poor, industrious little people of a great portion of their store, gathered with so much patient industry every shining hour during summer for winter use? Shall the robbers then turn around and accuse them of mischief they are unable to do? We ask for a verdict of not guilty.—*M., Oregon, Oct.* 22, 1877.

Do Bees Destroy Fruit? No. 4.

Sir: Your article under the above caption has occasioned considerable discussion in this neighborhood, and you will excuse me if I add that the general verdict is that its conclusions are not correct. I have been for some years quite an extensive grape-grower, and have had no trouble before the present year in securing all of that fruit that I wanted. This year, though I had an abundance on the vines, yet I was unable to gather more than a few perfect bunches. The bees *destroyed* all the rest. Now, when I state that thousands of bees were constantly on my fruit, from early dawn until dusk, I state a fact that can be be attested by any number of witnesses. This season has been the first that Italian bees have been kept in this neighborhood, and our grape-growers very generally complain of their ravages. I don't know whether the bees tear the skin of the grapes or not, but I do know they destroyed nearly all my fruit. If the skin is broken in some other way, so be it. It has not occasioned us heretofore much annoyance. We still had plenty of the fruit. This year, through the instrumentality of the bees, and possibly other causes assisting, we had very little, and to my mind we will either have to do without grapes or the busy bees—of the Italian variety.—*W., Strasburg, Oct.* 11, 1877.

Do Bees Destroy Fruit? No. 5.

Your editorial with this caption, in defense of the industrious "gatherer of sweets," giving your own patient watchfulness and the experience of Mr. Fleckenstein, as a reply to the denunciation and violent attack on the bee, in the Reading *Eagle*, I deemed neither too lengthy nor uncalled for. I gave the subject no further thought. But when the same caption caught my eyes, with an emphatic yes added, and signed by that apostle of experience, one to whose opinion I and his numerous friends attach great weight, with all the deference of an humble learner, I carefully perused his article.

His objection to the editor, or apiarist, or an entomologist "who did not choose to attach his name," seems taken against the incognito writer, and he enters his protest against the conclusions arrived at. Mr. G. certainly bravely signs his own name and observations; but while the former writer quoted Mr. Fleckenstein by name, Mr. G. only mentions a *gentleman* who told him that he and his father had kept bees for many years; that they (father and son) had grape vines for many years bearing lots of fruit, and that the bees *never touched the fruit* until within a few years back; now, however, since the introduction of the Italian or cross-breeds, they have taken a new departure, or formed a "new era." Within the last four or five years the "little busy bees" have made a regular onslaught on his grapes. These little rascals, the bees of his neighbors from half a mile distant, before sunrise and after the sun is set, were as "busy as bees" on his grape vines, and could be seen without long watching, cutting the grapes as neatly and expeditiously as it could have been done with a penknife.

This, I presume, the gentleman told him. Our friend being a pretty close observer, endorses the foregoing and then says, "I am not sure, but I may another season apply Prof. Riley's recommendation,* and give these thieves a taste of Paris green, or what may be more to the purpose, strychnia," &c. Now, my old friend, this is cruel and uncalled for, in my humble opinion.

Then I find another, who writes from Strasburg, signed "W." His verdict is that Mr. G.'s conclusions are not wholly correct. He states that he is an extensive grape-grower, and has had no trouble before the present year in securing all of that fruit he wanted. This year the bees *destroyed* all but a few perfect bunches. He found thousands of bees constantly on his fruit from early dawn until dusk. This fact he says he can have attested by any number of witnesses. This is the first season that Italian bees were kept in his neighborhood, against which the complaint seems general. But mark what he says: "I don't know whether the bees tear the skin of the grape or not, but I do know that they destroy nearly all my fruit." Then comes an "if," which I will endeavor to solve before I am done. He says, "If the skin is broken in some other way, so be it."

In yesterday's paper we find the caption again, with a "No" appended, signed M. (Oregon). I think I know the writer, and know him to be as reliable on this question as any one of the writers, myself and J. B. G. included. He believes the industrious insect innocent, and with good reasons given.

As there are no Italian bees in his neigh-

*Having, as I thought, read all that Prof. Riley has published, I never met with such a statement. May there not be some mistake? I mean Chas. V. Riley, M. A., Ph. D.

borhood, (he means not within a mile,) his colonies are the regular hive bees, near several varieties of grapes. The Clintons, being the most perfect, fub and large for the kind, *burst their skins*, many half-way round, *from some cause unknown to me;* the saccharine juice exuding was enough to tempt the bees to visit the grapes and regale upon them, stating also that they were very thin skinned this year. Without noticing his appeal to Prof. Rathvon, about the cutting apparatus of the bee, and much else that might be said, I will now come to what I believe to be the cause of the skins bursting, at least in some cases.

This belongs to natural philosophy and vegetable physiology. First, my personal observation, on which I ground my opinion; while residing on North Duke street, about eight years ago, there was a trellis with a grape vine on it, facing directly south. When the grapes were about two-thirds ripe a shower of rain fell about noon. After the rain the sun shone forth with intense brightness. On passing the trellis I noticed a shining globule of water on the upper surface; the bloom partially formed on the grape caused the globules to coalese like the dew on the grass. The hot sun striking these globules, I infer, acted like a burning lens, as next day I noticed a callous or scalded spot on those grapes. Whether a fresh flow of sap or the cellular tissue of the fruit became more rapidly developed in maturing, or from the ordinary growth alone, I do not know; as the skin of the grape had become callous or indurated, it would or could not yield to the expansion of the pulp or fruit at these points, and consequently the skin must burst.

I subsequently observed that the juice was exuding, and that accounted for the numerous insects, bees among them, as well as moths, that were regaling themselves on the juices. Everybody has seen water in a show-bottle in druggists' windows or in fish-globes. When in the direct line of the sun these have been known to kindle paper in the focus, as they form a burning lens by concentrating the sun's rays. A cake of ice can be converted into a burning lens, and such have been used in Iceland to kindle fires with.

Now, before we condemn the common hive or Italian bees as the cause, let us withhold our judgment and not "jump at conclusions," and be sure that we are right before we expel them with Paris green or strychnine. One of our most learned men showed me what he thought the parent of the aphids so injurious to a choice plant; he said he killed all he could find. He was surprised when I told him that he made a great mistake, as the supposed parent actually fed upon the aphids and was the best friend to his plant; but ignorance on this particular subject did it. While he is my peer in many other branches of science, on this specialty he had much to learn. So we find many insects that might be taken for Italian bees, which are the carpenter or tailor bees—and of a different genus, and yet not distinguished by a mere casual observer—who may have supposed his acquaintance on the wing with the Italian bee sufficient. Further observation is needed, and more caution before we condemn a creature that after all may be perfectly innocent—so I believe it to be, of cutting the grape.—*J. S., Lancaster, October* 25, 1877.

Bees and Grapes. No. 6.

One word on the subject of bees destroying fruit. I have been keeping bees for seventeen years, and have watched them on my grape vines every season, but I have never seen them bite or sting a grape. I have invariably found them on such as were bursted open, or that had been pecked by birds; where this was the case, the bees, of course, took to the balance.

The gentleman in Lancaster told Mr. Garber that since the Italian or crosses of that variety of bees have been introduced, they are so destructive of the fruit that they can't grow grapes as formerly. Mr. Garber says such has also been his experience. The Italian bees are treated unjustly in this case, for the black bees worked on the broken grapes for a few past years quite as fast as the Italians do now.

Sound grapes they never damage. Had Mr. G.'s grapes all been sound, the bees would never have visited his vines. I saw grape vines during the past season covered with luscious fruit, but not a bee did I see on them. I examined the grapes and found them all sound and undamaged, while very close to the vine there were others on which the bees were fairly swarming. Upon examination I found that there were nearly as many burst-open grapes as sound ones, while the black bees were fully as numerous as the Italians. As for Mr. G.'s threat to give the thieves a taste of Paris green or strychnia, I would say, bees do not die as easily as he thinks, but could readily carry the poison to their hives.

As for W., of Strasburg, I beg leave to inform him that the past was not the first season that Italian bees are in that neighborhood. They have been there four years to my certain knowledge.—*J. F. Hershey, Mt. Joy, Pa.*

HOW TO MAKE A WELL.

Mr. J. W. Pinkham has a paper on "Wells and Cisterns" in "Scribner" for September, with plans showing how they are contaminated, and how they should be constructed. He says of wells: First, of course, the well must be so constructed that it cannot act as a drain for the neighboring soil. This can be done by making the wall above low-water mark of some material impervious to water, or by omitting this part of the wall altogether. The first can be accomplished by having the wall from a point two or three feet from the bottom made of brick, with a coating of hydraulic cement on its exterior or of hydraulic well-tubing, with the joinings well protected with cement; in either case the earth should be thoroughly packed around the wall, and a slight embankment should be made around the orifice to prevent the inflow of surface or storm water. In such a well the draining surface is so reduced, and placed at such a distance below the surface of the ground, that in the great majority of instances the introduction of foreign matter becomes impossible except in so far as there is a chance that substances will fall into the well from above. To prevent this the well should be kept covered when not in use. In most cases, however, it is better to omit the upper part of the wall altogether. After the excavation is completed, the wall can be built in the usual manner for a distance of two or three feet, more or less, as circumstances may demand; the service pipe can then be placed in position, and the well arched over. The remainder of the excavation can then be filled with earth, well packed as it is thrown in, and the pipe carried to any convenient point. It will be necessary to place above the arch several layers of stones successively smaller, to prevent the falling of earth into the space below. The workmen will probably suggest a layer of turf or straw to accomplish this object; but the presence of either of these substances will cause the water to be unpleasant for a considerable time, and will prove the cause of much annoyance. There is a prevalent notion that a well should be ventilated for the purpose of allowing noxious gases to escape, and that water is better for being exposed to the air. I hardly need state that the only noxious gases in a well (i. e., gases which render the water unwholesome) are the products of the decomposition of organic matter which has found its way into the well in ways which have been described above; and that water as it flows in its subterranean passages is more perfectly aerated than it can be in any other way.

We know not how it is now in regard to wells in those localities where they are depended on for the daily supply of water, but we do know that in our boyhood, and even in our manhood, in both town and country, where there was no hydrant water, the well water often became putrid and at least undrinkable, and when the cause was ascertained, it was found that it was due to dead toads, mice, rats, snakes, grasshoppers, beetles, &c., that had fallen in and perished. And in one instance we knew of a small cat that had fallen in and drowned, and remained there until its hair came off, before the people became aware that they had for some weeks been consuming "cat-soup." Now, conceding the value of the suggestions in the foregoing article on well-making, so far as they go, we are free to say, that if we had occasion to make a well, we would adopt the plan embraced in the following article at once; for, if such a well was properly constructed and secured, it would never need any cleaning or repairing any more than the clefts and fissures in the rocks through which the water passes, needs such cleaning or repair, and especially so if the conducting tubes were enameled, or made of *terra cotta*. The process seems simple, philosophical, and rational, anyhow.

Clean, Pure Water.

In 1851 I dug my well nearly twenty-two feet deep, and struck a strong stream of water. I walled up three feet, and put two lead pipes in, arched it over and stood the pipes up by the dug wall. I then put the dirt which I had taken out back into the well. I then attached a cast-iron pump to the large pipe, and left the smaller one to give air in case the water did not come into the well as fast as it was pumped out. It is over twenty-three years since, and I have a pump in one corner of my kitchen, which brings up as clear, pure water as at first. I saved the stone and walling of eighteen feet, and have none of the soaking and filth off the surface of the earth. I have no cats, rats, mice, snakes, frogs, or a thousand other things which are liable to get into wells which are walled up to the top, in mine. My son has a pump fixed similar to mine, but his a common wooden pump, and out of doors. The air pipe should go up by the stock, and make a hole in it, so as to let the water down in cold weather. The lower stock will last almost without a limit, and it would be an easy matter to put the upper one in.—*Cor. Cin. Gazette.*

BUY YOUR TREES AT HOME.

Of all the mistakes our farmers and property-holders throughout the county annually commit, none is so common as buying their fruit, shade and other trees from the agents of nurseries in distant States. With unfailing regularity these men come around every season with their sample-books of highly-colored fruits and trees, and persistently urge them upon the attention of all who have room to set out a tree or a bush. The people of this county have patronized these men far beyond their deserts, or than a consideration for their own pockets warrants. Only too often has their confidence been abused. In the first place, the prices are in almost every instance twice or thrice what the same articles can be purchased for here at home. But this is not the worst; in innumerable instances the goods turned out very differently from the representations made at the time of purchase, and the buyers find that they have been victimized not only in price but in kind. There is no occasion for being taken in this way. The remedy is easily applied, and may be stated in the simple words, "buy at home." We have nurserymen in Lancaster county, second to none in the United States. Messrs. Calvin Cooper, Casper Hiller & Son, the Engles at Marietta, and Brinton at Christiana, and others, are the owners of nurseries where everything our citizens can want in this line is to be found. Not only are their prices much lower than those of the foreign dealers, but their high character and reputation are a sure guarantee that their goods are as represented, and that a man will get the article he pays for. As a rule, their trees are much finer and stronger than those that come from abroad, and being acclimated, are far more suitable for home culture than the puny things that are sent here from other States and places. Our readers should not forget this very important fact when they stand in need of any article in this line. This is a case where home industry can be encouraged with profit.—*New Era.*

We endorse the above, both in sentiment and in principle; although we do not mean to say that there are not as cheap, honest and reliable nurserymen out of the county and the State, as there are in them. But cheap, honest and reliable as the proprietors of these establishments may be in themselves, it is possible they may be misrepresented through knavish, designing or selfish agents. But still, if such contingencies were not likely to ensue, we would advise our patrons to buy their trees at home, for many of the reasons above stated. And we would say further, buy a good many other things at home that are often bought abroad; for the constant drain of money going out for foreign luxuries and commodities, are sure to ultimately impoverish the community. It is not for us to particularize what they should buy at home. That we leave to their own common-sense discretion, after mature observation and reflection; but the hankering after foreign novelties is, and has always been, the bane of our country. Those foreign countries that sell most and buy least abroad, are financially and domestically the most sound and prosperous, and also recuperate the most rapidly after political and financial reverses, as was evinced in the late disastrous condition of France,

But the worst phase of the whole matter is, that many of those who patronize foreign commodities, send their ready money abroad and "run" their credit at home, thereby disabling their own fellow-citizens from becoming the liberal patrons to them that they would be if they received a more generous home encouragement. Yes, we reiterate, buy your trees, your newspapers and your other etecteras at home, and give the homes of our county an opportunity to flourish.

IMPROVEMENT IN THE CULTIVATION OF WHEAT.

The following is a plain statement of the new method of cultivating the wheat crop; and the question is so familiar to us, the parties so well known, and the results so satisfactory, that we feel we cannot do better than to give it an insertion in THE FARMER, as a matter of interest to all the friends of agricultural progress:

After having thought much about the culture of wheat, and given it considerable attention, and gathered all the information I could by experiments of my own and that of others, and whatever other information I could obtain by observation and from agricultural journals, I became fully convinced that as yet we were losing much in the old and common method of raising wheat; and that the only true and profitable manner of raising wheat is to cultivate it as near as possible like other cultivated grain. Not by hand-power, neither by horse-power half done, but with some kind of a cultivator that will do good work, and be a success in attaining that which it was intended for—at the same time economize labor, by doing as much work in a day as can be done with an ordinary wheat drill, which I have no doubt would be satisfactory to all parties.

To form these conclusions was one thing, but to get up the right kind of a machine to work satisfactorily was another. I found wheat drilled in the old style would not admit of cultivation—for the reason that the rows were too near together—eight sowing boots generally being alloted to an ordinary drill. Then after concluding to close every other or alternate spout, or small seed-box, and remove every other boot, I again found that would not answer, as the spaces between the sowing boots would not be equally divided. And just here another very important point presented itself. One of the principal objections against the old style drill is, that it sows the wheat too thick or too close together in the small row. For example, an ordinary drill has eight sowing boots, and out of a dozen different makes not one will spread the wheat one inch in the row. Thus, it is easy for any one to understand that in a whole drill breadth, the wheat from all the eight boots, at one inch in the row, stands on only eight inches of ground, while the new style drill has four sowing boots (instead of eight), and each one is so arranged with a spreader as to put the seed regular in the rows four inches wide; therefore this drill, with four sowing boots and each sowing it four inches wide, will deposit the seed over sixteen inches of ground (instead of eight), and consequently it is plain and evident that this drill sows the same quantity of seed on an acre only half as thick or close together in the row as the old style drill, thus doing away with the thick sowing objection; and in addition to this, it still leaves 10 2-5 or nearly 11 inches space between the rows for spring cultivation, that one great point necessary in the raising of all crops. It is an acknowledged fact and well known to every practical farmer, that by cultivation, and by cultivation only, it is that he raises those fine crops of corn, tobacco and potatoes; and that if he did not cultivate those crops, they would not produce one-third of the crop they do by cultivation, though they are planted soon after plowing, or in other words on fresh plowed ground. Now, these are not exaggerations, but real solid facts, and so admitted by all; therefore, it is but fair to say, that two-thirds of those crops (or 66⅔ per cent.,) is due only to having been cultivated. Now, then, if so large a per cent. of those crops as that is due to cultivation, why should not cultivation pay fully as large a per cent., or even larger, in the wheat crop. The principle of cultivation would answer; *certainly it will pay fully as well*, for this reason: Wheat ground is generally plowed in August. About the 15th of September the average farmer is done seeding; then, from that time on, that ground is left to produce a crop, such as it will be, after being exposed to all the beating storms, snow and rains of all winter, and when spring comes is beaten down as hard as though it had not been plowed at all the previous August. What is the result? An average of 14 bushels per acre in the United States.

From the 15th of September, when the wheat ground is seeded, to the 15th of the following April, is seven months; and as it is a well known fact that no plant will thrive or even grow at all without the influence of the atmosphere and the sun, neither can penetrate ground that has been beaten down for seven months until it is quite hard, near as well, and with anything like as good results as it can penetrate fresh cultivated ground; and any person having the least idea of the good result derived from the cultivation of any kind of a crop will admit this. Now when we see plainly that such are the facts, undeniably so, must we not therefore at once admit that the cultivation of wheat ground is all the more necessary in the spring of the year, after having been beaten down for seven months, and left untouched all that time, and will therefore show a larger per centage of benefit and gain from having been cultivated than other crops, accordingly. After taking all the above-mentioned facts into consideration, as well as the good and sound principles of cultivation, I concluded to test the matter fairly and exact, for my own satisfaction as well as for that of others, who acknowledged that their wheat crops are only about half the product they should be. To do so I induced one of our farmes, Levi W. Groff, of West Earl township, Lancaster county, Pa., to sow about the half of a field on this new method, and the other half on the old style. This sowing was done about the 25th day of September, 1876; the quantity of seed sown was 1½ bushels of wheat per acre: and exactly or as near as possible that quantity was sowed on every acre in the field. As to choice of quality of land in the field, there was none; for the reason that there is no hill in the field, it being a nice level tract, and the quality of land very fair, and as near the same all over, I think, as it is possible to have it. About the middle of April, 1877, the half that was sowed on the new plan was cultivated, which showed a considerable difference in improvement in one week's time, when compared to the opposite half which was not cultivated, as it looked stronger and had a fine, thrifty and better color; notwithstanding that quite a large per cent. of it was cropped by this first cultivation, on account of not having the protectors put on the cultivator then, yet to protect the growing grain from being covered with earth, which was found very neeessary to do, or cover entirely too much grain, the protectors were therefore put on the cultivator, and then cultivated the same part of the field the second time, about the 1st of May, which improved it still more accordingly. It was then again cultivated about the middle of May, this being the third and last time. This last cultivation I thought did it as much good as either of the former times did; the result was it looked stronger, firmer, and had a better appearance in general than the opposite uncultivated tract had; and when it came into heads there was a marked difference, as the heads on the uncultivated tract were about the same as are generally seen in an ordinary field farmed on the old style; while the heads on the cultivated tract were much better filled and larger, plenty of them measuring over six inches in length. Even the straw was considerably coarser and stronger, which of course makes it less liable to fall or go down; the difference was so great that it could easily be noticed without a close examination. When harvest time came, both of these tracts were cut on the same day. Thus it will be noticed, that both tracts were treated alike in the time of seeding, quantity of seed per acre, and also in cutting it all at the same time; the only difference being that the one was cultivated and the other was not. Before cutting it, however, E. H. Burkholder, esq., a general surveyor and justice of the peace, was called to measure off two acres, side by side, on each tract, which was separately threshed soon after, and produced as follows: Two cultivated acres produced 72 bushels and 30 pounds, or 36 bushels and 15 pounds per acre. Two uncultivated acres produced 50 bushels and 4 pounds, or 25 bushels 2 pounds per acre. Difference in favor of cultivation, which was produced at an expense of just 60 cents per acre, 11 bushels and 13 pounds per acre.

Another tract was also sowed on the same farm on this new method; but as it was not sowed until the 8th of October it was later in the spring, and therefore not cultivated until the protectors were put on, therefore covering none of the growing grain. And this tract produced 31 bushels and 15 pounds per acre. This tract was also measured by the same surveyor, and this result was certainly very satisfactory, but not any more so, I think, than farmers' wheat crops generally would be if they were properly cultivated, which it is universally acknowledged they should be.

The attachments are simple and will apply to all drills, and can be put on any drill at a small expense.

At a meeting of the Lancaster County Agricultural and Horticultural Society, a committee of four of its members was appointed as a visiting committee, to go to the above mentioned farm and examine into this new method of cultivating wheat, which they did a day or two before it was cut, and they admitted that the difference in favor of cultivation, after having examined it, was greater than they even expected; and all of them approved of this new method and heartily endorse it, and requested the above-mentioned Levi W. Groff to make a report to said agricultural society of the above mentioned crops as soon as he has threshed it, and thereby knows the result, which he did, the same as above stated, to which the said committee reply as follows:

We, the undersigned, visited the farm of Mr. Levi W. Groff, about harvest time, and fully concur in his report so far as we could judge at that time.

H. M. ENGLE,
CALVIN COOPER,
LEVI S. REIST,
PETER S. REIST.

Mr. Engle said he had examined Mr. Groff's clover and timothy, and believed it would be very superior. He trusted that not a few of our farmers would adopt Mr. Groff's plan of cultivation. He would do so himself, and from his observation he was sure it would pay.

Mr. Pownall said that on a former occasion he had objected to cultivating the wheat crop in the way adopted by Mr. Groff, on the ground that it would injure the grass that was to follow the wheat; but from an experiment of his own he was now convinced that it would not.

We, the undersigned, do hereby certify that we visited the farm of Levi W. Groff, esq., in the month of July, 1877, in the midst of harvest, and examined a field of wheat sowed, in part in the ordinary way, and in part by a drill invented (and now patented) by Adam B. Groff, which drill, by some modification of parts, is converted into a cultivator, and by means of which the wheat is cultivated the same as corn with the cultivator. One part of the field we examined had been treated by the new invention; that the wheat on the part of the field sowed by this new drill, and treated as aforesaid, was much better than the other part of the field, larger and stronger in the straw, and in heads proportionally still better; and the yield in the bushel better by (11) bushels to the acre, as verified by Mr. Groff, by separate threshing and measuring.

[Signed,] AND. M. FRANTZ,
GEO. K. REED,
D. P. LOCHER,
WALTER G. EVANS.

OBITUARY.

ATGLEN, 10th mo. 22d, 1877.

PROF. S. S. RATHVON—*Dear Sir:* The following resolutions were passed at a meeting of the Octoraro Farmers' Club, held 10th mo. 18th, 1877:

WHEREAS, Since our last meeting we have been called upon to follow to the tomb our esteemed friend and fellow-member, Levi Pownall, who departed this life on the 18th of 9th mo. last, after a short illness; and

WHEREAS, It is fit that those who have worked with him for a number of years past, so agreeably and profitably, should give some public expression to their feelings on this occasion; therefore,

Resolved, That it is with the deepest sorrow that we have been compelled to see the ties severed by the hand of death, which bound us to the deceased, whose many good qualities and earnest labors for the benefit of the club have endeared him to us, and whose memory we shall ever retain within the deepest recesses of our hearts.

Resolved, That in his death we have lost one of our best and most persevering members, and the public a citizen of the strictest honesty and uprightness.

Resolved, That we deeply sympathize with his bereaved family in their deep affliction.

Resolved, That a copy of the foregoing resolutions be forwarded to THE LANCASTER FARMER.

SAMUEL WHITSON,
Corresponding Secretary of Club.

SYNOPSIS OF THE CROPS OF 1877.

We have received "Special Reports No. 2, of the Department of Agriculture for 1877," and from it we have condensed the following synopsis of the crops of the present year in the United States, so far as the results can be attained at this early period, some allowance having been made for contingencies.

The *Wheat* crop is estimated at 109,000,000 bushels, which is 60 per cent. over last year, and 15,000,000 more than in 1875. Unless something unforeseen, or yet undeveloped, should occur in the outcome of the crop, the *Corn* will yield 1,350,000,000 bushels, which is an average of about 27 bushels per acre throughout the country. Pennsylvania and Texas make the best average show of any States in the Union in their crops of corn.

The *Oat* crop shows a higher average condition than corn, and is 98 of the standard of 100 against 86 last year, when the crop was estimated at 320,000,000 bushels.

Rye and *Barley* average higher than last year in their general condition, and will make a large crop, but the figures cannot yet be satisfactorily given.

The estimated area in *Cotton* exceeds 12,000,000 acres, and the increase over last year is about 4 per cent., and the yield will average

93 4-10 in the standard of 100. The great hindrance to the cotton crop seems to be the *caterpillar*, and if that pest could be entirely destroyed, there is no knowing how much cotton the Southern States could produce.

Potatoes have produced well, on an average, the entire crop being 105; that is 5 over the standard of 100. New Jersey is the highest, being 115, whilst Pennsylvania is 110. The quality is generally good, but the aggregate result in bushels is not given.

The average of *Timothy Hay* is said to have been fully 100; but the yield of the general hay crop has not been definitely reported, but the indications are that it has been tolerably abundant.

Tobacco is reported favorable—from 83 up to 110, and will average 100; quality good, but the result in quantity cannot yet be given.

Buckwheat, for the States returned, averages 98. The *Sorghum* crop is reported favorably, the average being 93, yielding about 100 gallons of rich syrup per acre.

Rice, promising, where it is cultivated.

Cranberries suffered some from "scald."

Hops, prospects were good in Wisconsin, but in New Hampshire they were eaten up by "worms," said to be cabbage worms, but we think this a mistake, for we have special hop caterpillars in the United States belonging to the genus *Vanessa* or *Grapta*.

Apples generally scarce and poor in quality, and therefore good fruit will be high priced before the season is over. Kansas alone seems to have had an abundant crop.

SPECIAL PREMIUMS FOR 1878.

Club Rates—No. 1.

To any one, within the county of Lancaster, sending us a club of *five* new subscribers, accompanied by *four dollars*, we will send *five* copies of THE FARMER, to any address, for one year, from the first of January next, and *two* copies of "Jenkins' Art of Propagation," a beautiful octavo of 32 pages, and 25 fine embellishments, which sells readily at 50 cents per copy. To any one out of the county, for *five* dollars, *five* copies and *two* books.

No. 2.

For *six* subscribers, accompanied by *five* dollars, we will send *six* copies of THE FARMER, as above, and one copy of the "Life of Charles Dickens," by Mrs. Hanaford, or "Driven to Sea," by Mrs. Coupples, or "The Presidents and their Administrations," or "The Declaration of Independence." These are royal 12 mo. volumes of about 400 pages, handsomely illustrated, and sell for $1.50.

No. 3.

For *ten* subscribers, and *ten* dollars, *ten* copies, as above, and one box of "Kunkle's Celebrated Perfumes." These boxes contain six bottles of perfume, the regular retail price of which is one dollar per bottle, or "The Century of Independence," price $2.50—very desirable premiums for local lady canvassers.

No. 4.

For *fifteen* subscribers, and fifteen dollars, we will send *sixteen* copies of THE FARMER and a $10.00 order on Peter Henderson, good for *twenty-four choice flowering green-house plants, twenty packages of flower seeds, and twenty packages of vegetable seeds. Peter Henderson is known all over the Union*, and therefore nothing need be said about the quality of his goods.

No. 5.

For *twenty* subscribers, and *eighteen* dollars, *twenty* copies of THE FARMER, and *one* copy of "Science in Story," consisting of a series of *five* illustrated square 12 mo. volumes of 232 pages each (1160 pages). Please see our literary columns for a more full description of this desirable series.

No. 6.

For *twenty-five* subscribers, and *twenty-four* dollars, *twenty-five* copies of THE FARMER and one of "Peck's Celebrated Atomizers," worth $10.00 at least. This is the best machine ever invented for throwing liquid solutions and decoctions on insect-infested plants. For an illustrated description of this machine see the May (1876) number of THE FARMER, page 69.

To clubs made up beyond the borders of Lancaster county the cash amount required will be greater, proportioned to the difference in published terms, as to home and foreign subscriptions. Our canvassers can make these calculations upon the basis of our first proposition.

We are making arrangements for additional inducements to subscribers, which, if accomplished, will be announced in our December number. We also intend to increase our number of desirable illustrations for 1878, and add other embellishments, as fast as our means will allow, and we respectfully ask the public to help us make THE LANCASTER FARMER a credit to the "great county," and the people among whom it is located. Our tenth volume should be the crowning volume of the series—so we desire.

MONTHLY REMINDERS.

All vegetables not secured for storing away should now be attended to. Spinnach, lettuce out-of-doors, fetticus and out-of-doors onions should be protected by coverings of straw, salt hay or cedar brush. Short horse dung is best for onions. Clear up and dig all the ground as the crops are taken off, as it prevents delay in commencing in spring. Put the ashes on such cold frames as have been filled with cabbage or lettuce plants, giving air freely by taking the sashes entirely off on mild or sunny days.—*Dicks' Vegetable Garden.*

Fall plowing of garden soil is worth, in most cases, a good deal more than it costs.

Do not neglect to plant a bed of violets this month, for bouquets in next March or April. Set in a sheltered place, in rich soil, and cover with glass in severe weather.

Fruit trees for spring planting can be bought now and buried with earth—both roots and branches. They will be in prime condition for setting out in April. Trees set out last month may have the earth banked up around them six inches or so before the freezing of the ground. This may be removed when spring opens.—*Farmers' Journal.*

AMERICAN POMOLOGICAL CONVENTION.

This society, organized in 1848, held its sixteenth biennial convention in Baltimore on the 12th, 13th and 14th of September, 1877. The fruits contributed were exhibited in connection with those of the Maryland Horticultural Society. In consequence of the general failure of fruit the display was not so good and full as it would have been in a fruitful season: yet, withal, it was much better than could have reasonably been expected, but what lacked in the exhibition was made up in the discussions and energy in the development of American pomology. On account of illness President Wilder was prevented from attending, to the great disappointment of all present. His address, however, was read before the convention, and was a very able and excellent document. He recapitulated the labors of the society and the progress of pomology in this country. He also pointed to the wide field open for still greater achievements in this branch of industry, and closing in the following lofty strain: "Let us commence the new century in the history of our Republic with increased enterprise and zeal for the promotion of our cause; and should any of us be called from our labors on earth, let us feel assured that others will continue the work we have begun and carry it forward to still greater perfection. Let the success of the past stimulate us to greater exertions in the future. Let us work on, full of hope, regardless of all obstacles, still achieving, still pursuing, until we shall reach that better land where the garden shall have no blight, fruits no decay, and where no serpent lurks beneath the bower—where harvests are not ripened by the succession of seasons—where the joys of fruition shall not be measured by the lapse of time."

In the absence of the President, C. H. Hovey, of Massachusetts, one of the Vice Presidents, presided.

The States were not so generally represented as at some of the previous meetings. The leading cause, probably, was the convention following so close to the great Centennial, where every State (except Pennsylvania) put its energies and resources in pomology to its full test. The general failure of the apple crop caused a deficiency in that branch. Amid all the croaking against the curculio, Ellwanger & Barry exhibit as fine plums and as perfect as could be desired. They had some thirty varieties, some of which they fruit in large quantities, as certain as any other crop. For success they depend upon the jarring system. They do not believe in pow-wowing the little Turk away. Let all do likewise, and this luscious fruit may yet become as abundant as others.

The fine, luscious hybrid grapes, (about sixty varieties,) originated by Mr. Ricketts, of Newburgh, New York, compose a prominent feature in any fruit exhibition. His display at Baltimore was glory enough for one man. The only objectionable feature (if any) is, that he has too much of the good thing; in fact, enough to confuse any ordinary pomologist.

If this country will not have as large a variety of as fine grapes as any other, it cannot be said that Mr. Ricketts has not done more than his part to achieve such a result.

Some of the Southern States were well represented, and fruit culture in the South seems to be looming up, especially the peach; and well it should, while the first peaches of the season will bring from six to eight dollars per crate, a man wants no better business than to have enough early peaches to ship. The earliest good peach is what the Southern planter is after now, as one of them remarked, "Give me a peach that is three days earlier than any other, and I can make money." Freight by vessel from South Carolina and Georgia to Philadelphia, New York or Boston, is less than fifty cents per crate. With such profits peach-growing in the South cannot help but become an important trade, as they can be in market a month earlier, and with late kinds a month later than those from the Middle States. Yellows are hardly known in many sections of the South. Their crops are also more certain on account of being exempt from frost. With all these facilities, what better business could a man with capital desire? The feeling between the Northern and Southern members was very cordial, but this seems to be charateristic with pomologists.

The accommodations at the Carrollton House (where nearly all the members of the society put up) were all that could be desired. The steamboat excursion and its incidents were given by one of my colleagues in the *New Era*.

The next biennial convention is to be held in Nashville, Tennessee, where the largest Southern representation is expected the society has yet had.—*H. M. E.*

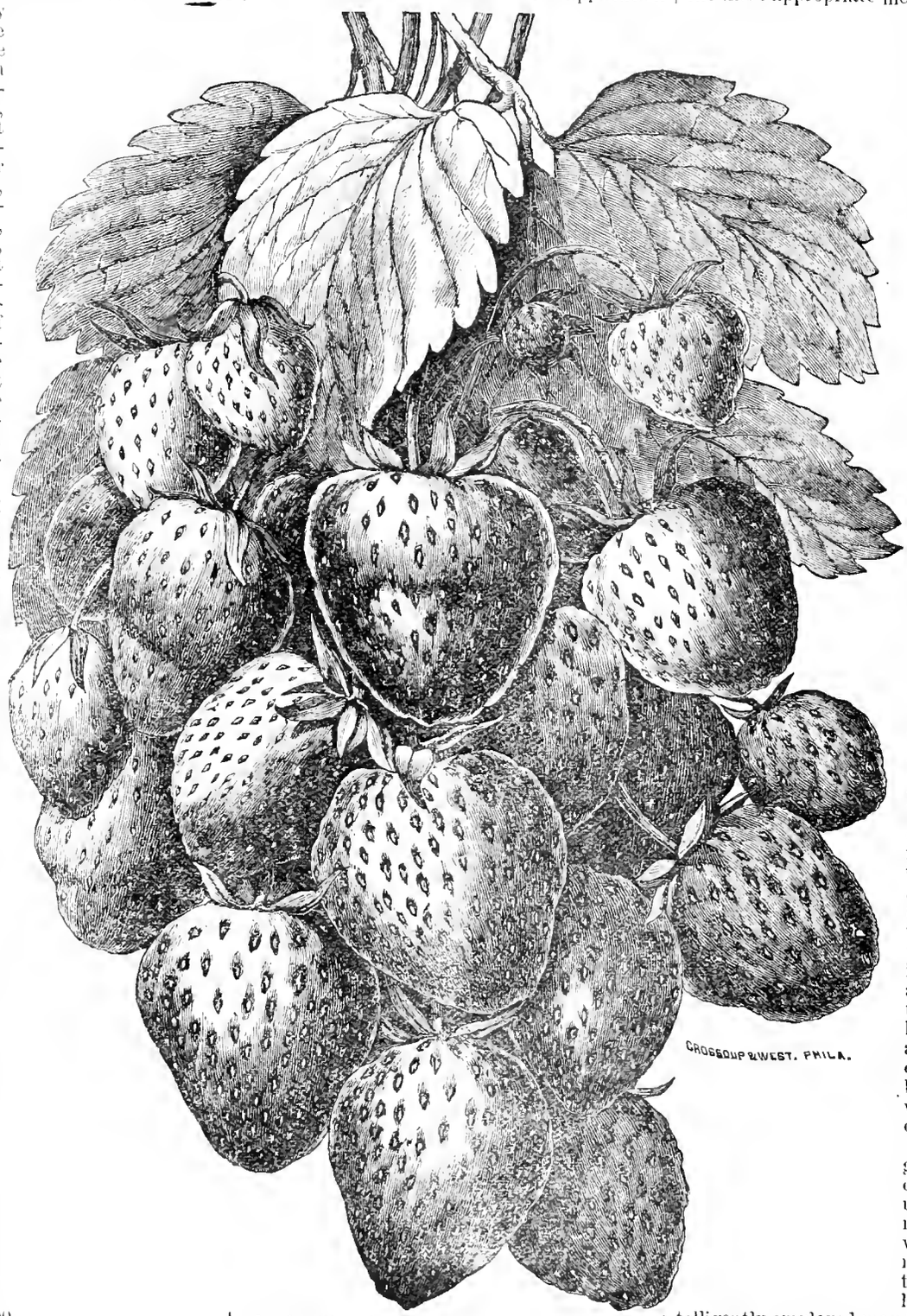
HOW TO MAKE PARIS GREEN.

A correspondent of the Towanda *Journal* writes: The potato bug is no scarcity with us at present, and upon inquiring at the drug store the price of Paris green, and learning that the popularity of the article as an exterminator had increased its price to about the value of a crop protected by it, I concluded to tell the people what I have long known about making the article.

Take unslacked lime of the best quality, slack it with hot water; then take the finest of the powder and add alum water as strong as it can be made, sufficient to form a thick paste, then color it with biehromate of potash and sulphite of copper until the color suits your fancy. The sulphite of copper gives the color a blue tinge, the bichromate of potash yellow. Observe this and you will never fail.

CINDERELLA STRAWBERRY.

The accompanying cut exhibits a partial view of the fruit of one hill of the *Cinderella Strawberry*, as grown on Mr. Felton's farm, photographed from nature. The Cinderella is about one week earlier than the *Continental*; (see October number of THE FARMER,) its fruit large, conical, regularly formed; color, bright glossy scarlet, rendering it surpassingly beautiful and attractive in appearance; flesh very firm, with a mild, rich aromatic flavor; and, indeed, may be said to combine all the essential excellencies of a market and a table fruit. This variety is another of those for which a prize medal and diploma was awarded to GIBSON & BENNETT, Florists and Fruit Growers, of Woodbury, N. J., for their exhibit of fine fruit, &c., at the late Centennial Exhibition, at Fairmount Park, Philadelphia. It would be of no advantage to any nurseryman to palm off on the public worthless varieties of the strawberry, that would fail to give satisfaction, therefore they are not sent out as untried seedlings, but have stood successfully for eight years the test of fruiting, and may be relied on for profit without fear of disappointment. The plants are very similar in their development and appearance to those of the Continental, for a description of which see the October number of THE FARMER. Although when viewing the *Continental* and *Cinderella* strawberries separately they may appear nearly the same, yet, on a comparison, the distinction between them will be found sufficient to constitute a marked difference, even without referring to their respective diagnoses. The berries of the latter do not average so large as the former, and they are more acutely conical in form, and this characteristic is also exhibited in their pitting. Plants may be obtained by addressing GIBSON & BENNETT, Nurserymen, Woodbury, N. J. $3 per dozen; $15 per 100; $100 per 1000.



THE APPLICATION OF FERTILIZERS.

Considerations Which Should Have Their Influence.

Several conditions, or more than one condition, are demanded, or must needs be taken into the account, in order that the best results in the raising of a crop or the cultivation of a field may be realized.

Too large a proportion of those persons who have the management of farms have seemed to suppose that the application of some good fertilizer has the principal, if not the only condition that was demanded, in order to make the proper provisions for the growth of a crop. But little attention has sometimes been bestowed upon the condition of the ground, or the preparation and condition of the fertilizer, or the season for its application.

Each of these conditions must needs be regarded, and those who have bestowed most care in the fulfillment of these conditions have been well repaid for their painstaking. Whenever the time chosen for the application of a fertilizer has been influenced by the mere convenience of the farmer, or when other labor was not demanding his immediate attention, there was much reasonable probability that the results which he expected would not be realized. If his labor was crowned with anything like a full measure of success it was merely on account of the fact that the chance application was made at the proper season. Such persons are too often led to charge the failure to the account of a defect in the general utility of his plan, or in the value of the fertilizer which he has employed.

It may properly be said, that the most useful of fertilizers, or those which may be made most useful when properly employed, have often failed in producing the results which were looked for, and this on account of the omission of a mere link in the chain of incidents which were demanded, in order to furnish a reasonable promise of success.

There is an appropriate season to be chosen, as well as appropriate methods to be employed in the use of every class or kind of fertilizer.

Questions may properly arise with regard to the most appropriate methods for the fulfillment of the several conditions that are demanded, which relate to the condition of the soil and the preparation and the application of the fertilizer, as well as the appropriate time for the application. With regard to the various circumstances which should attend the application it may be said, that fixed rules can not be laid down which will be found applicable to all of them.

If the substance be of the nitrogenous class, as ammonia, the discretion of the person must be used in the selection of the most economical method for storing it up and having it ready for use at the time it may be demanded. For this purpose some kind of soil, or the compost heap, in the largest proportion of cases, will be regarded as the most economical methods for the accomplishment of this purpose.

As much advantage may be realized from a proper regard to the methods of application of a fertilizer, the season when it may be most usefully applied, and its special adaptation as a food for the particular crop which he proposes to raise, as from every other or all other conceivable circumstances which are under his control.

Without due regard to these several considerations, failure, or a large diminution of the crop, will almost surely result. A manure that possessed peculiar value when intelligently employed may be nearly wasted on account of a lack of due regard to these several considerations. It will, therefore, be seen that the number of incidents which are to be regarded are but few, although the demand for a due regard for each of them is really indispensable.

Although it is a matter of paramount importance that a fertilizer, in that which relates to its chemical constituents, be adapted to the crop which it is designed to support, there are still other considerations which must be taken into the account.

Farm-yard manure of the best quality that can be selected, when scattered over the surface of a field, merely at a convenient time, or without due regard to the selection of the proper season, or when it is demanded by the crop, will be likely to be mostly wasted.

In order that it may be expected to serve its most useful purposes it must be brought into such relations to the soil which it is designed to improve, that the ammonia which it contains may be stored up for the use of the crop, and imparted to it for its growth.

Ammonia, which is the fertilizer in which resides the chief value of farm-yard manure, is extremely volatile, and is readily borne away in the atmosphere, especially when proper plans are not adopted for storing it up, or for its preservation from waste until it can be appropriated to the use of the crop in its growth.

For this purpose the materials of some soils are often the most appropriate and economical; and they are often the only means that are required for this purpose. Ammonia being much lighter than the atmosphere, there must needs be some natural or artificial method for retaining it; and in such a way as will leave it in the proper relations to the plant or crop, so that it may be readily used by it in its growth.

No material of common soils is as well adapted to the performance of this office as clay; and when dry it is among the best of substances for this purpose.

Guano, much more than farm-yard manure, is likely to be greatly impaired in its utility, or much of it is wasted, whenever these conditions are not properly regarded, for it is naturally accompanied by no substance which is capable of acting as a retainer of ammonia.

Whenever this fertilizer is scattered over the surface of a field its uses as a material for contributing to the growth of a crop is likely to be greatly impaired, or mostly wasted; and this on account of loss of the ammonia, on account of the presence of which is its chief value.

While it is indispensable that these precautions for the retention of the ammonia which farm-yard manure and guano contain should be regarded, it is almost equally important that they should not be covered so deep as to prevent the liberation of this article. Still, whenever thus covered too deep to serve the present uses of a crop, it may be brought into such relations to a future crop, as to serve some useful purpose, for the ammonia has not been borne away, as is the case when placed upon the surface.

LANCASTER COUNTY TOBACCO.

What an Author Has to Say About It.

Under the title of "Tobacco—from the seed to the warehouse"—Dr. B. Rush Senseny, of Chambersburg, is about to issue a book, and the *Repository* of that place culls the following chapter from advanced sheets:

Lancaster County, Pennsylvania.

This county is acknowledged generally to be the "Banner" tobacco district of the United States. No other equal area of land produces as many pounds per annum, of a standard excellent quality, commanding the highest possible prices for native grades, of any grown in this country, and bringing a revenue to the producers larger than that of any tobacco county in America. This tobacco, as a commercial product, stands high and is much sought after, because of its uniform good qualities as a wrapper, being fine, large and of a beautiful dark color, all qualities much in demand for the production of a fine cigar. Another marked characteristic of the Lancaster county tobacco, as a crop, is the large amount which is yielded per acre. Lancasterians are synonymous with good farmers, and in this crop they seem to have "set" themselves to outstrip the world, and thus far they have done so, indeed. Each one seems to vie with his neighbor in a friendly competition as to which can produce the greatest yield per acre, which grow the largest leaf, which cure the most satisfactory crop and obtain the largest returns for his product. Many and great—yes, marvelous in the extreme, are some of the stories told relative to the yield per acre—so great as to lead one to suppose that Lancaster acres must certainly be of somewhat more extended area than our arithmetics ordinarily teach us. Be this as it may, however, there is a sufficiency of truth overlying all error as to render the subject interesting and even wonderful to the general or old time grower of the weed. In agricultural interests generally the farmers of Lancaster come as near perfection in their skillful manipulation of the soil as any community of the kind in this country, expending their labor in the most economical and intelligent manner possible, so as to insure lucrative returns.

It is not then to be wondered at that upon introducing tobacco as a product, they should bring to bear upon its culture the same energy, intelligence and skill which characterized them in other pursuits, and which soon placed them in the foremost rank as cultivators of the weed.

It is on this account that I shall present in a rather extended manner the various methods of cultivating and handling the weed as pursued by the husbandmen of that fertile district.

In the main, their methods are much the same as those I have given as my own practical experience; indeed we can all do well "can" we follow them." In all their work, whether it be the preparation of the soil, the working of the seed beds, transplanting the young plants, cultivating, cutting and curing it and shipping to market, all is done with a care and thoroughness from beginning to end which stamps them masters of the field and high artists of their laborious but honorable calling.

HORTICULTURE AND EDUCATION.*

"'Tis education forms the common mind,
Just as the twig is bent the tree's inclined."

Pomology is my hobby, and shall be my theme on this occasion; but I can hardly forego the opportunity of referring to the responsibilities of teachers and directors. Next to our recollections of home, are the recollections of our early school days. How vividly events which have transpired at school rise up before us ofttimes. Those events, whether for good or evil, have made impressions which have ever been almost beyond our control. In fact, they have become implanted to such a degree as to make them part of us. How many of us *have*, or rather, how few of us have *not* some pleasing incident which transpired at school, to rise up before us occasionally, and which causes us to feel almost as happy as at the time when it occurred. On the other hand, how few of us, whose memory is not visited frequently with the recollections of events that befell us at school, and which cause remorse with each visitation. Or, perhaps, we have been wronged by the teacher, or by a school-mate, which when the incident looms up before us, (unless we have become reconciled,) we feel the same demoniac spirit of revenge that we did when it occurred.

Many a sad tragedy has been witnessed which had its origin at school. The position of teacher is, therefore, one of vast responsibility. To bear the guilty feeling of having caused the ruin of a single pupil must be a pandemonium indeed. On the other hand, the pleasant recollections of having turned refractory scholars into the path of virtue is glory enough for the labor and worry it ofttimes requires. The actions of directors have also an important bearing upon the future welfare of scholars under their charge. A single decision in the case of a pupil may either make or ruin him or her.

Impartiality must be the watchword of directors as well as of the teacher. Directors have not discharged their duties without furnishing appropriate school buildings, furniture, books, teachers' salaries, &c. This, of course, requires a bracing up against fault-finding taxpayers. But better embrace the consideration that posterity will hold you in dear remembrance than fear the croakings of old fogies who have no children to educate. More extensive school grounds are also necessary requirements. The planting and ornamenting of the same is also a matter that deserves serious attention. The plea that trees will be destroyed, or will not be cared for, is too shallow a plea for the neglect of a matter so important. Apply all the available means at your command that will elevate while you educate. Ornamental trees, shrubs and flowers are more potent educators in their way than many are willing to admit. The young of the female sex almost naturally grow into the admiration of the beautiful in nature. Give them an opportunity and they will soon have their little gardens and plant them with flowers, &c., and will attend to them as certainly as their lessons. The little lads, being of a more rip and tear disposition, will have some of their crudeness worn off by coming in contact with the gardening operations of the former.

The ornamental department should be indirectly considered the property of the school.

Here botany would present itself as a branch necessary to be introduced into our common schools, the study of which would have a moralizing tendency that would result in a vast amount of good. May we not trust that the day is not far distant when fruit trees can be grown on the school grounds, and their products left undisturbed, to be gathered by the rightful owners—the scholars. We have accounts of countries where fruit trees are planted on the roadside by the property holders adjoining, and that passers-by are not prevented from taking and eating all they want. If any fruit is reserved by the owner, it is only necessary to tie a straw-band around the tree, and the fruit will be perfectly safe. This is a custom worthy of emulation and imitation. To attempt such a thing among us with the present state of society, would certainly prove a failure; not that society is not fully as good here as in the countries alluded to, but it is not educated to such a standard. Were the condition of society such that would warrant the planting of fruit trees, as stated, many of the roadsides would soon be set with fruit trees of all kinds. This would be a state of things that would benefit all, and no doubt all would like to see it. The question is, simply, how or where shall we commence? I answer, on the school grounds. Such an arrangement would be more particularly for the benefit of such children whose parents are renters from year to year, and who have no inducements to planting fruit had they disposition to do so. The latter class of parents and children are those mostly disposed to pilfer fruits, and are less censurable than public opinion will admit.

The love of fruit has ever been so strongly implanted into man's nature, (and woman's too,) that to be altogether deprived of it proves sad neglect somewhere. In addition to the love of fruit implanted into man is its good effect upon him, physically, mentally and morally. Is there not, therefore, criminal neglect somewhere? While so large a number are continually in want of it, it would be a trifling expense to each district to try the experiment.

Let all that is on the school grounds be placed under the charge of the teacher, who should, of course, not be ignorant of the necessary care thereof. Let him apply the same regulations and discipline to school property outside the house as within, consider the pilfering of the fruits one of the greatest of school offences. When the crop is ripe let the whole school be present at gathering and dividing. Such would be one of the greatest harvest homes that could possibly be devised for the benefit of a school.

The most stringent laws should then be passed against outside thieves for the protection of school property. A small amount expended in carpenters' tools to each schoolhouse would so develop the mechanical genius of our youths that it would tell upon the rising and coming generation.

Such are a few thoughts and reflections that have impressed me, and which might be extended indefinitely.

*Read before a school meeting by H. M. Engle.

HUBBARDSTON NON-SUCH.

This apple is a fine, large winter fruit, which originated in Hubbardston, Massachusetts, and is of excellent quality. The tree is vigorous and bears very abundantly, and is worthy ot extensive culture. Fruit large, roundish-oblong; skin smooth, with irregular broken stripes of bright and pale red, which nearly cover a yellow ground; flesh yellow, tender, juicy and highly flavored. Almost any any of the nurseries in this county now can furnish it in quantity. It is prominently inserted in Elwanger & Barry's list of winter apples for 1877-8, as a strong grower and great bearer; in quality fine, tender and juicy, and ripen well from November to January, but, with proper care, may be kept until late in the spring, without loosing much of its flavor. There is nothing that grows on a tree, that may propely be denominated "*fruit*" that is more generous to the taste, more grateful to the sight, and more healthful to the human constitution—and none that retains those qualities for a longer period—than a good, well-developed apple; and the subject of our illustration will compare favorably with the best of them; and especially in its prolific character, although, in other respects, it may have its superiors. Prolific bearing, hardiness, constancy and good flavor are qualities in an apple of the first consideration.

AROUND THE FARM.

No. 3.

A short time ago I was visiting at a place when the following conversation occurred between father and son: "Where is the hatchet, John?" "I don't know, father, unless it is in the barn." The father spent five minutes in a fruitless search at the barn. "Perhaps it is at the hog-stye, you had it to nail that door." Off he hies to the hog-stye and makes another fruitless search of five minutes. After studying three minutes more it occurred to him that he used it in the cow stable last, and after five minutes more he secured the hatchet. The calculating reader will observe the father lost eighteen minutes in hunting that hatchet, which a man can ill afford at certain times. Many people suppose the time consumed in returning tools to a fixed place every time they are done using them is lost, but the above actual occurrence proves it to be otherwise. Now, I repeat what I have often said, that on the farm there should be "a place for everything and everything in place." There is no use to carry on farming or any other business well without some system and order. And the care of tools is a part of that system. We can not accomplish much on a farm without some tools larger or smaller, and to be hunting them every time you need them is a waste of time you can ill afford. In some future time I may describe an *ideal* shop and the manner of arranging the tools to the best advantage.

Care of Horses.

Our horses are sometimes very ill treated in the fall. After work is over they are cut down in their feed or turned in an old pasture to shift for themselves. This should not be. Ingratitude to our fellow-men is justly considered an odious vice; but is there not often a strong taint of it also in the treatment of our farm animals, to whose help, in all kinds of drudgery, farmers are so deeply indebted for full barns and comfortable homes? Would it not be better to give them enough to eat and a warm, comfortable place to sleep in, than to let them stand shivering in the cold, with not enough to eat to keep them in good condition? Let common sense give the answer.

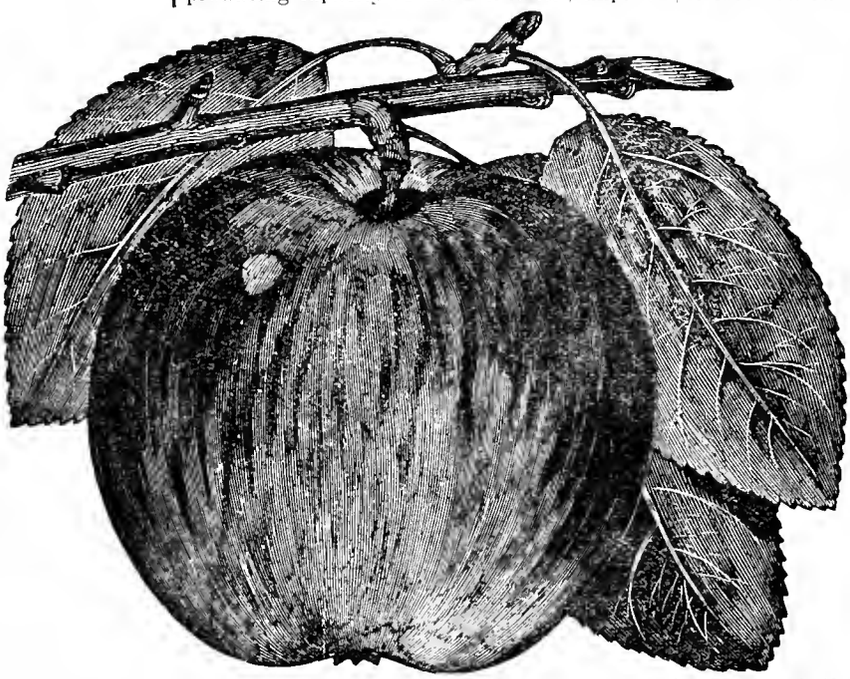
Grindstones.

Few implements are more necessary on a farm than a good grindstone. It is therefore necessary that every farmer should possess one and know how to take care of it. Always keep your grindstones under cover, as the sun's rays harden the grit and injure the frame. Do not let it stand in water, as it causes soft places. Clean all rusty or greasy tools, as rust or grease choke the grit; also, keep the stone perfectly round. According to my experience the above rules must be observed in order to keep the grindstone in order.—*Ruralist, Creswell, Pa., Nov. 5, 1877.*

IMPROVEMENTS IN FARMING—VARIETIES AND METHODS.

In years past, when mechanical and industrial arts were making huge strides, the farming world seemed to be at nearly a stand-still, or if any improvements were really being made it was only the few that took advantage—the many looked on with apathy—the ways of their fathers being good enough for the sons. This state of affairs continued until the eyes of many were opened to the fact that some improvement had to be adopted or farming and horticulture would not pay any profits, in some cases not even cover expenses.

The styles of improvement presented themselves; improving the number of staples; the producing capacity of the soil itself; improving the methods of culture; increasing and improving the varieties of grains and fruits already existing, or better still, raising new and improved varieties.



Adopting either one of these would naturally show some advance, but the adoption of the three has done wonders. Among other things it has made farming a surer business, for though we may not as yet exceed the crops that were sometimes raised when the soil was yet virgin, yet we raise them as large now, and the *average is higher*. The farmers' and fruit raisers' only dread now being a totally unfavorable season.

The improvement of the soil in the older settled parts of the country has been very great. In this part of Lancaster county, for instance, the land, of what is known as Turkey Hill, was obtainable as low as ten to fifteen dollars an acre, and was dear at that, as very slim crops rewarded the husbandmen; the greater part of the land lay in commons, not being deemed sufficiently productive to warrant fencing it in; the application of lime to a small tract here and there improved the yield so much that it led people to the conclusion that the soil might be brought up to a paying standard; from that time to this, with the help of manure, the upward progress has been steady and continual, until now it is all fenced and cut up into mostly small farms. Strange as it may seem, this soil that was not thought fit at one time to raise wheat, now brings good crops of this cereal, which are greatly noted for quality, the prices brought always being at the top of the market rates. I believe millers claim for it that it has a very thin skin, makes more flour and less offal than wheat from other parts of the country. The weight also is greater than is usually found to be the case from the naturally stronger soils, sixty-three and sixty-four pounds to the bushel being not uncommon.

In other parts of the country the progress has been perhaps greater, but the above was given to show what a soil, once supposed to be nearly sterile, is capable of being made by a systematic and continual course of improvement.

The methods of cultivation and improvement in farming implements have more than kept pace with the improvements of the soil. In place of the olden wooden plow, or perhaps shovel plow of early times, we now have plows of iron or steel that do the work in a style and manner that would have been ascribed by our forefathers to witchcraft. After the plowing came the sowing and planting machines, which save a third of the seed over the slow hand method, and do it with an evenness that would be attained by a machine only. The sickle and scythe is cast aside and horses now rush through our grain and grass fields dragging machines that complete the work at one operation of a half a score of laborers. Instead of the slow hoe a span of horses is taken and our corn worked on both sides as fast as a man can walk. Very few can use the flail now-a-days as it was used not very many years ago, when often a gang of three struck in together; nor do we see the farmers' horses walking round and round on the barn floor, knee deep in straw, treading out the grain; now we use steam machinery that will thrash out as much in one hour as would thirty years ago have taken a man a whole week with a flail. So it is in all departments of farming, wherever a labor-saving machine can be made to work, and at the present outlook it seems as though, in a few years, there would remain but few operations that must be done by the slow hand-process.

Variety is the spice of life, is the old see-saw, and we would add another: Variety is the life of farming. Many who read THE FARMER can remember the time when for this part of the country the staple crops on which the farmer depended for money were rye, oats, corn, some wheat and occasionally potatoes, the latter being considered too bulky to be profitable, except along some water highway. Tobacco was confined to Virginia; now it is farmed as far north as Connecticut, and as far west as the Mississippi. Rice was confined to South Carolina; now it is cultivated in all the Southern States bordering on the ocean and gulf. Sugar and molasses was nearly a monopoly with Louisiana; now it is raised (but not cane) as far north as Illinois, and spreading year by year; so with many other crops that were at one time thought to be only profitable in certain restricted sections, are now found to be paying in other parts of our country; and new ones have been added, such as castor bean, oranges and lemons; tropical fruits for Florida, Louisiana and California; grapes and wines over at least three-fourths of the country, the latter being *equal to foreign*, and in most cases *superior to the imported*. And why should we not raise a variety with the diversity of soils, the extent of country and the bright suns we have; indeed, our hot mid-summer sun makes our

country nearly equal to the tropics for nearly six months in the year. It is well enough to talk about the "sunny land of France" and "the blue skies of Italy," and they may have more of them in a whole year than we have, but in six or seven months we have about as much as is desirable, and the rest of the year is not so bad as to make living a burden.

Improving the varieties already in cultivation has put millions of dollars into the pockets of farmers, and the bringing out of new ones that are better than the old ones improved, has been of incalculable benefit to the farming community. Even young farmers can remember the time when wheat was confined to two or three varieties, such as blue stem and orange stem white, but these turned out so poorly at last on account of the ravages of the Hessian fly and the red (field) weevil that farmers were almost in despair of making wheat pay. There came a new variety, the red (bearded) Mediterranean, which though of inferior quality, was nearly weevil-proof, and so strong in the growth that the fly could not hurt it much. In rapid succession came other varieties, of better quality, until now we raise red amber and white wheats of the highest grade, both in quality, yield and growth. In potatoes we possessed only a few standard varieties—the pink-eye, yellow-fleshed, a fair yielder, but only medium quality; Mercer, (Neshanock,) white-fleshed, good quality, but poor yielder. The greater part of the other varieties known were of inferior quality; all the better kinds at last became so liable to rot that it was quite a venture to plant a large piece of land to potatoes. Now we have varieties by the score to suit all parts of the country, and of a quality that throws the old standard Mercer far into the shade; not only has the quality been improved, but also the size, shape, color and yield. As with wheat and potatoes, so have all other grain and root crops been improved, with, perhaps, the exception of rye. Improved varieties of this grain have been advertised, but I believe as far as tried there has been little, if any, improvement noticed over the old variety.

In fruits the progress has been rather better than in the farm crops proper.

The greatest improvement in any one kind of fruit is probably in that of the grape. Of course very good grapes have been raised in this country for many years, but were raised under glass, and could be afforded only by the wealthy. Before 1830 poor people and those of moderate income had to do without grapes, or be satisfied with fox, summer and frost grapes, these being about the only hardy kinds generally known up to that time. About the year mentioned the Catawba became known, and this, with the Diana, a seedling of the former, Clinton and Isabella were for a long time the only kinds known by the public in general. Since the introduction of the above sorts new and superior varieties have been brought out, and we have now all qualities in all the shades of black, purple, red and white, the Concord and Hartford Prolific, although of only medium quality, being the most widely disseminated. Some few kinds, as the Delaware, a few of the Rogers' hybrids and others, being acknowledged by jugdes of acknowledged experience as nearly equal to the better foreign varieties.

In the strawberry the improvement has been scarcely behind the grape, though in these the size and yield are the points that have been most brought out; as to size, for instance, we have Great American, Durand, Crescent, &c., some of the larger berries being in size that of a medium sized peach; and as to productiveness we have the Wilson, which has been known to produce as many bushels to the acre as would be considered a fair crop of potatoes. The first improvement of note was in the production of Hovey's seedling (a pistillate variety), forty-three years ago, and though there have since that time many varieties been brought out that are more promising and more to be desired, because they have perfect blossoms, yet this old variety took the first prize at the strawberry show of the Massachusetts Horticultural Society, held in Boston in 1875. Mr. Hovey, probably, spent a great deal of time on the production of his prize berries, and did not spare manure or other fertilizers. In flavor there has been little or no improvement, some of the larger varieties being more acid than many of the wild ones, and losing some of that distinct fragrance which many of the wild berries have.

In peaches there has been little or no improvement made in size and flavor, but we have both later and earlier kinds and more variety. Nearly the same remarks apply to cherries.

Apples and pears have been raised in varieties distinct from old kinds, but little improvement made; but the best old and new varieties have been more disseminated to the exclusion of inferior kinds heretofore raised.

The attention of fruit raisers has been particularly turned, for the last few years, to improving blackberries, raspberries, currants and gooseberries, and some good results have been obtained. The first desideratum in all these cases must be hardiness, then size; next, for blackberries and raspberries, is carrying or shipping; for currants less acidity, and for gooseberries freedom from mildew.

The farmer certainly has no cause for complaint that there is no improvement, but he must have his eyes wide open to see that he only takes hold of the best and rejects all that is poor or only mediocre. I believe that if farmers would only put their eyes, their wits and their experience to more use, we would be further advanced than we now are; but I believe that the laborious life that some farmers lead has a great deal to do with their not being more observant, as when the body is worn down with the fatigue of straining labor, the mind is in no state to take note of anything that is only a little removed from the ordinary, it must be very striking before any impression is made. This seems to be borne out by the fact that probably more than three-fourths of the improvements made are brought about by men of means and leisure. Having the means and leisure, of course, does not detract from the praise and honor that should be accorded, in many cases neither receiving nor seeking any benefits therefrom; but certainly more honor should be accorded to the man who in spite of lassitude produced by following his calling, yet keeps his mind alert enough to note the little things from which great ones may spring; nor would he do wrong nor lessen the honor by turning the results of his observation to his own advantage, for I have no doubt that many a farmer could have bettered his lot in life by bringing out improved varieties of whatever he was raising.—*A. B. K.*

For The Lancaster Farmer

AUTUMNAL COLORATION OF THE LEAVES.

BY J. STAUFFER.

In answer to the question, "The reason why there was less variety and less brilliancy in the leaf coloration in the present season" than usually?

Vegetation, the link, or so to say, the universal laboratory that manufactures food and raiment, and purifies the air, and, in short, prepares the mineral world to sustain the lives of men and animals, performs some wonderful chemical operations.

The soil, made up of decomposed feldspar, quartz, porphyry, bay-salt, etc., are all classed among the minerals reduced by the action of heat, frost, air and water. For instance, feldspar contains from six to fifteen per cent. of potassa. Plants absorb this potassa—Liebig found that every root secretes a fluid, a sort of acid, by which, as he says, "the plants *attack* the soil with their roots." We all know that potassa, like soda, is one of the commonest chemical substances and extensively employed in the arts and domestic economy. The modest product is lodged within the plant, as all our potass, under whatever name, as a base is wholly derived from the residum or ashes of wood burned, or vegetation obtained by lixiviation, as every housewife knows in making lye for soap. Chemists have tried to abstract the potassa from the soil, but find it so tenaciously combined, and only of late years did any one succeed, and that only with costly and complex apparatus, difficult and tedious manipulation, able to separate it from the clay-like or quartz-like earth; this the plants do, however, silently and effectually, and make it easy for man to get at this valuable product, as we do, also, much of our soda from sea plants; these also have revealed iodine and bromine as constituents to their make-up. No one will deny the chemical process. Green leaves, aided by sunlight, decompose the carbonic acid, as well as nitrogen. Collect the ammonia from the soil or water; this ammonia, a combination of nitrogen and oxygen, as an aeriform product of decomposition of animal or vegetable matter, is found everywhere in small quantities; from the air it finds a lodgment in every soil, as well as in water. Here allow me to make a remark, to call attention to what often happens, a certain scalding of the leaves. After a rain fall, during strong sunshine, this has been noticed, and it is supposed that a chemical change results in the water having become a mixture of nitric acid, strong enough to scald or scar the leaves. One thing we know, gardeners do not water their flower-beds during a glowing sunshine, experience has taught them that some bad result follows. In the extensive and varied chemical operations the color of flowers, leaves, &c., demands our attention, these run through a gamut of shades and tints innumerable. But what produces color? Science teaches there is no color, merely a condition which affects our eye in a certain way. For instance, I look through a glass prism; I notice the most beautiful rainbow tints to embroider every object, this I know to result by decomposing the rays of light of different refrangibility. Nevertheless, unless we are color blind, we all behold the fixed fact of the color in the flower or foliage of the autumnal leaves in all their brilliancy.

Science goes as far as it can in the field of matter, and ignores in man an inner nature, as well as in all nature itself, an underlying spiritual element, and one that, like faith in the Gospel, must be "spiritually discerned," as it does not respond to the scalpel-scales, microscope, or any device of man's art or genius, however great. Nevertheless science has wonderfully tested the wonders of nature and discovered many of her secrets; we truly find nature to be more strange than fiction. The chemical transformations in the bodies of living plants producing the most brilliant colors; a flower passes through the entire scale of red, from softest pink to the darkest purple-brown, from the action of the acids in the air, and elements in its juices. Infusion of sulphate of iron into the soil in the culture of hortensia has darkened their hue, no doubt by affecting the tan in the plant. There are other dodges and arts among fancy florists by which they do not change law, but the chemical relations in the elements brought in contact. This subject is so vast, and touched at so many points by other considerations, that I find it impossible to stick to my text, "What causes the change in autumnal foliage?"

The green coloring matter of leaves, no *matter* how formed, whether altered starch, mucous matter, protoplasm, or what not, requires the influence of solar light for the plant to fabricate it. The so-called chlorophyll, which is on plants in a dark cellar, or celery-blanched, is absent.

Our savans have given this green coloring matter considerable attention, and made known its compounds by names so long as to be utterly out of the question to remember; in short, a certain blue coloring matter as a compound is found; this vegetable blue, mixed in the juices, is what, with the alkaline matters in the sap brought up from the earth, jointly and variously modified and mixed in

their proportions, become reddened by acids, mixed in the atmosphere. Some years ago, when in the drug business, I prepared a series of six old-fashioned wine glasses, sprinkling in fine powder of various chemical salts, &c., of a different kind into each separate glass, not perceptible to the superficial observer; in a bottle I had an aqueous solution of blue cabbage, or litmus will do as well; a portion of this liquid poured into each glass will develop as many different colors as there are glasses with different chemical bases—as acid or alkaline. We here see how wonderful a difference slight changes make—so with the hydrocarbons and aniline colors—but, alas! I am so prone to digress, as analogous things flood in upon my mind, that I can not avoid it.

That the leaves undergo a chemical change, by acid action, was proved by Mr. Joseph Wharton; he exposed a variety of red autumnal leaves upon a staging under a glass receiver, with a capsule containing ammonia, and had the gratification to perceive that, in most cases, the green color was restored; the leaves having a thin and porous cuticle undergoing the change most rapidly and completely, the restored green color remaining from some minutes to hours. The alkali of the ammonia neutralized the action of the acid, as I have tested for myself.

Frost, probably, plays no other part in causing the autumnal tints than merely to arrest the circulation by killing the leaves, or more or less chilling them, when yet the juices are abundant and the leaves full and plump. Thus, suddenly checked in the early fall of the year, the atmospheric acids and sunshine have full play upon the blue substance, alkalines, tannic and other bases, variously distributed in the various trees and shrubs in innumerable modifications. Hence, the most brilliant red, through all the grades of the gamut to pink, as the acids prevail, from straw-yellow through all shades, or maculated as the alkaline predominates, and compounds, perhaps, of which we have no experimental knowledge. Chlorophyll is very sensitive. We have a remarkable exhibition of change of color in the leaves of the "Amaranthus tricolor," known as "Joseph's coat of many colors;" here we see on the same leaf a portion bright red, bright yellow and a pure green, as of common or natural occurrence, not to mention the beautiful zonales and divers-colored leaves on plants cultivated for ornament. The reason why there was less variety and less brilliancy this season is the want of early frost to kill the leaves, or at least to arrest the flow of sap. We hear of fruit trees blossoming in numerous places; the continued mild weather developed the otherwise latent buds, the juices in the leaves were diverted to this extra effort, or gradually dissipated by evaporation and the ordinary decay, by disorganizing the blue coloring matter, and the chemical compounds, so that when frost did come, the work of dissipation was too far advanced, and before "Jack Frost" entered the field this season his artistic brush could not find the necessary material to work upon, and a monotonous sickly-looking mess of dead leaves is the result; so that lovers of such collections find the highly-colored leaves "few and far between." But, I suppose, from the language of a portion on autumn, in "Thompson's Seasons," that he, good man, never saw one of our glorious autumnal seasons, when the woods glowed and glistendd with stately trees in gold, carmine and purple array, interspersed with green pines, etc. His language may apply to our present season, for he says:

"But see the fading many colored woods,
Shade deepening over shade, the country round
Imbrowned; crowded umbrage, dusk and dun,
Of every hue, from wan declining green
To sooty dark."

What we term the laws of nature we may as well call the laws of God, wherein we see the power, wisdom and goodness of the Great Law-giver. In Street's poems I find these words, which, in conclusion, I will append:

"Nature is man's best teacher. She unfolds
Her treasures to his search, unseals his eyes,
Illumes his mind, and purifies his heart,
An influence breathes from all the sights and sounds
Of her existence; she is wisdom's self."

FOREST AND RAIN-FALL.

Address of Thos. Meehan Before the May Meeting of the Pennsylvania State Board of Agriculture.

There is a maxim very good for myself as well as gentlemen of your pursuit, good agriculturists, that a man does not know what he can do until he tries. Speaking of good agriculturists reminds me that when it was announced that I should address you to-day on rain-fall and forests, some of my friends expressed surprise that I should talk on such an "abstract question" as this. How can it matter to a farmer of to-day if the forests are cut away, if he can sow and reap, and if he can gather the products of the soil? In the language of a certain distinguished individual we might say, "What has posterity done for me?" Why should I care for posterity? For my part, I can not assent to that view. I think every great, every patriotic person, has some consideration for his posterity. I think that many questions considered abstract and abstruse are not really so. More of these questions have a practical bearing on the present than we suppose. They are not of so little moment as many would make them. We have suffered very much, in fact, through our indisposition to discuss little questions. Others have benefited us by taking them up. For instance, we now can cross the Atlantic in ten or twelve days, when it took Cabot one hundred days. Once it took a long time to send messages from Washington to New York; now they are transmitted in a few seconds. Chiefly through Franklin's playing with the kite, string and key, we accomplished this wonder. Through the experiment with the tea kettle we have the locomotive. It was through these little matters we have got these practical workings. In regard to this question of forestry and rain-fall, you know what it is. It has been told in every paper and magazine. There is the Desert of Sahara, embracing four million square miles, where rain never falls. In our desert of America, extending along from Texas to British North America, rain does not fall. They say it is the clearing away of forests, and that we are now suffering from the devastation and destruction of forests by some ancient people. I think we can show that that desert was brought about not by the cutting away of trees. We think that that is the result of sudden geological causes, and that those sudden geological causes are continuous, and that they have no reference to forestry in any shape or form. Before, however, going into that question, it would be as well to take up frankly, or come down to little things, and first explain what causes currents of water in the atmosphere—consideration of moisture before rainfall, and although it may seem almost a common-place matter to refer to such little things, yet I think it will enable us to explain our position better by referring to them. Take a pitcher of cold water on a warm day; moisture gathers on the outside of the pitcher, and we commonly say that the pitcher sweats, but it does not; it is simply the moisture in the atmosphere which, being warmer than the outside of the pitcher, causes the water to condense. The same process is going on over the surface of the globe. Three-fourths of the globe is water, and the average evaporation is about twelve thousand pounds per square foot per annum. Of course, in some places it is less, and in some more. What becomes of this water? It is taken into the atmosphere, and when brought into a cooler current it condenses and falls. In regard to the circulation that causes the currents, take a bucket of water and put a stick into it. The stick floats, not because of the gravitation, but because the water is heavier than the stick. The same principle prevails if you take a kettle of boiling water. The upper surface is the hotter, and that forms a continuous circulation, because the cooler presses the warmer to the surface. In that way there is a continuous circuit exhibited by the changes in the specific gravity of the particles. That is going on also in the atmosphere just the same as in the kettle of water, that which is warmest rises to the top. So with the Gulf Stream. The warm water of the tropics forces it upward. Thus there is a continuous circuit toward the poles, where it is cooler. Now we can begin to understand how it is that we get rain in some parts of the world and it is dry in others. In sea breezes there is a current of water all the time to the land. The water which is changed into cold vapor, of which I have spoken before, rushes in to take the place of other water in that way. The warm water that makes the vapor is all upon the surface of the earth, is carried along until it comes in contact with a colder surface, and produces rain. Now, as to the American desert, which extends eastwardly from the Rocky Mountains: The water is drawn up from the Pacific ocean; the cold or moist air of the Pacific is brought in over these mountains from that direction. It gives the prevailing easterly winds on that side of the mountains. This vapor is carried along until it reaches the top of the mountains. When it comes in contact with these high ridges it is condensed and become snow. When there is any moisture in the current it consequently becomes rain; but here it leaves only a dry current to pass over it. It is only two or three hundred miles this side that it becomes moisture. From this moisture which forms in that way we get another condition, or area, which is continually watered by rain from the clouds. You see, therefore, that this snow or rainfall this side of the Rocky Mountains, or more properly this side of the Mississippi River, could not have been caused if the Rocky Mountains were not where they are, and it would be a matter of total indifference whether forests were cut away or not. It is a question wholly of currents with these different parts. This tract of land, which is now a desert, was once covered with forest trees. If you dig down in Illinois or Indiana, you find large beds of coal. Further on, in Colorado and surrounding country, which is now a desert, I have helped to dig out what is called charcoal. I have dug up trees. Some of these stumps, one of them especially, was twenty-four feet in circumference, and others in proportion. These forest trees existed at one time where now the country is a barren desert. It shows that the whole district was once covered with trees, and that they were not cut away. These trees were grown up when the whole range of Rocky Mountains was thrown up in this way. That this was done is shown not only by remains of trees, but by large beds of fossil fish, which exist some five or six thousand feet above the level of the sea. Then there was no sifting out of the vapor of the clouds, but the moisture fell there in rain, just as it falls over other surfaces of the globe; and the throwing up of the hills afterwards makes this difference. Some parts of the world have these sinking parts as others arise.

In regard to climate, no matter how small may be a cause, it interrupts the regular work of events, and a very small disturbance in these conditions will cause a great change in results. Thus a little rock will fall, and it gradually turns out of its course in consequence a small stream; and having turned it out of its course, in time something else changes and the whole course is changed by a very little circumstance. And so in nature; and that is the reason we think sometimes there are great changes in the climate. Take for instance the Polaris expedition, and its discovery of an open sea in 1863. In 1875 when Captain Murray's expedition went there, they found this whole tract covered with ice; the thermometer being from 55° to 65° in '65; then he found it the whole season below the freezing point. It is only the condition of things that come; altering in a few years, and the circle continues to go and come. I think the best illustration, perhaps, is the history of the grape culture in England, which bears on the change of the climate. We know that England at the present time is considered totally

unfit for grape culture, that grapes cannot be raised under any circumstances, and yet we know there was a time when it was covered with grapes. The battle of Hastings, which decided the fate of English people, was fought in a vineyard, and we read of vineyards, the isle of Islay which signifies "the isle of vines." We have traces of ancient vineyards in every direction. These vineyards continued down to 1685. From that year there were twenty-five years of regular wet and cold seasons, in which it was impossible to ripen the grape; and so until the present day. Now, it seems almost a fable that England ever was a grape-producing country; and yet timber was not much cut away. There was no doubt good timber until manufactories became common; and they did not become common until the mining of coal. So there could have been no change in twenty-five years, by cutting away forests from lands wholly fit for the grape to land totally unfit for it. Here comes the most significant part of the history. At the present time, one gentleman in grape culture there, the Duke of Gloucester, some six years ago planted vineyards, and his grapes are doing just as well now as they did in ancient times. I think this fact shows fully that they didn't result in any way from tree culture or forestry. In our own case we know how the climate changes. I am satisfied that thirty years ago in Philadelphia there never was a year, before or after that, that the lilac didn't bloom regularly before the first of May. For the last year or two the same bushes around our dwellings are flowered well before the first of May. There has been no difference in the forests of Pennsylvania. I think there is the same amount of forests in Pennsylvania to-day that there was before that time. Before railroads and canals were made there was a great deal more lumber taken to Philadelphia from Pennsylvania than there is now. Timber lands have been suffered to grow up again. I knew of property near Philadelphia where persons desired to leave to their descendants those forests, and now those forests are worth nothing, because timber can be brought from a distance cheaper than it can be bought there. I think Pennsylvania has more woodland than thirty years ago; and there are figures which go to show this. In England there is only about five per cent. of the land covered with forests, and this is probably as much as it has had at once; because England's past forest area was so small that the king set to planting forests for ship-building timber; so I think that area has been as it has for many years past, and yet the average rainfall is forty inches a year. There is Portugal, which is almost destitute of timber, having only 4.40 per cent., and yet the rainfall is thirty inches a year. And in Spain with 5.53 acres to the hundred, there is twenty-five inches a year. Sardinia with twelve per cent. of its land in forest has a rainfall of thirty inches. In Switzerland the forest area is only fifteen per cent., while in Norway it is sixty-six per cent., which has a rainfall of only thirty inches. On the other hand is Sweden with sixty per cent. in forest and only sixteen inches of rain a year, and Italy with comparatively few forests, has forty inches of rainfall a year. So you see there is not the slightest correspondence. I think it is impossible to give the causes which influence the fall of the rain. In our own State there is forest now, and we cannot make much of a test yet. But there has been no diminution in States where the forests have been cut away, for instance in Ohio, which was, we know, a vast timber region when it was first made a State. It has been considerably cleared of its timber; and yet the records kept by the government officers in Marietta, show that there has not been the slightest difference in the rain-fall of Ohio. So in some other States the rain-fall has not been disturbed. In the New England States considerable attention has been paid to it, but we have been unable to get the figures. Massachusetts, for instance, at the present time has twenty-seven per cent. of its area in forests; Vermont has twenty-six; New Hampshire has twenty-seven; New York twenty-two; and it is believed that twenty-five per cent. of the whole area of the United States is forest land. The southern country is half forests. West Virginia alone has 1,000,000 of area of forest land. I think when it is shown fully how much there is even in the Western country, you will see that the whole timber average of the United States is forty per cent. The figures are high, and yet in some of the Southern States they feel that there has been some climatic change; and the timber area continuing the same, the result is that these changes are not due to the absence of forestry, but to geological effects. When you consider the causes which influence rain, and when you compare them with countries where rain falls abundantly, and where it falls sparingly; and when you compare these with the facts as they have been given, you will agree with me that there is no difference in the rain-fall, and that the facts show that there is not.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The Lancaster County Agricultural and Horticultural Society met in the third story of the City Hall, Monday afternoon, Nov. 5, the following members being present:

Calvin Cooper, President, East Lampeter; Johnson Miller, Secretary, Warwick; Levi W. Groff, West Earl; Henry M. Engle, Marietta; John M. Rutter, Salisbury; John B. Erb, Strasburg township; John C. Linville, Salisbury; Wm. H. Brosius, Drumore; Jacob Bollinger, Warwick; Ephraim Hoover, Manheim; W. J. Kafroth, West Earl; S. P. Eby, city; John H. Landis, Manor; Prof. S. S. Rathvon, city; Joseph F. Witmer, Paradise; E. K. Hershey, Manor; M. D. Kendig, Manor; C. L. Hunsecker, Manheim; Casper Hiller, Conestoga; Jacob B. Garber, West Hempfield; Levi S. Reist, Manheim; Henry Erb, Manheim; John Huber, Warwick; Reuben Weaver, Rapho; Henry Erb, Warwick; Mr. Mellinger, West Lampeter; Simon Hershey, Salunga; Ellwood Griest, city; Dr. E. A. Hertz, Philadelphia; A. H. Summy, Manheim; Harry M. Mayer, Rohrerstown; Henry Shiltner, Upper Leacock.

The reading of the minutes of last meeting was dispensed with.

Crop Reports.

Reports on the condition of the crops being called for, John C. Linville, of Salisbury, said he had not in the past ten years seen the growing wheat look better than it looks at present. The corn crop has been husked and has not yielded as well as was expected before it was cut off.

Henry Kurtz, of Mount Joy, said the wheat in some localities, owing to the warm weather, has grown too large and has shot the second joint and is being plowed down. In some other localities it has been attacked by the Hessian fly, which seems to move through the fields in regular swaths or streaks. His own wheat looks well, and as a general thing his neighbors' looks well. He sowed his own seed late and thus avoided the fly. He estimated the yield of corn at about three-fourths of a full crop.

Johnson Miller, of Warwick, said the corn was shorter than had been expected; fully ten per cent. less than a full crop. Wheat is growing finely and looks well; so does the pasture, which will continue good for some time yet if it is not destroyed by heavy frosts.

Wm. H. Brosius, of Drumore, said there were some complaints in his neighborhood of the depredations of the fly, though the wheat crop was generally good. Corn was about three-fourths of a full crop.

Jacob Bollinger, of Warwick, said the wheat had been somewhat injured by the fly. The corn crop was good, say 72 bushels to the acre.

Henry M. Engle, of Marietta, said there should be a general understanding as to what constitutes an average or full crop. When he spoke of an average he meant the average of his own township; but that might be above or below the average of other townships. If a farmer raises a large crop on a good farm he is apt to call it an average crop; while another raising a small crop on a poor farm will call it also an average.

Ephraim Hoover, of Manheim, said the new grass fields are better set than he had seen them for many years, and the pastures are also good. Wheat looks well, and has not been injured by the fly—not even that which was sowed early. Corn will not make more than three-fourths of a crop—say 35 bushels to the acre. The hay crop next year will be very heavy, from present appearances.

W. J. Kafroth, of West Earl, had never seen the wheat look better; the grass fields also look fine, and the corn crop will average 60 bushels to the acre.

Levi W. Groff, of West Earl, said the reason why that section of the country had such good crops was because it had been favored with copious rains, while other sections not many miles distant had suffered from drouth.

Mr. Engle, of Marietta, said the corn crop was not as heavy as it was expected to be earlier in the season. He thought there would not be quite three-fourths of a crop. The wheat fields look well; he has not seen a single bad field; has seen nothing of the fly; the prospects of a large crop are excellent. The young grass looks well; late potatoes have turned out first rate; he had intended to make a report on the number of bushels of potatoes to the acre, but his patches had been so often visited by thieves that he could not find a quarter of an acre that had not been robbed, so he gave up the job. He said he had seen in print an article on the Hessian fly to the effect that the wheat dropped in the field during harvest, took root and furnished a breeding place for the fly. He mentioned the matter now that farmers might make observations and report the result. The rainfall for the past month was 3½ inches.

Levi W. Groff, of West Earl, asked for information as to how the Hessian fly was able to lay its egg so close down to the lower extremity of the leaf when the leaf itself fitted so closely around the stem of the wheat straw.

Prof. S. S. Rathvon explained that the egg of the fly is very small, and the worm when hatched is not thicker than a thread of No. 60 cotton. The egg is laid near the root of the leaf, on the joints of the plant. The Hessian fly itself is very small, and must necessarily lay very small eggs. It is not much, if any, larger than a mosquito, and belongs to the Gall gnat family (Cecidomyiadæ). The females deposit their eggs as far down between the sheath of the leaf and the stalk as they can get them, sometimes a dozen or more on a single plant. When the little grubs, or maggots, are hatched out, they work their way down as far as the leaf will permit them, and there remain around the joint under the sheaths until they are changed to the pupa—commonly called the "flax-seed" state—the period of which is longer or shorter, according to the temperature of the weather. They are a greenish maggot, with a little black dot on top. They do not bore into the straw, but, as their bodies increase in size, they cause indentations or cavities, by natural pressure, in which they lie and absorb the circulating juices of the plant. They are generally located around the lowest joint, but often also in the next above it. They often remain in the grub or the pupa form all winter, and come forth in the fly form early in the spring.

The Manure Question.

"What is the best means of preserving manure?" was the question proposed at the last meeting for discussion.

John C. Linville said he believed it to be a great advantage to place a shed over the manure pile, and to add salt enough to keep the manure from heating or being injured by the fire-fang. He thought a great deal of money was spent for artificial manures that might be saved if proper attention was paid to the barnyard manure. We are apt to allow streams of black water to run away from the barnyard and be wasted, when it is well known that this is the very essence of manure. It might easily be saved by having a cistern dug outside the barnyard to receive it, and it might then be readily distributed to such parts of the farm as needed it. Manure composted under cover was certainly better than that made in the open yard. He had been rather careless himself in this matter of manure, but he had been told by a neighbor who had made the experiment that he could see in his crops a great improvement in those parts of the fields supplied with manure that had been made under cover.

President Cooper said he had addressed John I. Carter, of the Eastern Experimental Farm, inviting him to be present and address the society on the subject of fertilizers, and had hoped to have him present to-day; but he had received a letter from Mr. Carter, stating that bad weather and a press of business would prevent his attendance.

Ephraim Hoover agreed with Mr. Linville, as to making manure under cover, and added that the preservation of the liquid manure depended a great deal on the location of the barnyard. Where there is much slope a stone wall should be put up to retain the liquid manure. He favored the sinking of a cistern to catch the drainage, and described the construction of a trough or box that would be available for distributing the manure.

Joseph F. Witmer, of Paradise, spoke of an article written by Joseph Harris, in which he describes his plan of a barnyard. He plowed up the barnyard and scooped out the earth in the centre, making it lowest at that point, and there he sank a barrel, and around the pump he piled the manure, and allowed the rain and the liquid of the yard to drain into it, but carefully excluded the rain that fell upon the building. When the manure became too dry he pumped the liquid from the barrel and spread it over the pile, and in this way got good results.

Levi W. Groff, of West Earl, placed no cover

over his manure pile. His plan is to keep the manure well together, and if it gets away bring it back again. He frequently hauled from the roadside the washed earth and spread it over the manure pile, then put on more manure, and then again more washed earth. In this way he could double the quantity of his manure.

HENRY M. ENGLE, of Marietta, said he had long been of opinion that taking care of the manure was the mainspring of a farmer's success. It is a good plan to keep manure under cover if it is well cared for, but unless great attention is paid to it, it might be better to have it uncovered. The smaller surface manure is kept in the better. He fully agreed with Mr. Groff's plan of adding to the manure pile roadside washings. The dry earth absorbs and saves the gases that otherwise would escape by a too rapid combustion.

HENRY KURTZ, of Mount Joy, believes in Mr. Groff's plan of keeping the manure pile well together and adding liberal quantities of earth. If the manure runs away bring it back. Save all the liquid manure possible, and use it. That's the way he raised his 132 pound squash; he watered the vine frequently with liquid manure.

MR. GROFF added that if roadside earth be freely used on the manure pile there will be little waste of liquid manure. He would like to know from some one who had tried the experiment of making manure under cover how they prevented the damage of fire-fang. It seemed to him that if much water was required to prevent it, it might be as well to remove the shed and let the rain fall on the manure pile.

MR. WITMER advocated a liberal use of dry earth, not only on the manure pile but in the stables. Where straw is scarce it makes a good bedding, keeps the stables sweet, and adds much to the value of the manure.

MR. LINVILLE did not approve the plan suggested of having the barnyard hollow in the centre. The accumulation of liquid would sour the manure, and he would rather lose the liquid than have his manure sour, as that would destroy its present value.

PRESIDENT COOPER said he had always found a decided advantage in having the manure under cover. It is true there is some difficulty occasionally from fire-fang, but this may be readily checked by frequently spreading the manure.

HENRY SHIFFNER said he had fed 126 head of sheep in two pens, and had hauled out the manure and spread it upon his own cornfield, and found that the dry manure was much better than that which had been made without cover, and that the crop was much larger.

PRESIDENT COOPER recommended the sinking of a vat in the barnyard, and connecting with it a drain from the kitchen, so that all offal and slops would be received into the vat. He had tried the plan with excellent results.

The Cattle Disease.

The qestion, "What measures should be taken by farmers to prevent the spread of the cattle disease?" was on motion of Henry Kurtz postponed for discussion at next meeting.

Referred Questions.

"Does it pay to apply salt as a fertilizer on wheat grounds in the fall?"

I. L. LANDIS, to whom the above question was referred, was not present, but sent in the following, which was read by the Secretary:

"Does it pay to apply salt as a fertilizer on wheat ground in the fall?" was a question referred to me at your last regular meeting. From personal experience I know nothing of the subject, never having made any experiments in their application, except on grass with some apparent success. Upon inquiry for information it seems varied success has attended others who have tested it—some claiming they have increased their crops, and others perceiving no difference whatever where it was applied. It was, however, in very light poor soil, that no effect seemed apparent; in better soil better results followed. This is a very proper question, however, for agricultural chemistry, as so much depends on the properties and ingredients contained in the soil that it is highly necessary to make a chemical analysis to ascertain what is wanting to the soil to increase its productiveness and supply the proper food for the plant. Some other members may have made experiments of which they are willing to give this society the results. It seems to me that salt applied to any soil under any circumstances would only serve as a temporary stimulant, and then leave the soil poorer than before the application, having pretty much the same effect as benzine or whisky has on a toper, which makes him happy, hilarious and strong while he is under its influence, but for each repetition he feels worse and weaker, mentally and physically. The effects of those Virginia fertilizers, which are partially salts, may well be seen on the lands where they have been so long applied in their impoverished condition and sterility."

MR. LINVILLE had very little faith in analysis of the soil. It was supposed to be of great importance a few years ago, but was now looked upon as being of little consequence. He did not agree with Mr. Landis that salt was a mere stimulus; he thought it might be applied with advantage under certain conditions and in proper quantities.

EPHRAIM HOOVER had always looked on an analysis of the soil as being of great value, and had held it is almost as necessary for a farmer to be a practical chemist and understand the nature of his soil, and thus be able to select the fertilizer best adapted to its wants, as it is for the doctor to be acquainted with the physical infirmities of his patient, and thus be able to prescribe for his ailments. He had always supposed that the practical chemist, having a knowledge of the soil, knew how to treat it; if this be not so, then the application of manure must be made at random and the best kind found out by experiment.

JOSEPH F. WITMER believed agricultural chemistry to be of great account to the farmer. By it he could learn what the various plants fed upon, and what kind of fertilizer was best adapted to promote their growth. He did not think that salt should be applied to wheat in the fall or winter, though it might do some good in the spring.

E. K. HERSHEY, of Manor, said that one of his neighbors had in the fall applied salt to two acres of wheat; salt and manure to two adjoining acres, and manure alone to two more adjoining acres. Where the salt had been applied the wheat had grown much more vigorously than where it had not been applied, the straw being fully three inches longer than the other.

HENRY M. ENGLE said a single experiment was not a sufficient test of the value of anything. We may apply salt on some occasions and under certain conditions with good results, and on other occasions and conditions of the soil, with bad results. A good rule, he thought, was to vary the fertilizers from year to year.

M. D. KENDIG had applied salt to his wheat without noticing any good result. He had used 400 pounds to the acre.

JOHN C. LINVILLE wished to set himself right on the question of agricultural chemistry. He did not mean to say that he had no faith in agricultural chemistry; on the contrary, he had great faith in it, and believed in making a careful analysis of the fertilizers used. But he believed that no practical good would result from the analysis of a shovel-full of earth taken from a twenty-acre field.

C. L. HUNSECKER had high authority for saying that the application of salt to wheat was in some cases beneficial and in others not. Near the ocean it may do more harm than good, as the ocean vapors supply sufficient salt; but far in the interior salt may be applied with advantage.

JOSEPH F. WITMER had known corn and tobacco to be killed by the application of salt.

HENRY M. ENGLE had applied salt to melon seeds and they never came up.

LEVI W. GROFF had freely applied salt to the Canada thistle and killed it.

CASPER HILLER had no doubt that salt was a manure, but judgment must be used in applying it. It will, of course, kill the plants if used too freely; so will any other kind of manure.

Examination of Fruits.

The President appointed Messrs. Ephraim Hoover, Henry Erb and M. D. Kendig as a committee to examine and report upon the fruits on exhibition.

CASPER HILLER laid before the society some very larger persimmons, and stated that they had very few seeds in them. A neighbor of his had grown them for years without any seeds. They were almost as easily grafted as the apple, and if any of the members of the society wanted grafts they could have them by sending to him.

Medal and Diploma.

The President laid before the society a large bronze medal and diploma, awarded the society for fruits exhibited at the Centennial exhibition. The Librarian was directed to have the diploma framed.

Business for Next Meeting.

"What is the best method of destroying bark lice on fruit trees?" Referred for answer to Prof. S. S. Rathvon.

"Does it pay to steam feed for stock?" For general discussion.

Groff's Patent Wheat Cultivator.

FRANK SUTTON exhibited a model of Levi W. Groff's new grain cultivator and explained its advantages.

A Squash.

HENRY KURTZ called attention to an immense squash which he had brought with him. It weighed 132 pounds and measured 81½ inches in circumference. It was grown on his premises on a vine some thirty feet long, and was the only squash on the vine. He had applied to it occasionally liquid manure from the barnyard. He presented it to Prof. S. S. Rathvon.

PROF. RATHVON accepted the gift, and read the following paper in reply:

MR. H. KURTZ—*My Dear Sir:* In designating me as the subject of your munificent gift, allow me, in my humble reception of it, to give some expression of my sincere gratitude; not so much from considerations solely personal to myself, as from my representative character as editor of a local journal, which I have endeavored to make a reflex of the agricultural *status* of the great county of Lancaster. Without arrogating to myself any special merit for what may have been accomplished in that behalf, I cannot but feel thankful to you and to other members of this society, for your manifestations of appreciative kindness, and the disinterested assistance you have vouchsafed me on various occasions. As I intimated on former occasions, my labor as editor of THE FARMER has mainly been a "labor of love;" and because I believed, and still believe, that a journal representing the agricultural interest of our "garden county," ought to be morally, intellectually and financially sustained; at the same time, I am not independent of, nor insensible to, the sentiment, that "the laborer is worthy of his hire." Coupled with your local approbation, and the endorsement of many able journals from abroad, I have the assurance that THE LANCASTER FARMER has become a factor in the field of agricultural literature, which is gradually gaining a flattering recognition; and this fact stimulates in me a desire for its continuance, and I doubt not the members of this society entertain the same desire. Some of us here are now on our downward decade towards our allotted "three-score years and ten"—if some of us have not already passed that Rubicon of life's span—"and if by reason of strength they should be four-score," "yet," according to the inspired psalmist, "is their strength labor and sorrow; for it is soon cut off, and we fly away;" but, if we can recall the records which we have made, and are now making in the history of our lives, without remorse of conscience, we may entertain some feeling of assurance that we have not lived entirely in vain. If we can transmit to our successors a live organization, and a flourishing journal, devoted to the development of the agricultural resources of our county and our State, we shall benefit society more than he who founds an evanescent empire that perishes when the power that created it is overswayed. Too much importance cannot well be attached to agriculture, too much laudation cannot well be accorded to those "who have felled the sturdy oak and guided the unwieldy plough;" those whom "mid-day suns have browned their complexions, and whose hands, by rustic toil, have grown callous as a horn." Ralph Waldo Emerson says: "The glory of the farmer is, that in the division of labors, it is his part to *create*. All trades rest at least on his primitive activity. He stands close to nature; he obtains from the earth the bread and meat. The food which was not, his co-operative energies causes to be. The first farmer was the first man, and all historic nobility rests on the possession and use of land. Men do not usually like hard work, but every man has an exceptional respect for tillage, and a feeling that this is the only original calling of the race; that he himself is only excused from it by some circumstance which made him delegate it to other hands. If he has not some skill, or other quality, which recommends him to the farmer—some product for which the farmer will give him corn, he must himself return unto his due place among the planters. And the profession has in all eyes its ancient charm, as standing nearest to God, the first cause." Not that farmers are necessarily without the failings and imperfections which are the common heritage of humanity; but that their function is fundamentally the basis upon which the superstructure of society securely rests, and from whose resources all our most essential physical wants are anticipated and supplied.

Why, there is not a healthy man in this room, who, within three hours from this time, will not be a zealous devotee at the shrine of agricultural production; and whose stomach would not break out "in growling mutiny and bold revolt" if, on crossing the threshhold of his domicil, he found his domestic altar bare—he could compromise with his head, his feet, or his back, but not with his stomach. That restive organ periodically demands "the full amount or forfeit of the bond," and happy is he, in these times of financial reverse, who can "enter satisfaction."

As an appropriate sequel to the foregoing sentiments, allow me to add a few concluding remarks, in reference to the historic, scientific and domestic position of this magnificent subject of the vegetable kingdom, which you have so kindly donated to the use and behoof of the conductors of THE LANCASTER FARMER. This royal representative of the CUCURBITACEÆ, or Gourd family—and of which there are several genera, many species, and a very large number of varieties—is said to be a native of Persia, and was introduced into England prior to the introduction of the cucumber (in the reign of Henry VIII.) and is the vegetable which figured in the English annals of agriculture, of that period, as the "melon." It is supposed to have been brought over to this continent by the Puritan fathers, and has always occupied a prominent position in the festivities of our eastern brethren, and especially on thanksgiving occasions. The problems involving genera, species, and varieties, have become considerably "mixed up," and I will not attempt to solve them here, but may do so in a special article in some future number of THE FARMER. Its generic name

is *Cucurbita*, which some authorities say is derived from its form, being a resemblance to a vessel, of a similar name and form, used by chemists in their laboratories; and it is, probably, a variety of the species *pepo*, the Latin name of a "gourd." "Pumpkin" or "punkin," are considered corruptions of *pompion*, *pompon*, or *pepon*, which have their root in *pepo*. Reiterating my thanks to you, sir, for your generous gift, and to the members of this society for their patient attention, I bring my remarks to a close, with my best wishes for the prosperity of you all.

Great Corn Crop.

F. K. Witmer called attention to the immense corn crop raised by Hiram Esbenshade, of East Lampeter, his field averaging 122 bushels to the acre.

A resolution that no patent article be exhibited, or its merits discussed before the society, was laid on the table.

Report of Fruit Committee.

The fruit committee made the following report, which was adopted:

Very fine specimen of Bellellower apples, Joseph F. Witmer, of Paradise.

Seven varieties of apples, and also some very fine specimens of potatoes grown in three and a half months, Levi W. Groff, of West Earl township.

Mr. Smeych exhibited Northern Spy, a fine specimen of apples of fair quality, for a name, Clairgeau (very fine,) another pear for a name, and Iona grapes.

Mr. John Huber, of Warwick, specimen of Hovey pear—cutting of same for distribution.

Jacob B. Garber, West Hempfield, Sweitzer apple (very fine.)

Casper Hiller, of Conestoga township, exhibited a very fine specimen of persimmon, introduced by Mrs. Rodgers, of Lancaster city.

An apple of magnificent dimensions and appearance was also shown by Garrett H. Everts, of East King street, on whose premises it grew. The tree bears a good crop, and has done so for the last ten years; less this year, however, than formerly. The owner would like a name for it. The family call it a "winter rambo."

Israel L. Landis exhibited fine chincapins for distribution among members.

Henry Kurtz, of Mount Joy, champion squash, 81½ inches in circumference and 20 inches high, weight 132 pounds.

Ephraim S. Hoover,
M. D. Kendig,
Committee.

Adjourned.

TOBACCO GROWERS' ASSOCIATION.

The Lancaster County Tobacco Growers' Association met in the rooms of the Linnæan Society, this city, on Monday, October 15th. The attendance was not so large as usual, nor were the proceedings marked with as much spirit as on some former occasions.

Members Present.

The following members and visitors were present: M. D. Kendig, Manor, President; I. L. Landis, Manheim, Secretary *pro tem*; Henry Kurtz, Mount Joy; Sylvester Kennedy, Salisbury; Henry Shiffner, Upper Leacock; W. L. Hershey, East Hempfield; Stephen Grissinger, Rapho; A. P. Mcllvaine, Salisbury; J. M. Johnston, city; John L. Landis, Manor; A. H. Yeager, East Lampeter; Ellwood Griest, city; John H. Beiler, East Lampeter; C. L. Hunsecker, Manheim; W. D. Hoar, Salisbury; A. H. Summy, Manheim; Frank R. Diffenderffer, city; Clare Carpenter, city.

The reading of the minutes was dispensed with.

Crop Reports.

Mr. Kennedy, of Salisbury, said the crop in his section seemed to be curing satisfactorily and would soon be ready to strip; some of it had been stripped already; the weather lately had been very favorable for curing, and he expected the crop to turn out unusually well.

Henry Kurtz, of Mount Joy, said the tobacco generally is drying nicely, though he knows of some the leaves of which are mouldy from five to eight inches. This had been cut in an unfavorable time and hung too close. As a general thing the crop is good; some of it is ready for stripping, but he was not in favor of early stripping.

Mr. W. L. Hershey, of East Hempfield, said the tobacco in the sheds in his neighborhood is curing nicely, and some of it has been already stripped. There is still on hand a good deal of last year's tobacco. Some local buyers have recently sold out their stock at satisfactory figures.

Mr. I. L. Landis, of Manheim, knew of some local buyers who had disposed of their stock at a good advance. He agreed with what had been said by others relative to the new crop.

Stripping Tobacco.

The question, postponed from last meeting, "How long after stripping should tobacco be cased?" was taken up for discussion.

Mr. Sylvester Kennedy, of Salisbury, said he had proposed the question because it is well known that it is much easier to case tobacco immediately after stripping than to defer casing it until sometime afterwards, but is it as safe? Is the tobacco not more liable to mould? If it can be cased with safety a great deal of labor might be saved by doing it at once. He thought it might be well to case it at once—not for the purpose of selling and sending it away—but to keep it in the best possible condition. He would like to hear what more experienced tobacco growers thought of it.

Mr. A. H. Yeager, of East Lampeter, thought if the tobacco was permitted to hang until it had dried sufficiently it might safely be cased as soon as stripped.

Mr. Henry Shiffner, of Upper Leacock, said whenever tobacco is ready to strip it is ready to case. In answer to a question, he said when the stem is green it is not fit to case, nor is it fit to strip.

Mr. Kennedy thought that if the leaf was dry enough to break, it might be stripped even if the butts were green. There was an impression among tobacco men that tobacco was lighter in weight immediately after drying than it was a month or two afterwards. He would like to know if this were so, and whether there would be increased weight by letting it hang.

Mr. Kurtz said it would not increase in weight by hanging. He agreed with those who said that if it was not fit to case it was not fit to strip. But farmers pressed for time might strip when the stock is green and bale the tobacco and rank it with the buts outward. In this way it will dry rapidly and soon be fit for casing. Tobacco after being stripped will gain in weight and sweat better if placed in deep cellars.

Mr. I. L. Landis said the question was a very important one, and now is the time to discuss it. We should get all the information we can and make the best use of it. He hoped members would not be backward in expressing their views.

Mr. Kurtz said that owing to the warm weather we have had the tobacco is curing earlier this year than in former years. While much of it appears to be fit to strip, he thought it would be better to let it hang until the weather gets cold. If stripped and ranked in warm weather it will sweat, and dealers will not pay much for it.

Mr. Kennedy said "we must make hay while the sun shines." It is only once in a while that the weather is fit for stripping tobacco. It is therefore necessary to make good use of proper weather, even if the stems are a little green. They can be dried in the bales as suggested by Mr. Kurtz.

On motion the subject was again postponed for discussion at next meeting.

New Members.

Messrs. Stephen Grissinger, of Rapho, and A. P. Mcllvaine, of Salisbury, were elected members of the society.

Referred Questions.

"What proportion or per cent. of a farm can be planted in tobacco and keep up the farm in good condition?"

This question, which had been referred to President Kendig, was answered in a brief paper which he read, the purport being that while much depended on the character of the soil, an average of eight or ten per cent. of a Lancaster county farm might be put into tobacco without exhausting the soil.

"Into how many grades should tobacco be stripped to make it most marketable?"

Mr. Kurtz said he never made more than two grades—wrappers and fillers—and he thought he sold to as good advantage as his neighbors, who made three or four grades. It might be well for those who have indifferent or uneven crops to make several grades, and give their crops as good an appearance as possible, but two was enough for him.

Mr. Shiffner said the number of grades desirable depended on the condition of the crop. If a crop is first-rate two grades may be enough, but it is often well to make three or more. It should be assorted into as many grades as there are varieties of leaves. He assorts his crop very carefully, not only as to quality, but as to length and color also. Somebody must make a thorough assortment of the leaf, and the farmer, if he knows how, had better do it than have the purchaser to do it. We should at all times be ready for a buyer, and if our tobacco is well assorted the purchaser can see at a glance what we have for sale. The assorting should be done so conscientiously that any hand taken at random will be a fair sample of the grade from which it is taken.

President Kendig agreed with Mr. Shiffner. He believed that in assorted tobacco leaves of different length, shade and quality should be laid in different piles, and that every hand should contain leaves of the same length, shade and quality. If there be leaves of the same length but of different quality, make separate hands of them; and if there be leaves of the same quality but of different length make separate hands of them also. Then the buyer can see at a glance what he is getting, and even if the crop is a bad one it will look all the better by being properly assorted.

Mr. I. L. Landis agreed entirely with Messrs. Shiffner and Kendig. What the grower leaves undone in this respect the dealers have to pay for doing. They want grades to treble A, double A, and single A, and they will pay more for tobacco thus assorted than for that which they have to assort themselves. There is a wide margin between the extremes of prices, and the careful grower, availing himself of the knowledge of this fact, will place his tobacco in the best marketable shape, and reap the advantage of doing so.

President Kendig suggested that the standard of grades in vogue among packers might profitably be adopted by growers.

A Visiting Committee.

Mr. Henry Shiffner moved the appointment by the President of a committee of five members, whose duty it should be to visit and examine the farms of some of the principal tobacco growers; ascertain their mode of cultivating and curing tobacco; examine the sheds, the mode of hanging, the size and quality of the leaf, and gather other interesting facts and report to the society.

Mr. Landis thought much good would result from the labors of such a committee, if it faithfully performed its duty. He heartily favored the motion.

Messrs. Kurtz and Hershey also favored the appointment of the committee, and a thorough report from them.

Mr. Shiffner's motion was agreed to, and the following committee appointed: Henry Shiffner, Upper Leacock; Henry Kurtz, Mount Joy; Henry Myers, East Hempfield; Sylvester Kennedy, Salisbury; Jacob M. Frantz, Lancaster twp.

More About Stripping Tobbacco.

The queston of stripping tobacco was resumed.

Mr. A. H. Yeager did not favor early stripping; he had last year stripped a part of his crop early, and after it had sweat he noticed that the leaf was very tender.

Mr. Kurtz said it is reasonable to expect tobacco to sweat if stripped when the weather is warm, and if it sweats it frequently spoils. There need be no hurry in getting it off the poles; the buyers are not ready for it yet; let it hang until cold weather sets in. He made reference to some experiments made by Mr. ————, of York, who had sown the seed of Cuba tobacco some years ago and raised the first year, leaves about 8 inches in length. By careful cultivation, from year to year, he had increased the size of the leaves to 36 inches in length. The tobacco is very fine and silky, but not so dark in color as our Lancaster tobacco.

President Kendig would not strip his tobacco early enough to cause it to sweat. He thought a good test to determine when it was dry enough to strip, is when the leaf, at its junction with the stalk, is dry and breaks off easily.

Mr. Hershey said a good test was not to strip at all until the ground has been well frozen.

Mr. Shiffner said if it has been cut off early it may be stripped in November. It won't sweat after that time.

Mr. Kennedy said that last winter there were only a few days in which the weather was fit to strip tobacco. If we put it off until the ground is frozen we may not have an opportunity to strip it till spring, and then it will not be ready for the buyers when they come round. He would strip early if the weather were favorable.

Pay Up.

The President suggested that this being the beginning of the society year, it would be a good time for members to pay their dues, as the treasury was badly in need of funds.

A number of members "stepped up to the captain's office" and settled.

Fall P owing.

Mr. W. L. Hershey propounded the following question for discussion at next meeting:

"Is fall plowing advisable for tobacco?"

There being no further business the society adjourned.

THE LINNÆAN SOCIETY

A stated meeting of the Linnæan Society was held Saturday, October 27th, 1877, President, J. S. Stahr, in the chair. After the opening duties were attended to, the additions to the museum were examined, and consisted of a fine mounted fish hawk, (Osprey) *Pandion carolinensis*, shot on the second of this month by Mr. Brubaker, of Lampeter township. A fine mounted paroquet, or parakeet, from the West Indies, *Trichoglossus* ..., from J. M. Westhaeffer. A large sized mounted gar pike, *Lepidosteus osseus*, taken below Port Deposit, Susquehanna river, brought to this city by Joseph Baer and mounted by George Flick; specimens in alcohol. A large-sized grasshopper, *Acridium Americanum*. The "wheel-bug," *Reduvius novenarius*, per J. M. Westhaeffer. Snout beetle, *Lixus concavus*, egg of the garden slug, or snail, per Professor Dubbs. The "walking stick insect," *Spectrum* or lately called *Diapheromera*. One of those large, pretty yellow spiders, *Epeira gracilis*, of Hentz, a pair of thousand legs, *Cermatia forceps*; young of the 17-year locust, *Cicada Septem-*

diem that has harbored in the soil of a large box, containing an ablution, undisturbed since 1858, on the premises of George Hensel. Eggs of the snail or slug (*Limax*,) found like brilliant pearls strung together, under a flower-pot by Mrs. S. D. Sprecher. One would hardly suspect that these naked molluscs, so unwelcome for their slimy tracks, would hatch from such a perfectly clear, oval shape.

To the historical collection were added seven copper coins by Mr. Henry Eckert, Jr., several rare coins of 1799, with the words "100 to the dollar" around the edge. Nine envelopes, containing ninety-two articles, cut from the current papers, in relation to local history, per S. S. Rathvon, who also had several flowers and leaves of the "white thorn apple," grown on his premises.

Additions to the library: THE LANCASTER FARMER for October, 1877; No. 10 of *The American Journal of Microscopy and Popular Science*, New York, October, 1877; several book circulars. Papers were read by S. S. Rathvon: Ornothological, No. 575, giving facts respecting the "fish-hawk," that for soons years past has acted the "chicken-hawk" on Mr. Brubaker's poultry, but only on the second of this month could he succeed in getting a shot at this wide-awake hawk. Reference was also made to a common crow, *Cornus Americanus*, observed by our former President, H. Bruckart, deceased, to seize and carry off some early spring chickens from his premises. This is a deviation, but it seems there are thieves and robbers among birds of otherwise good character.

Judge Libhart stated that he witnessed our common "catbird," *Mimus Carolinensis*, taking out the young birds from the nest of a "chipping sparrow," *Spizella socialis*, and deliberately brain one after the other with its beak, and drop them to the ground. Mr. Libhart could not believe that such could be the case, until he actually went and found that it was the young birds he saw drop and not fruit, as he at first supposed. Cruel cat bird that, a touch of the butcher bird.

Ichtheology.

A paper—No. 576—in relation to the history of the gar-pike, was read. J. Stauffer had a paper illustrating the cermatia, walking stick, yellow spider, etc., deposited by him, with notes and observations, paper No. 577.

Mr. Rathvon read a paper, No. 579, in relation to the whitethorn apple plant, named according to a gardener's botany, "*Datura Knightii*," by Mr. Zimmerman. A variety of what are commonly known as the "Brugmansia." The names of plants, like those of apples, are beginning to be very much mixed up in certain groups, and the botanist is slow to accept new names, because of a slight and perhaps variable difference.

S. M. Sener called attention to the loss of this society in the death of Frederick Smith, whereupon the following preamble and resolution were unanimously adopted—viz:

It having pleased God—since the last stated meeting of this society—to remove our late fellow-member, Frederick Smith, from the world of physical being, to, we hope, a higher and a purer realm, we his survivors and former associates, while we would express our submission to the Divine Will, would also give expression to our appreciation of his many virtues, of the interest he always manifested in the welfare of this society, and our sorrow that the bonds of earthly association have been severed, and we shall behold him amongst us no more.

Mr. Smith was one of the earlier members of the Linnæan Society, a liberal contributor to its museum, an active participant in its scientific excursions, and we shall always recall those old memories and his amiable qualities with becoming pleasure, although mingled with that sadness which is inseparable from natural affection. Therefore,

Resolved, That, deeply sympathizing with the family and friends of the deceased in their bereavement, the foregoing be placed on record and be published, with the proceedings of this meeting, as an expression of the sentiment of this society—a testimonial of our personal regard for a departed fellow-member.

Mr. Rathvon having paid for mounting the hawk, paraquet and gar-pike, $4.40, on motion said bill be paid by the society, agreed to. A box of fossils, containing thirty varieties separately enveloped and named was submitted for inspection. These were sent to Wm. L. Gill by Prof. S. K. Ridenow, No. 156 Linn street, Cincinnati, Ohio, for exchange. The collection is highly desirable, as it contains several rare and valuable specimens. On motion, the chair appointed S. S. Rathvon, S. M. Sener and J. Stauffer, a committee to see what duplicates we have and enter into correspondence with the professor on the subject. Interesting remarks on the distribution of fossils and the geological periods were made. After spending a profitable session the society adjourned to a special meeting Friday, November 9, and the stated meeting November 24.

FODDER CROPS.—Now is the time to think of fodder crops for next year. The first ready to cut in the spring is rye sown now, and at intervals up to November. I have found a few acres of fall-sown rye, in a field near the barn-yard, a very valuable and acceptable addition the fodder in April, when incoming cows need succulent food to enable them to fill the brimming pail.

THE TOBACCO TRADE.

Something About Buyiug .877 Tobacco at this Early Period.

Already we hear of purchases of '77 crops in all tobacco regions. Within a few weeks from now the tobacco-growing country will, no doubt, be swarming with buyers, and the farmer will, most likely, ask about as high a price for his tobacco as the eagerness of the prospective buyer warrants.

The general opinion among our dealers at present is: "It is wrong for people to rush into the country to buy tobacco at this time of the year, for it makes farmers demand too high figures. The papers should advise dealers not to be in such a hurry to purchase the '77 crops." Candidly speaking, we cannot see anything very wrong about it. Business is good, '76 tobaccos are safe, and money will be made on them. Why, then, should the enterprising dealer wait and not go out now and buy tobacco? It is rather risky, of course, but first come first served. And, furthermore, the main motive of this exodus of buyers for the tobacco regions at such an early day is the great competition.

Almost everybody likes to wait, and force farmers to hold on to their tobacco, so as to make them ask as little as possible for it. But there is the competitor who doesn't care to wait, who is anxious to secure the best crops, and leaves the city as quietly as possible. Others, however, hear of it, and out they go, too. Thus the race commences, and the growers reap the benefit.

Nobody can counsel either farmers or tobacco dealers in this respect. Demand makes the price, and demand and prospective business, combined with the usual amount of jealousy in business, induces the dealer to go to buy his tobacco as early as possible, and at as low figures as he can get it. And, then, packing tobacco is greatly a chance business, and speculators always have their own theories; if they hadn't they couldn't be speculators.—*U. S. Tobacco Journal*.

The German Tobacco Trade.

The *Pall Mall Gazette* of July 25 says: Bremen continues to be by far the most important among the German foreign tobacco markets, the importations to that port being about three times as extensive as, for instance, to Hamburg. Notwithstanding, however, that the aggregate importations of tobacco to this and all other ports of Germany, added to the quantities imported through other channels to the German Customs unions are very considerable, it is, as pointed out by Consul Ward in his trade report on Bremen for the past year, a fact worthy of notice that the quantities of tobacco annually exported from Germany far exceed the foreign importations. Taking into consideration that the annual consumption of tobacco in that country is very considerable, the fact mentioned offers some idea of the magnitude of the German tobacco industry and production. The aggregate area of land cultivated with tobacco in the Empire on June 30, 1875, is stated to have been about 54,000 English acres, seven-tenths of which should be apportioned among the Southern States—namely, Bavaria, Wurtemburg, Baden, Alsace-Lorraine, and a part of Hesse-Darmstadt; while the remaining three-tenths are situated chiefly in the Prussian provinces of Brandenburg and Pomerania. The aggregate average of Germany tobacco produced in one year may be estimated at about 29,000,000.

The New York Tobacco Market.

The *U. S. Tobacco Journal* says: The very flattering exhibit of weekly sales that we have been enabled to make during the past month, receives another addition by our to-day's retrospect on last week's business. But what especially distinguished the past week from many predecessors, is that outside of 155 cases Ohio, every other lot sold (numbering in all 3,380 cases,) was taken principally by manufacturers; another noteworthy fact in connection with this summing up is that, suddenly, 1876 Pennsylvania, which, since the opening of the season remained conspicuously neglected, assumed the leadership in the market, and figured among the sales, mostly to manufacturers, with 1,357 cases, at prices ranging as follows: 7½ and 8 cents for fillers; 12 and 15 for low running; 18, 21, 22 and 24 cents for medium and wrappery lots. The above showing must be gratifying to holders of 1876 Pennsylvania, as with the purchases of this stock by manufacturers at this early period, the prospects for a realization of good profits on the investment become very flattering.

The *Tobacco Leaf* foots up the sales of seed leaf during the past week of 2,687 cases of which 550 were Connecticut, 200 Massachusetts, 100 New York, and 1,000 cases Pennsylvania. Prices for '76 Pennsylvania were: fillers, 6¾ cents; assorted lots, low grades, 14@16 cents; better lots, 18@21 cents; principally for home manufacture.

AGRICULTURAL.

Good Farming.

We don't think any of our Lebanon county farmers would say that they had ever a more enjoyable day they would accord to one given to visiting the magmagnificent farms of Jas. Young, esq., at Middletown. We doubt whether there is another such specimen of high culture, of such an excellent judgment, of such perfect accomplishments in the way of farming, to be found in the United States. One of the English Commissioners to our Centennial Exhibition, last summer, went to see these farms. He is a gentleman who has been prominently identified with agriculture in England, and he was so much delighted with what he saw that he has spoken and written of its perfection since his return to his own country, where they think they have given the best illustrations of good farming to be found in the world's history.

Mr. Young's farms contain 1,230 acres, divided into nine farms, with elegant sets of buildings on each tract. They are, however, farmed as an aggregated whole, under the direct supervision of Mr. Young, assisted by his two sons, and Mr. Dawson McKorkle, formerly of Lebanon county. There are a great many hands constantly employed in improving and in doing the necessary everyday work. Wherever there are stones on the surface they are taken and utilized in building fences or walling up ditches. No wet, sprouty land is permitted to exist to offend the eye and lessen the crops. Twenty-five miles of drain have been put down. Muck is hauled from where it has gathered in large deposits through the centuries, to other parts of the land where "it will do the most good."

Some locations are graded and others filled up. The fences are made of locust posts and pine rails, the whole of which are whitewashed once a year. The buildings are not permitted to grow rusty for want of paint, but all wear that freshness which attention in that direction assures, while they embrace convenience for the workers and comforts for the animals. The hogs have cottages for their homes, while the chickens crow and cackle in domiciles that have every provision to secure their comfort and excite their pride. Herds of clean limbed, small-headed, deer-eyed Alderneys chew their cud in delightful rumination in stalls cleaner than some people's houses, with straw up to their knees to rest in when they may choose to indulge in a siesta. There are great boilers to prepare the feed for the animals, and all kinds of farming implements to help on labor. Fields containing seventy or eighty acres are richly set with grass, or show the wheat just sprouting from a soil as smooth as a garden, or are sprinkled with shocks of corn that will husk sixty or seventy bushels to the acre. And how all these things inspire one with an ambition to be a good farmer! How they testify to the possibility for a true and noble enjoyment in a farmer's life!—*Lebanon Courier*.

England's Imports.

So far during the present year, England has imported $115,000,000 worth of wheat from all quarters, being already $25,000,000 more than she imported during the entire year of 1876. It was thought on all hands that the United States would supply her with an increased amount over former years, but, strangely enough, our exports so far are 32,000,000 bushels less than during the same period last year. This fact may be accounted for in several ways. Russia, India and Egypt have all been stimulated by their financial necessities to export unusual quantities of grain, and it is from these countries that the large imports into England have come. Then too the export of our recent abundant crops has just set in, and during the next six months our exportations of grain will be largely increased. Our grain dealers have been holding back in expectation of better prices, but the fact that two weeks ago 700,000 bushels of wheat were sent from the port of New York in a single day, shows that the trade has become fully active, and from this time forward we may expect to hear that the volume of our grain exportations will grow rapidly.

Lancaster County Centennial Cotton.

Mr. Joseph Harper, near Pleasant Hill school, West Donegal township, has growing in his garden half a dozen cotton plants which are attracting much attention from those persons who have never seen cotton except in cotton goods.

Mr. Harper has been an invalid for a number of years, and was therefore unable to attend the Centennial exhibition last summer and see the wonders of the world. So he requested his friend, S. E. Ream, to bring him some cotton seed. The request was fulfilled. He planted the seed and his heart was made glad the other day by several large pods bursting open and showing the soft, snow-white downy substance, somewhat like wool, which they contained. Several of the pods were handed to the teacher of the school, who gave quite an interesting and instructive object lesson on them to his school.

HORTICULTURAL.

A Root Cellar or House.

In building a barn a good large root cellar should be built under it. But where no such cellar exists, one can be made at a small cost. Suppose your barn is near a hill facing the East or the South. It would be very easy to dig out a cellar on the side of the hill, then walling it up, and placing some timbers across the top, upon which place cheap two inch pine, chestnut, or other durable planks to support the earth roof. The door should be thick, and made to shut very tight; and then no frost would enter such a cellar, unless in a very cold climate, where two doors would be necessary. If no such side hill exists near your barn, a root house can be built on level ground. If you can dig down two or three feet, and can drain the house by laying drain pipe so much the better. In this case you go down say two feet, lay your walls and bank four feet outside all around excepting where the door is to go. Put a double pitch roof on it, shingled, and across the plates lay joists to support a floor. In the gable end, over the door, a small door should be made to admit hay or straw to fill the space, well packed. The bank around the building should be sodded up in the Spring; and you will have a root cellar, frost proof, and not unsightly. Such a cellar should be made in summer after haying, as you can spare time.

Pruning Roses.

An exchange says: Roses, to produce large flowers, must be pruned severely every year; hence, the advice given applies to roses of any age, provided that they have been cut back before. Old plants having been allowed their full development, must, however, not be cut back as much as plants that have had an annual shortening in since the beginning, as the cutting back must take place upon wood of the previous year's growth. Old bushes must be dealt with sparingly, the superabundance of old wood reduced, and the young shoots shortened in. Running roses must be pruned upon the spur system, leaving the main branches untouched, but reducing the laterals to two or three eyes each. Spring blooming moss roses should not be pruned back too much in winter; they are best trimmed after the flowers have passed in summer. Tea and China roses, from their peculiar habit, may be pruned less than hybrids, a class which will seldom give flowers showing their full perfection, unless the wood is annually renewed. This severe annual pruning will, however, exhaust the plant after six or eight years, but, in compensation in thus shortening their existence, a much more perfect blooming is secured than could be expected if plants are left unpruned.

To Keep Cabbage.

Though we have seen recommended various modes of preserving cabbage through the winter, and have tried several of them, we continue to pursue the method that we have generally adopted for some twenty years, and which we have frequently described in this department. It is simply to dig slight trenches side by side, on some rising or dry spot whence the water will readily drain off, in which stand the cabbage just as it grows, sinking it up to the head. The rows can be as closely together as the size of the heads will admit of. Cover over with cornfodder, straw or bean-haulm. Then set four posts so as to form a pitch, placing the head against a wall or board-fence. Form a roof by bean-poles, when boards are not at hand, cover this with cornstalks or straw. If ordinarily well done the cabbage will keep as long as is desired, having usually kept ours until April and May. We are aware that it is generally recommended to place the heads of the cabbage in the ground with the stalks sticking up. But having tried this way, we found that the cabbage kept better and fresher as we recommend. To prove this we have had coleslaw in May.—*Germantown Telegraph.*

Of forty-three varieties of apples tested by M. A. Truelle, of the Chemical Society of Paris, the red American rennet was found to contain the largest amount of sugar.

The finest crop of raisins ever produced in California is promised this fall. The grapes are not growing so large as in previous years, owing to dryness, but their quality is better.

House Plant Manure.—Six quarts of soot to a hogshead of water makes a serviceable manure for watering forced plants—as well as for most bulbs, flowering plants and shrubs.—*American Garden.*

The Oidium.—As an antidote for oidium on the grape vine disease, M. Chatal, a French authority, recommends common table salt. He says that his vines and grapes were covered for some years with this substance, and that last spring he sprinkled a handful of salt about the roots of each vine. The effect was marvellous; the vines grew luxuriantly, and bore an abundance of grapes entirely free from the fungus or oidium.

DOMESTIC ECONOMY.

A Cheap Smokehouse.

Dig a narrow pit from twelve to eighteen inches deep, throwing the earth all out of one side. From near the bottom of this pit dig a trench of sufficient length to hold one or two joints of stovepipe, at such an angle as will bring the end away from the pit to the surface of the ground. Over the end of this pipe set a common flour barrel or large cask, as may be needed, and, having removed both heads, bank up around it with loose earth so that no smoke can escape at the bottom. Hang the hams, etc., in it, using some round sticks to run through the strings. Putting a cover on the sticks will leave space enough for draught to let the smoke pass freely. Build a smoke fire of cornecbs, damp, hard wood or sawdust, in the pit, and you will have a cheap, safe and efficient smokehouse with very little trouble.

Sour Bread.

A model housewife suggests the following method of utilizing sour or stale bread. If bread is found to be sour and hard, it need not necessarily be followed by a complete waste of that important table consumption. It can be soaked in sweet or even sour milk over night for griddle cakes and in the morning, by the addition of an egg or two according to the quantity, and with a little flour and soda, made into a palatable change for breakfast; and if the bread is sour a trifle of soda must be put into the cottage pudding for dinner. If the bread be toasted for tea, it must be thoroughly browned—re-cooked, in fact—which destroys much of its acidity, though never quite as good, of course, as bread that was sweet at first.

Worms in Flower Pots.

Many flower lovers are puzzled how to get rid of the detestable worms that will infest the earth in their flower pots. The following is recommended to destroy the pests: "Put one ounce of ammonia into one gallon of warm water, and water the plants with it once a week. They will be free from these worms and be beautiful and green. To kill the little bugs that get on the oleander, take a piece of lime the size of a hen's egg, and dissolve it in about two quarts of water, and wash the stalk and branches of the tree."

Domestic Recipes.

Hyden Salad.—One gallon cabbage, one-half gallon green tomatoes, one-half gallon onions—all chopped fine, four tablespoonfuls salt, two tablespoonfuls ginger, two tablespoonfuls cloves, one tablespoonful cinnamon, two tablespoonfuls mustard, one and one-half pounds brown sugar, plenty of celery seed, one-half gallon strong vinegar; boil the whole one-half hour.

Chocolate Corn Starch.—Pour one pint of boiling milk over one quarter of a pound of grated chocolate; dissolve three tablespoonfuls of cornstarch and three tablespoonfuls condensed eggs into a pint of cold milk, and add, with three tablespoonfuls of powdered sugar, one-half teaspoonful vanilla to the melted chocolate; let boil together one minute, stirring briskly; pour into molds and serve cold.

Home and Farm Apple Pie.—Stew apples and run them through a fine sieve, add one egg; beat apple, egg and sugar together; sweeten to taste; flavor with lemon; make crust as for a tart; bake, and when the pie is cold beat the white of one egg with sugar as for frosting, cover the pie and put in oven to brown, frosting slightly; eat cold. We stake our reputation that it will tickle the palate of all who eat it.

To Clean Hair Brushes. It is best to clean two at a time, in this way. First comb them well, to remove the loose hair or dust, then dip the brushes only in very warm water, sprinkle each brush with plenty of powdered borax and rub the two together; after they are thoroughly cleansed, have a pitcher of hot water and pour it over the brushes; keep the back of the brush as dry as possible; shake the water well out, and dry quickly in the sun. Brushes washed in this way will retain their stiffness.

Oat-Meal Crackers.—One teacupful of oat-meal and enough tepid water to wet and make into dough; mix well and quick; the harder the dough the better; if it will bear to be rolled out with a rolling-pin, begin to roll it, stopping to press the ragged edges with your fingers; keep at it in the same way till it is one-eighth or a quarter of an inch thick; be quick about it or it will get too dry under your hands; make only dough enough at one time for one cracker; do not brown it any in baking; it will be good for months if you put it in your oat-meal barrel and cover it with meal.

To Pickle Martinas.—Take one gallon pot full of martinas. Make a brine strong enough to bear an egg; keep them covered for ten days. Take them out and wash them out in cold water, then put them in cold vinegar. Let them remain for ten days, drain them, and put them in the jar intended for use. In half a gallon of vinegar scald a large handful of horseradish scraped fine. A cupful black pepper, one cupful ginger, one-half cupful black mustard-seed, three tablespoonfuls of beaten cloves, three onions sliced fine, one red pepper, three pounds brown sugar. Pour this over the pickle, and fill with cold vinegar.

Celery Soup.—Six roots of celery, one large turnip, two ounces of onions, four ounces of bread crumbs, one ounce of butter, one dessert spoonful of flour, and half a pint of cream. Strip off all the green part of the celery, using only the white; cut it in shreds, reserving the middle of three of the roots to be added; then grate; slice the turnip and onion, and put them with the celery into a pan; add two quarts of water, the bread crumbs and a little salt; let all boil till the vegetables are perfectly soft; rub through a sieve; return it to the pan; add the celery (previously boiled till quite soft), the butter and flour, well mixed; stir it, seasoning it with a little mace; and, after boiling a quarter of an hour, stir in the cream, and do not allow it to boil afterward.

To Broil Beef-steak.—To broil beef-steak so that it shall retain all the blood have your coals hot; rub them with a little piece of fat cut from the steak. Be sure the drafts of your stove are open and the fire burning clear and bright; then put on the steak and turn over every three seconds. Do not leave it, but keep turning for twenty minutes. Broiling it in this way will take five minutes longer than to stand and cook, but you will be more than repaid for the trouble by the truly delicious meat you will have. Let the platter be warm on which you intend placing it, and put a piece of butter on the dish; put the salt and pepper on it and rub all together. When the steak is cooked place it in the butter and turn it over once or twice. Send to the table at once.

French Way of Cooking Lamb Chops.—Cut a loin of lamb into chops. Remove all the fat, trim them nicely, and see that they are all the same length. Lay them in a deep dish and cover them with salad oil. Let them steep in the oil for an hour. Having drained the chops from the oil, cover them with a mixture of finely grated bread-crumbs, a little minced parsley, seasoned with pepper and salt, and some grated nutmeg; then broil them over a bed of hot coals or a buttered gridiron, or you may bake them a nice brown in a quick oven. Have ready some mashed potatoes heaped high on a hot dish, in the form of a cone or beehive, and place the lamb chops all round it, so that they lean against it with the broad end of each chop downward. Ornament the top of the cone with a handsome rose or a bunch of curled parsley.

LIVE STOCK.

Keeping Stock Clean.

It ought to be the duty of the stockman to see that all cattle that are kept constantly tied up should receive a thorough brushing daily. Stock that are accustomed to have their heads tied get very dirty about the neck and shoulders unless they receive careful "grooming." Cleanliness is very essential for cattle always under cover, not only because disease is thereby prevented from making its inroads, but also because stock thrive better, and reach maturity a great deal quicker, when carefully tended, than when they are not. Cattle kept in hammels or loose boxes do not, perhaps, require so much attention as those whose heads are tied to the stall, as they can with freedom lick themselves, for they should not be neglected on that account; and the careful stock farmer will do well to see that his stockman gives them proper attention.

It frequently happens, however, that cattle do become very dirty about the body—whether from neglect, or a natural predisposition to get dirty, it is unnecessary to consider. In such cases a good remedy is to apply to the affected parts a mixture of fish oil and flour of sulphur, in the proportion of four ounces of sulphur to a quart of oil. This mixture should be vigorously rubbed into the body, and about three days after this has been done the affected parts must receive a good washing with soft soap and warm water. The oil and sulphur may be applied once more in the same manner as before, the mixture being made a little stronger should there be an observable improvement from the first washing. This mixture applied twice generally suffices to effect a complete cure of the ailment.—*Live Stock Journal.*

Hay Tea fot Calves.

The practice common in most of our dairy districts of killing calves when only a few hours old, in order to save the milk which they would require in rearing, is carried to a far greater extent than is either necessary or profitable. We have none too many cows, or beef cattle, and it is a shame to destroy tens of thousands of calves annually which bring nothing to the owner except the few shillings received for the skin. It is certainly possible to raise these calves without giving them fresh, new milk, for with a little skimmed milk, and hay tea they will thrive almost, if not quite, as well as upon the pure lacteal fluid. Fifty years ago, James Stewart Denham, of Scotland, instituted experiments in raising calves with hay tea, taking them from the mother when

three days old, and those experiments were eminently successful. Two pounds of hay were steeped in twenty quarts of water, and then boiled down one-half, and to this was added a quart of skimmed milk. In some instances molasses was added also to give sweetness, and the calves not only thrived upon this diet, but preferred it to fresh milk.—*Moore's Rural New Yorker.*

Care of Stock.

It is absolutely necessary that all animals should be well sheltered from cold and damp. The reason why pigs or other animals do not fatten so readily in cold weather as in the warmer months is, that the food is largely used in keeping up the vital heat, which is now given off in excess and lost. If this loss is prevented animals will fatten now as readily as at any other time. This is a very important time as regards sheep. If not carefully watched they will soon fall off in condition, and this badly injures the wool, causing what it known as "break," which reduces its value to the manufacturer one-half. A healthy condition can be maintained only by preventing crowding and heating in the yards and pens, and furnishing ample ventilation, good food in abundance, and pure water plentifully.

Devons.

That the Devons are a very valuable breed of cattle, will be readily admitted by all experienced stock men. Their beef is of the highest quality, and though they do not ripen so early as the Short Horns, they can be worked until four or five years old, and then put up to fatten. The Short-Horns are an aristocratic breed—work disagrees with them. On the other hand moderate work improves the Devons, giving them better development than they attain in idleness. As working cattle they are unsurpassed; they are also good milkers, yielding milk rich in cream. Though not giving a large quantity of milk, they make up in extra quality. Best of all they are hardy, thriving where a Short-Horn would starve. On these and other grounds their encouragement and multiplication are desirable.

At a recent sale of short-horned cows in England a beast, named "Fifth Duchess of Hillhurst," was sold, amid great applause, for $22,500. She is said to be the highest priced cow in England, and is described as a "charming creature." The largest sum ever paid for a cow is believed to be $26,750 for the "Duchess of Geneva," which was sold at New York Mills, in New York, two or three years ago. Twenty-two thousand five hundred dollars is the next highest sum.

POULTRY.

Cooked Meat for Poultry.

Cook the meat you give your poultry, always. Chop it finely, using a common wooden bowl and household chopping-knife, if you have but a small quantity of meat to prepare; but, if you are keeping poultry on a large scale, substitute for the bowl a tight wooden box of a bushel capacity, and for the chopping instrument, use a common short-handled spade with its blade ground to a keen edge.

Salt the meat as you would for your own eating. Mix it half and half, when fed out, with scalded wheat or cornmeal—and it will serve your purpose much better than if fed in any other way.

The mode too often adopted is to throw raw meat to fowls. This is a bad way, and in the summer season causes illness, frequently. Cooked meat goes further, is more nourishing, and less injurious if over-fed than in the raw state.

For young fowls, very little is needed at a time; and either old or young birds, when kept in confinement, should not be stuffed with this kind of allowance. A large share of their feed should be grains and cooked vegetables. For growing fowls at an age this is the best staple food, when properly varied.—*Poultry World.*

Eggs for Export.

The New York *Evening Post* expresses its surprise that thus far no American speculator, looking about him for something to send out of the country, has turned his attention to eggs. At present the greater part of the eggs imported into Great Britain come from France, Malta and Germany. The safe shipment of large quantities from Malta and their arrival in good condition, disposes of any objection that might be raised on the score of the long journey, as the passage from that port occupies sixteen days, and it is not uncommon for a cargo to be one month old before it reaches its destination. That a demand exists is plain from the facts that in the year 1876 eggs to the value of $2,610,231 were imported into Great Britain, and that the supply from France has decreased considerably during the present year. It is also stated that the American Consul at Liverpool has written to the State Department, at Washington, that the condition of the English poultry market invites exportations from America.

Preparing Poultry for Market.

Fowls and chickens intended for the market should have no food given them for twenty-four hours previous to killing. Food in the crop is is liable to sour, and always injures the sale. Purchasers object to paying for undigested food.

Sticking in the neck is the best method of killing, though many cut the heads off. If the head is cut off the neck bone looks repulsive and the poultry will not sell as readily.

Most of the poultry coming to market is scalded, or wet picked. Dry picked is preferred and sells higher. Be careful to remove all the pin-feathers, and avoid tearing the skin. For packing, use clean hand-threshed rye straw. If this cannot be obtained without some trouble, clean oat straw will answer. Place a layer of straw at the bottom of the box, then one of poultry, packing snugly, backs upward, filling all vacancies with straw so that the cover will draw down snugly on the contents.—*Massachusetts Ploughman.*

Cleaning the Hen House.

If the successful poulterer will look to the under portion of his perches, and as faithfully apply the saturated kerosene-brush to this part of the premises as he does to the top and sides and crevices, once in a while, he will find it profitable for the removal of vermin. Lice brood and breed and live under the roosts in great numbers. In the day time they are thus partially secreted. In the night, when the fowls settle down to their roosts, these millions of parasites crawl up, and nestle themselves comfortably among the bird's soft feathers—where they subsequently stick to their new warm quarters until they are carbolated or sulphured out again.—*Poultry World.*

Poultry as Food.

There is no meat (says a writer in *Country Gentleman*) so cheaply raised and fattened as poultry. Most farmers' families prefer fresh to salted meats, especially during warm weather, and there is none more available everywhere than that of fowls. One fowl makes a meal for a large family, and there is none of it left to be thrown away, or to be salted to prevent its spoiling. The next meal is running around, preserved naturally until needed. A bushel of corn will keep a farmer's fowl in good eating condition for a year. The fowl will lay 100 eggs or over, which will more than pay for the grain given, and the butcher's cart is thus always at the door.

LITERARY AND PERSONAL.

Some time ago, in these columns, we took occasion to notice commendably—after having read the work "through and through"—a volume by Jules Verne, entitled "Twenty Thousand Leagues Under the Sea," to suggest that since folks, both old and young, *would* persist in mainly reading stories and works of fiction, here was a plan to make them the medium through which might be inculcated sound wisdom and knowledge, on science, philosophy, history and morality. But we then did not think that our views would be so soon realized as they have been, in the five volumes of *Science in Story* by Dr. Foote, and recently published by the Murray Hill Publishing Company, 129 East Twenty-eighth street, New York city. This handsome little series, we opine, will fill a vacuum, in that regard, which has heretofore not been supplied, and which cannot be otherwise than productive of great good. We are speaking "from the book" when we say that the interest of this series never flags from first to last, and never ceases to both amuse and instruct, especially in human physiology and comparative anatomy, subjects in which the public have a deep interest, but in which the masses of mankind are so wofully deficient. We are nearly "three-score and ten," and yet we find that "Sammy Tubbs, the Boy Doctor, and Sponsie, the Troublesome Monkey," are as appreciable and edifying to age as they are to youth, and that from them all may learn. The above-named company has just issued the complete series in one volume at the low price of $2.00, and it ought to meet with a liberal patronage everywhere. The work is very copiously illustrated from beginning to end, and the cuts are not only significant and instructive, but also exceedingly amusing. The above-named company has also published Dr. Foote's new and wonderful work, "Plain Home Talk," embracing "Medical Common Sense."

Plain Home Talk.—A new and wonderful work by Dr. Foote, beautifully printed and bound in one volume of nearly 1,000 octavo pages, embellished with two hundred illustrations; by the Murray Hill Publishing Company, No. 129 East 28th street, New York. This is a very comprehensive treatise on the human system—the habits of men and women—the causes and prevention of disease our sexual relations and social natures; embracing medical common sense, applied to the causes, prevention and cure of chronic diseases; the natural relations of men and women to each other—society, love, marriage, parentage, &c., &c. This work is divided into four parts, for the sake of convenience and ready reference. Part I. has *five* chapters, including forty-four different subjects, and their almost endless details. Part II. has twelve chapters, and sixty-five subjects. Part III. has eight chapters and twenty-two subjects. Part IV. has nine chapters and twenty-five subjects. These subjects do not only include "all the ills that flesh and blood is heir to," and their prevention and cure, but also the social and physical relations of the human family, their economical and domestic, as well as their moral relations; their hygienic necessities, and a thousand other matters, which we cannot include in this notice, and which nothing but the possession of the volume itself could illustrate.

Harper's Magazine, for November, 1877, (the concluding number of volume 55) is a most capital number, and fully sustains the world-wide reputation of this excellent, instructing and civilizing journal. It is questionable whether there is a *cheaper* magazine published in the world. Look at the figures. Here is a royal 8vo. magazine, of superb letter press and paper, at $4.00 a year, making two volumes of about 1,000 pages each, exclusive of title pages and analytical indexes, and of unexceptionable literary merit. The articles—"Ten Years' Acquaintance with Alaska," and twenty spirited illustrations; "Robert Houdan," and seventeen illustrations; "San Antonio de Bexar," and the same number of illustrations; "Madelena," with three; "Yachting in Blue Waters," with six; and "Back to Back," with one—making in all sixty-four illustrations in a single number—of themselves constitute a feature that is seldom if ever excelled by any other magazine in the country. Its reputation is already so thoroughly established, that we feel that our feeble pen can add very little to it.

Consumption Cured.—An old physician, retired from practice, having had placed in his hands by an East India missionary the formula of a simple vegetable remedy, for the speedy and permanent cure of consumption, bronchitis, catarrh, asthma, and all throat and lung affections, also a positive and radical cure for nervous debility and all nervous complaints, after having tested its wonderful curative powers in thousands of cases, has felt it his duty to make it known to his suffering fellows. Actuated by this motive, and a desire to relieve human suffering, I will send, free of charge, to all who desire it, this recipe in German, French or English, with full directions for preparing and using. Sent by mail by addressing with stamp, naming this paper, W. W. Sherar, 126 Powers' Block, Rochester, N. Y.

We call the attention of our readers to the alteration in the advertisement of the Mendelssohn Piano Company, No. 56 Broadway, N. Y. This company has been making still further efforts to meet the wants of the times, in making a Piano which is offered for sale at the very low price of $200. This Piano contains Mathushek's New Patent Duplex Overstrung Scale, which is, unquestionably, the greatest improvement ever put into a Square Piano. The company confidently believes this is the best bargain ever offered the public for a reliable, durable and fine-toned instrument. We wou'd recommend any of our readers who have any idea of every buying a piano to send for their Illustrated and Descriptive Catalogue, which will be mailed free to all.

A Farmer's Fortune.—The place to learn how it may be obtained is in the great *American Stock Journal*, a large 24 page monthly, one of the cheapest and best farm magazines in the country. Tells about farming and stock raising in all its branches. No farmer's family should be without it, as it will save many times its cost. Hard times and a desire to place it in the hands of all, lead us to make the liberal offer of sending it three months on trial for Two Dimes. Liberal premiums, specimen copy and show bills *free* to all who will use them. All who subscribe before January 1st, 1878, get the October, November and December numbers free. Address Potts Brothers, Parkesburg, Chester county, Pa.

Department of Agriculture.—Special report, No. 2, upon the condition of the crops of the United States; also, a statement of the international wheat supply, and our wheat exports, together with foreign crops and prices, 1877. An octavo pamphlet of 35 pages.

Gardener's Monthly, American Farmer, American Agriculturist, National Stock Journal, Wallace's Monthly, Farm Journal, Journal of Forestry, Prairie Farmer, Coleman's Rural World, and others, for November, received.

The silverware delivered by the National Silver-Palting Co., No. 704 Chestnut street, Philadelphia, is giving entire satisfaction. All orders are promptly filled, and no one need hesitate about sending them money.—*Lutheran Observer.*

L. B. Case's Botanical Index, to the new, rare and beautiful plants. Grown and for sale at his Commercial Green House, Richmond, Indiana.

Kellog's newspaper lists, for 1877-78, No. 224 Walnut street, St. Louis, Mo.

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Prof. S. S. RATHVON, Editor. LANCASTER, DECEMBER 15, 1877. LINNÆUS RATHVON, Publisher.

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THE FARMERS HOME ORGAN.

The Lancaster Farmer;

A MONTHLY NEWSPAPER,

DEVOTED TO AGRICULTURE, HORTICULTURE, DOMESTIC ECONOMY AND MISCELLANY.

PRACTICAL ENTOMOLOGY

Made a prominent feature, with special reference to the wants of the Farmer, the Gardener and Fruit-Grower.

Founded under the auspices of the Lancaster County Agricultural and Horticultural Society.

Edited by Prof. S. S. RATHVON.

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Col. Accommodation,.. ...	7:20 p. m.	Col. 8:00 p. m.
Mail train via Mt. Joy.....	11:20 a. m.	1:00 p. m.
No. 2 via Columbia.....	11:20 a. m.	1:25 p. m.
Sunday Mail.....	11:20 a. m.	1:30 p. m.
Fast Line*, ...	2:10 p. m.	3:25 p. m.
Frederick Accommodation.	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom.....	6:00 p. m.	8:10 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:00 p. m.
Harrisburg Express	7:25 p. m.	8:40 p. m.
Pittsburg Express.....	9:25 p. m.	10:50 p. m.
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Harrisburg Express.....	7:35 a. m.	10:00 a. m.
Columbia Accommodation..	9.28 p. m.	12:30 p. m.
Pacific Express*.....	1:20 p. m.	3:45 p. m.
Sunday Mail.....	2:00 p. m.	5:00 p. m.
Johnstown Express.....	3:05 p. m.	6:00 p. m.
Day Express*.....	5:18 p. m.	7:20 p. m.
Harrisburg Accom.....	5:50 p. m.	9:00 p. m.

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The Pacific Express, east, on Sunday, when flagged, will stop at Middletown, Ebzabethtown, Mount Joy and Landisville.

*The only trains which run daily.

†Runs daily, except Monday.

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6 mo.....	4.50	9.00	13.50	18.00	27.00	36.00
8 mo.....	6.00	12.00	18.00	24.00	36.00	48.00
1 year.....	9.00	18.00	27.00	36.00	54.00	72 00

☞ Special and business notices 15 cents per line.

The Lancaster Farmer.

Prof. S. S. RATHVON, Editor. LANCASTER, PA., DECEMBER, 1877. Vol. IX. No. 11.

TO OUR PATRONS.

This number of our journal concludes the NINTH volume of THE LANCASTER FARMER, and before we greet you again, you will have participated in the festivities of the most festal occasion of the whole year—an occasion that commemorates the epoch of "Peace upon earth, goodwill towards men." Whilst thousands have cause to deplore and lament the adverse condition of the times—the shrinkage of assets, and the expansion of liabilities—the farming public, generally, have been blessed with reasonably abundant crops, tolerably remunerating prices, and comparatively good health; and, it is hoped, also, with a corresponding share of happiness, illustrating that although they may have been over-reached or forestalled by an unappreciating humanity, they have been none the less under the protecting care of an over-ruling Divinity—that "Divinity which shapes our ends, rough hew them as we will." Since our last Christmas greeting we have been pressed through another adventitious year; comparatively, only a mere grain of sand in the great mound of being—mounds and grains, the largest mass and numbers of which are at the base, and of the few who can, for a time, occupy the apex, every passing day one or more is toppling over and rolling to the bottom, and is socially and financially lost in oblivion. Through another year we have feebly but faithfully catered for you to the best of our ability, which, if nothing more tangible should result, we hope it may ultimate in that wealth which can only be "laid up where moth and rust doth not corrupt, nor thieves break through and steal." But to begin a new year more auspiciously than those that have passed, we need your further and increased aid—we need additional facilities in order to place THE FARMER on such a footing as will enable it to meet the public expectation. And as the season is approaching when all the Christian world is "given to giving," may we not cherish the hope that we will be remembered? We ask nothing gratuitous and nothing for self. We only ask for continued permission to work, and a compensating realization of the divine maxim that "the laborer is worthy of his hire;" but realizing this or not, we wish you all *a very merry Christmas.*

CLUBBING.

Below we append our club rates for 1878, and we appeal to our friends, and the friends of agricultural progress, to use their influence in getting up clubs for the coming year. In addition to these rates for small numbers, when the club amounts to 20, 25 or 30, we will make a deduction of 30 per cent. on our regular subscription prices. Now is the time to act in the matter, and we hope that our friends will enter upon a vigorous canvass in behalf of THE FARMER. Please also notice our PREMIUM LIST in another column.

REDUCED RATES TO CLUBS

To subscribers residing within the county:

One copy, one year,	$1.00
Six copies, one year,	5.00
Ten copies, one year,	7.50

To subscribers outside of Lancaster county:

One copy, one year,	$1.25
Five copies, one year,	5.00
Ten copies, one year,	9.00

All subscriptions will commence with the January number unless otherwise ordered.

PENNSYLVANIA FRUIT-GROWERS' SOCIETY.

This veteran association will meet in Williamsport, Lycoming county, on the third Wednesday of January next, and we understand the officers are using more than ordinary exertions to make it an unusually interesting occasion. The standing committees are also at work, and if the event is not a success, it will not be because the officers and members have not endeavored to keep up its well-earned reputation as an efficient instrument for the diffusion of practical horticultural information throughout Pennsylvania and adjacent States. Visitors and delegates from other societies have always been welcomely received; and the society desires to extend even a more hearty welcome on this occasion. Those attending should, if possible, exhibit specimens of their best fruit.

SPECIAL PREMIUMS FOR 1878.

Club Rates—No. 1.

To any one, within the county of Lancaster, sending us a club of *five* new subscribers, accompanied by *four dollars*, we will send *five* copies of THE FARMER, to any address, for one year, from the first of January next, and *two* copies of "Jenkins' Art of Propagation," a beautiful octavo of 32 pages, and 25 fine embellishments, which sells readily at 50 cents per copy. To any one out of the county, for *five* dollars, *five* copies and *two* books.

No. 2.

For *six* subscribers, accompanied by *five* dollars, we will send *six* copies of THE FARMER, as above, and one copy of the "Life of Charles Dickens," by Mrs. Hanaford, or "Driven to Sea," by Mrs. Coupples, or "The Presidents and their Administrations," or "The Declaration of Independence." These are royal 12 mo. volumes of about 400 pages, handsomely illustrated, and sell for $1.50.

No. 3.

For *ten* subscribers, and *ten* dollars, *ten* copies, as above, and one box of "Kunkle's Celebrated Perfumes." These boxes contain six bottles of perfume, the regular retail price of which is one dollar per bottle, or "The Century of Independence," price $2.50—very desirable premiums for local lady canvassers.

No. 4.

For *fifteen* subscribers, and fifteen dollars, we will send *sixteen* copies of THE FARMER and a $10.00 order on Peter Henderson, good for *twenty-four choice flowering green-house plants, twenty packages of flower seeds, and twenty packages of vegetable seeds. Peter Henderson is known all over the Union*, and therefore nothing need be said about the quality of his goods.

No. 5.

For *twenty* subscribers, and *eighteen* dollars, *twenty* copies of THE FARMER, and *one* copy of "Science in Story," consisting of a series of *five* illustrated square 12 mo. volumes of 232 pages each (1160 pages). Please see our literary columns for a more full description of this desirable series.

No. 6.

For *twenty-five* subscribers, and *twenty-four* dollars, *twenty-five* copies of THE FARMER and one of "Peck's Celebrated Atomizers," worth $10.00 at least. This is the best machine ever invented for throwing liquid solutions and decoctions on insect-infested plants. For an illustrated description of this machine see the May (1876) number of THE FARMER, page 69.

To clubs made up beyond the borders of Lancaster county the cash amount required will be greater, proportioned to the difference in published terms, as to home and foreign subscriptions. Our canvassers can make these calculations upon the basis of our first proposition.

We are making arrangements for additional inducements to subscribers, which, if accomplished, will be announced in our December number. We also intend to increase our number of desirable illustrations for 1878, and add other embellishments, as fast as our means will allow, and we respectfully ask the public to help us make THE LANCASTER FARMER a credit to the "great county," and the people among whom it is located. Our tenth volume should be the crowning volume of the series—so we desire.

AN ADMIRABLE SCHOOL-BOOK.

The admonition "Get the Best." applies with remarkable force to school text-books. As no good farmer buys an inferior horse or implement when he knows a better may be had for the same cost; as no wide-awake mechanic is content to work with poor tools when he is aware he can do much more and better execution with good ones; so the youthful mind should not be confronted with obstacles and embarrassments in school, which may be readily avoided by the selection of proper manuals of instruction.

Many of the schools of the State have labored under the impediment of a poor text-book of history, and it is time to find a remedy. We have examined with pleasure and instruction a new work by Prof. J. C. Ridpath, which is a clear and concise history of the country, in terse, impressive narrative, with elegant maps, chronological charts, instructive diagrams, apt illustrations, and a degree of freshness and vivacity which are peculiarly attractive. It is being rapidly introduced in all progressive communities, and as a change would benefit the schools of our own locality, we trust those who feel an interest in the subject—who does not?—will not fail to examine this most worthy and admirable candidate for adoption. See our literary notices at the end of this number.

COCKEYSVILLE, BALTIMORE COUNTY, Md., December 8, 1877.

LANCASTER FARMER—*Dear Sir:* I perceive in your November number, an article on Improvement in Wheat Culture. Could you inform me if Mr. Groff makes an attachment to drills, old style, or is it an entire new drill? I have a Bickford & Hoffman, and if it could be applied to it, might order. Do you know his price? If you cannot give me the information can you give me his address?

Please put down my name as a subscriber to THE FARMER for 1878. Yours truly,

JOHN I. WIGHT.

[For the information of our correspondent, as well as for the information of all interested in "Mr. Groff's Wheat Cultivator," we desire to say that it *can* be applied to any grain drill of whatsoever kind. Those who desire details, which we cannot give, will do well to address Mr. A. B. Groff, at Bareville, Lancaster county, Pa., and solicit a circular.—ED.]

THE CELEBRATED ARABIAN HORSE JENIFER.

His Offspring in Lancaster County.

During the past month Colin Cameron, of Elizabeth Farms, this county, sold to W. C. Myers, of the State of Oregon, a yearly stallion colt, for $1,000, and a two year old Percheron filly, for the same sum. These figures look large, but are no more than we expected from the foals of the horse. The stallion colt is the produce of a Percheron mare and "The Jenifer Arabian." The filly is a pure bred Percheron and in foal by the Arabian. This Arabian is the beautiful white horse often seen on our streets and before mentioned in these columns. He is now owned in the county, and we have often wondered why our farmers are so slow to avail themselves of the opportunity to raise the most valuable horses in the world for all purposes. The only fault any one has ever been able to conjure against this symmetrical horse is, that

"he is small." This stallion colt weighed as a yearling, 750 pounds—certainly heavy enough for all purposes; but with the weight of a draft animal he combines the suppleness of the Arab. Every colt of his in this section is remarkable, and is held at high figures; there can be no better testimonial of the value of any animal than this. We expect to have an exact likeness of him some time during the coming year, also an extended history.

REMINDERS FOR DECEMBER.

Attend to the celery that has been stored away in trenches for winter use; cover it little by little. Protect spinach, onions, shallots, kale, &c., that were sown in September, and cover rhubarb, sea-kale, asparagus, artichokes, &c., with five or six inches thickness of long, coarse manure. Store away pea-brush, and other materials of the kind, from the weather. Commence to collect manure and to prepare compost heaps. Give air to the cold frames on sunny days.—*Dick's Gardener.* All the foregoing relate, mainly, to self—the comfort of self—the profit of self—and all are perfectly legitimate and proper. We are also reminded that during this month occurs the anniversary of that memorable event which inculcated an abrogation of self, and a thought upon the condition and necessities of others. Therefore, examine the little colored labels on your newspapers and magazines, and hasten to have the figures changed to 1878 or 1879, if it is otherwise upon them.—*Nobis.*

MR. KURTZ'S PUMPKIN.

Taking for granted the weight and measurement of the *pumpkin* exhibited by Mr. Henry Kurtz, at the last stated meeting of the Lancaster County Agricultural and Horticultural Society, and which he donated to the conductors of THE LANCASTER FARMER, we here adduce the results of our practical discussion of that gigantic subject of "Pumpkingdom." According to Mr. Kurtz's statement it weighed 132 pounds and measured 81½ inches in circumference; and our further measurement demonstrated that it was about 27 inches in its transverse diameter, and about 20 inches in its vertical diamter. The internal cavity was large, the walls not averaging more than about four inches in thickness. There was no central axis, the placenta, in three lobes, adhering closely to the sides, containing 644 seeds, 620 of which appeared to be fertile, and 24 abortive or immature. The seeds are one inch in length and half an inch in width. The rind is very thin, the color inside a rich orange, the texture tender and slightly granular; and last, not least, the edible quality is superior, as those who were partakers of it unanimously attest. Indeed some members of my family, who heretofore manifested no particular liking for either pumpkins or squashes, showed a decided partiality for this subject. Being so large, I expected to find it strong, coarse and stringy, but, except being somewhat fibrous on the inner side, to my agreeable disappointment it proved quite otherwise. It cooks as readily as a ripe smokehouse apple, has no bitterness about it, and contains sufficient saccharine matter in its composition to make it palatable. Indeed, it excels any of the varieties we obtained in our market during this and the past seasons, and may be regarded in fact as well as in name, a "butter pumpkin." I had intended to add some apples and convert it into butter, but my family liked it so well in sauce and in custards that it melted away in that form before we were aware of it. Mr. Kurtz's proposition was that I should offer the seeds at three for twenty-five cents, for the benefit of THE FARMER, but as I have learned, from experience, that all the seeds of this kind of fruit do not germinate I have made the number six; but I do not hold myself responsible for the germination of any of them, nor will I insure them true to their variety: for there seems to be more inconstancy to species and variety in the CUCURBITACEÆ than there is in almost any other family of plants; and through this disposition to hybridize we are indebted for the many varieties we now have; and also for the difficulty of their systematic classification. This subject is probably an improved variety of Philip Miller's *Pepo rotundus* or modern botanists *Cucurbita pepo.* But I confess that I am unable to state, with any degree of certainty, from what particular species it has been derived. In conclusion I beg leave to say, that offering these seeds, under the proposition of Mr. Kurtz, is of no pecuniary benefit to me, but it *may* be of some benefit to the publisher of THE FARMER; for all who have any experience in the publishing business know how difficult it is to collect a clear subscription list; and, as our journal is being run without any margin for losses, this may be the means of contributing a little extra assistance by the friends of the paper, and which it greatly needs.—*R.*

NATIONAL BEE-KEEPERS' ASSOCIATION.

The following, from such an intelligent body of men as constitute the above-named organization, will no doubt be read with interest by those of our patrons who have sufficient bee-keeping proclivities to engage in the art and science of apiculture.

Facts for the Public.

The National Bee-Keepers' Convention, in session at New York, Oct. 16th to 19th, 1877, aware of the general lack of information concerning improved methods of apiculture and its products, respectfully submit the following statement of facts for general information concerning a large source of personal and national revenue in preserving the honey which God has caused to flow so abundantly in the vast and varied flora of our country:

1. It is now only a few years since the invention of *movable comb hives* has opened up a new era in bee-keeping, and placed it on the basis of a successful business pursuit. Such hives, adapted to climate, furnish every facility for intelligent management of bees by regulating swarming, guarding against moths, and manipulating both bees and comb.

2. The inventors of the *extractor* or honey slinger, a machine which empties the honey from the combs by centrifugal force, without injury, so that the combs may be returned to the bees, marks another great step in apiculture. Thus virgin honey, free from foreign admixture is obtained, having the flavor of the flower from which it is drawn.

3. The further invention of artificial comb foundation, made of pure wax, first successfully used to a large extent this season, completes the requisites for placing bee-keeping on the basis of a great industry in our country. Bees receive this artificial comb foundation with readiness as receptacles both for honey and brood.

4. Simultaneous with the first and all of these improvements, the introduction of Italian bees and improved modes of rearing queens, of transporting and introducing them to colonies, has greatly improved the value of the honey gatherers, both because of the superiority of the Italian bee and the introduction of new blood. New blood prevents the danger from in-and-in breeding.

5. The great drawback to apiculture is the *sting* of the bee. Danger from this source is now largely overcome by the simple appliances used for the protection of the Person and for subduing the bees. The most vicious colony may be subdued in a very few minutes.

6. To consumers of honey, a few facts are necessary in this article to prevent them from imposition. Nice white comb speaks for itself and is generally admired, but the price many lovers of honey cannot afford. It makes a beautiful dish for the table, but is no better than *extracted* honey. All comb is wax, and wax in the stomach is perfectly indigestible. Extracted honey is the pure liquid honey as it is taken from the combs by the honey slinger, free from any foreign admixture. It is entirely different from what is known in this market as *strained* honey. Consumers help to impose upon themselves by the false idea that pure honey will not granulate. They desire ungranulated honey, and dealers will attempt to supply the demand. Almost all pure honey will granulate when exposed for some time to light and cold. The granulated state is a fine evidence of pure honey. Much of the jar honey heretofore sold in the markets, and recommended not to granulate, is a very inferior artice, composed largely of glucose or some inferior substance. Granulated honey can be reduced to its liquid state in a few moments by placing the jar in warm water. When thus liquified it so remains for some time before crystallizing. Consumers may be sure of a good wholesome article by purchasing granulated honey and reducing it.

7. To producers. By full use of improvements in bee-keeping, the honey crop of America may be almost indefinitely increased and become a great source of national revenue. None need fear over-production. The home demand and consumption is largely increased whenever people learn to know the superiority of such honey. Dealers in New York have already commenced a large export trade, and they tell us that their only difficulty is in procuring honey in proper shape and quantity to supply the growing demand. Trade demands that they be put in nice, attractive packages, and in small parcels or jars so as to be readily handled by grocers and consumers. Honey was for centuries the principal sweet known, and is one of the most healthful of all. Improvement in refining sugars have within the last two or three centuries led to its general adoption. Why may not also new improvements in apiculture restore it to its true place as a general favorite which was lost by bad management and the consequent corresponding limited supply?

We belive that improvements in bee-keeping as compared with old methods are not less than those seen in railroads and steamboats as compared with former modes of travel.

For mutual information we would advise the organization of local societies and conventions to further this business among all interested in apiculture.

J. H. NELLIS, *Pres't.*
THOS. G. NEWMAN, *Sec'y.*

MORE ABOUT BEES.

YOUNGSVILLE, Pa., Dec. 5th, 1877.

MR. J. B. ESHLEMAN.—*Esteemed Friend:* Yours of 1st inst. is received. It would seem from the article cut from the *New Era* and the note of the editor, that there must have been quite a controversy in your county relative to bees and their supposed depredations. Let me assure you that the charges made against bees destroying fruit of any kind, is without foundation in fact. If the columns of the *New Era* were open to the discussion of the subject, I would undertake to defend the character of our busy workers. But from the note at the bottom of the article you sent me, I infer such is not the case. It is a fact disputed by no one, that in times of great scarcity of honey, bees will sip the juices of all kinds of fruit, when bruised or the skin broken; but it is quite as much to be deplored by the bee keeper as the fruit grower, from the fact that such material is not the natural food of the bee, and when stored in the combs is sure to produce trouble the following winter. There are some people here foolish enough to think that bees are injurious to the buckwheat crop, by taking the honey from the blossoms. Truly, bees are a persecuted race. They have to fight their way through a world of insects that are no benefit to the human family, buffet the rigors of our Northern winters, stand their chances through pelting storms and parching drouths, and yet through all this yield a bountiful harvest of the choicest sweet for the use of man.

I have 153 colonies in winter quarters in the best possible shape. Accept thanks for the articles sent. Glad to hear from you at any time.—*Very respectfully yours,* W. *J. Davis.*

[The above parties are men of intelligence, close observation and unquestionable integrity, and we cheerfully give them a hearing on this much agitated question at this time.—ED.]

BARK-LICE.*

What is the Best Method of Destroying Bark-lice on Fruit Trees.

This question was propounded at the last meeting of this society, and referred to me for answer; and, to answer it fully and unqualifiedly, would seem to involve the implication that I *know* "the *best* method;" an assumption which I by no means make. Therefore, my answer must necessarily involve only what I may know upon the subject, either from personal experience, inductive reasoning, or gleanings from the experimental knowledge of others. The first factor involved in the question, although not the *first* in the order of sequence, yet absolutely so in consequence, is, what are *bark-lice?* The term *lice* or *louse*, in the popular sense, covers a very large number of small parasitic or infestatious animals, which are not all included

*Read before the Lancaster County Agricultural and Horticultural Society by Prof. S. S. Rathvon.

in the class INSECTA, but all are objects of more or less concern, to either the animal or the vegetable world. The first, the simplest, and the most general division of the insect world that can be made, is to divide it into two great sub-classes, namely: the masticating, or chewing insects, and the sucking, or drinking, insects; technically named *Mandibulated* and *Haustellated*. To the latter all the various kinds of lice belong, because they subsist by sucking animal blood, or vegetable sap. *Bark-lice*, in a general sense, are those that infest vegetation, and in a particular sense, those that infest the bark of *trees*, as contradistinguished from those that infest *succulent* vegetation—or plants, and hence called *plant-lice*.

Bark-lice belong to the order HOMOPTERA. This term is a Greek compound, from *omos* the same, and *pteron* a wing; because of the homogeneity, or sameness, of their upper and lower wings. They are among the most degraded of the order to which they belong, nevertheless the males have wings, and one species at least, is extensively cultivated on the Cactus plants of Mexico, and produces that brilliant crimson or scarlet dye, known as "Cochineal." The two most pernicious and widespread species which infest the fruit trees of this country, are what are commonly called, the "oyster-shell bark-louse," and "Harris' bark-louse." The former is the *Aspidiotus conchiformis* of entomologists, because the scale or scab which invests the insect, has the form of a minute oyster-shell. They are also sometimes called the "scale-insect," or "scab-louse." The latter species is the *Aspidiotus Harrisii* because first discovered by Dr. Harris of Massachusetts. The former is a foreign insect, which has been introduced into this country from Europe; and, like foreign importations generally, it is the worst of the two; infesting not only the apple tree, but also the pear, the cherry, the quince, the apricot, the crab, the plum, the currant, the gooseberry and the rose. The latter is a native of our own country, and is not so injurious as the former, being mainly found on the apple, the pear, and mountain-ash. There are many other species, which occur on the pine, the orange, the maple, the grape, the birch, the walnut, the hickory and other trees. The notorious *phylloxera*, which is devastating the vineyards of Europe, and especially of France, is a grape-root bark or gall-louse; and as the Government, and the Academy of Natural Sciences of that country have, for the past three years, offered a reward of 100,000 francs for a remedy to destroy it, which has not yet been claimed, we may have some apprehension of the difficulties we may encounter in attempting to overcome these pests. The particular species I am considering, however, are more accessible, inasmuch as they confine their operations to the lesser branches and twigs of trees, unless the trees are young; for they must have a smooth and tender surface, where the sap flows within the length of their beaks. The mode of circumventing them is simple and certain, if men will take the trouble to apply it, and apply it at the proper time. Perhaps I should have said, there are several remedies, and a remedy that is effectual at one period may be ineffectual at another. In order to apply a remedy with effect, we ought to know something about the economies and habits of the insects we propose to destroy, else we may only be contending with the shadow of the subject instead of the substance; and even *then* we are liable to failure from our inefficiency, or from causes that are wholly unknown to us. Therefore, when we succeed or fail in the application of a remedy, we should make a careful record, not only of the subject and the mode of application, but also of the *time*.

The month of June—in some species earlier and in others later—is the great period of insect transmutation in this latitude, for, during that period, most of the species that hibernate in the *pupal* state, come forth from their long winter sleep, and scatter themselves abroad; and this is particularly the case with those that feed upon the sap or the foliage of vegetation, in whatever form they may pass the winter season. *Plant-lice* and *bark-lice* usually pass that period in the egg-state, from which their young are hatched as soon as their normal food is provided by bounteous nature, and the necessary heat to stimulate incubation supervenes. I cannot positively say on what day of June you may find the young bark-lice traveling on the trees, for this period may be accelerated or retarded by the temperature of the weather; but that is the most proper time to apply a remedy. The young are very small, but their presence can be detected by the aid of a common magnifier. Dilutions of carbolic and crysilic acid, or solutions of common or whale-oil soap, and decoctions of tobacco, have been recommended by the highest authorities, and I have no doubt that syringing the trees with these fluids would be effectual; for, if even a heavy rain should occur when they come forth from the eggs, millions of them will then be washed down and be destroyed. "PECK'S ATOMIZER" I would consider an excellent instrument to throw any liquid in the form of spray, on trees, shrubs and plants; but if the branches could, at the same time, receive the manipulations of a stiff brush, it would facilitate the good effects of the application. In using a stiff brush, however, there is a liability of rubbing off the leaf or flower buds, except on the naked trunks and larger branches, and I merely mention it here, because it has been recommended by the Entomologist in Chief at Washington.*

The late Mr. Walsh, of Rock Island, Ill., tested all the known remedies for bark-lice, and found nothing so effectual as *oil*. This can be applied early in the spring, during warm days, before the leaf or flower buds are swollen. A good instrument for its application is a common paint brush. Before the eggs are hatched, and whilst they are covered by the scales, no liquid of any kind—except such as might injure the trees—will have much effect upon them; for these scales are impervious to liquids generally, else there would be no protection to the eggs during the colds, rains and snows of a long winter. Oil has, however, a different effect upon them. It does not evaporate so rapidly as other liquids, and it penetrates and loosens the scales, and subsequent showers of rains wash them off, and leave the trees and branches clean. I have applied oil on several occasions with entire success, and I have recommended it to others, who have been equally successful. Of course, it would involve a great deal of labor and trouble on large trees, and where a whole orchard was infested with these injurious pests.

If the question should be asked, "What kind of oil?" I should feel compelled to answer it with some qualification. When I stated in the columns of THE FARMER, about a year ago, that I would not recommend linseed oil, I received communications from two citizens of the county, stating that they had applied this oil with entire success; but I recently saw a statement in one of our daily papers to the effect that the writer had used linseed oil and injured, if he did not entirely kill, his trees. I used lard oil, and on one occasion I used a piece of the skin and fat at the lower end of a boiled ham—what the Germans call a "speck-schward"—with good effect. One of my correspondents used "neatsfoot oil" with entire success. Sweet oil, I believe, would be equally good; but this would, perhaps, be two expensive, unless it was rancid or of inferior quality. I, however, would not recommend camphene, petroleum, paraffine or coal oil.

The reasons for my opinion adverse to linseed oil are, because it dries up more rapidly than other simple oils; it coagulates and leaves an insoluble film or coating on the branches, and when it penetrates the pores and hardens therein, it must be injurious; for this reason, also, I would not apply any kind of oil late in the season, when the pores are more open, and vegetable respiration is more active than it is during winter and early spring. There is a time and a season for everything, and success in any direction depends on striking these times and seasons. Perhaps, before I close, I ought to mention that within one week—sometimes within three or four days—after the young bark-lice come from the eggs, they scatter over the branches out to their remotest and tenderest ends, and there they sink their beaks into the twigs, and divest themselves of their antenna, feet, and caudal appendages, and become degraded into a "scale" or "scab," and immediately commence pumping the sap out of said twigs, to their great depletion and consequent injury. This, at least, is the case with the females. The males assume wings, fertilize the females and then fly away and perish, if they do not perish on the spot. After the females deposit their eggs they also perish, but their dry and shriveled bodies remain attached to the shell-like covering with which they have invested their eggs. If you take the back of a knife, or your thumb-nail, and draw them over the small, white scales of these insects, the "Harris louse" will produce a red, blood-like streak, but the "oyster shell louse" will produce a yellowish or whitish streak. There are from a dozen to two hundred eggs under one scale, it is said, and I have myself counted twenty-five or thirty. On my premises I have never found the oyster shell bark-louse, but Harris' bark-louse I have had very abundantly, and I am inclined to think that this is the most abundant species we have in Lancaster county.

Now, all this may seem too complicated, and may involve more labor, thought and expense than you are willing to bestow upon a subject of such apparent insignificance. Well, if so, the fault is not mine. It belongs to that inexorable logic of creation through which material development can only be attained by human labor.

The Almighty did not cause hats, and coats, and boots, to grow on trees, that we might possess them when we needed them, by merely plucking them. He did not cause plows, and threshers, and gold dollars to spring up from the ground, spontaneously, that we might appropriate them without personal effort. He gives us seed time and harvest; genial sunshine and refreshing rains; summer's activity and winter's repose. He creates the material elements, the physical laws, and the intellectual forces which combine and guide these, but all else is the work of human hands. We hence conclude that "necessity is not only the mother of invention," but that it is also, fundamentally, the stimulant of all human progress, and without it man would relapse into barbarism. Our children and our children's children may become more deeply impressed with this fact than we are. Our forefathers, while the soil was virgin, the forests dense, and the population sparse, had little concern about these things, whatever other hardships they may have had, but a great change has overcome the spirit of our dreams and we must adapt ourselves to the economies of that change.

*Whitewashing with lime has been strongly recommended by some. For a discussion on the subject, *pro* and *con*, please refer to the present volume of the FARMER, May number, pp. 66-7.

FROM NORTH CAROLINA.

SALISBURY, N. C., Nov. 26, 1877.

EDITOR LANCASTER FARMER: *Dear Sir:* Farmers in this county, as a general thing, have been well rewarded for their labor, in return of wheat, oats, corn, cotton, tobacco, Irish and sweet potatoes, &c., &c. There was also an abundant crop of apples, peaches, plums, prunes, grapes, so that there is plenty to eat, drink and wear. Our farmers are much behind in sowing wheat, gathering corn and cotton. This is in part owing to the fact that many devoted much time to making sorghum molasses, when perhaps it would have proved, in the end, more remunerative to have sown wheat, and housed their corn and

cotton ready for market. Lately we have had much rain fall here, so that planters cannot plow and get their land in order to put seed in the ground; perhaps it will be well in the end; at least we shall take things as we find them, and not as we want them. Inasmuch as we did not create heaven and earth, we shall not find fault with providential occurrences of whatever tendency they may have upon us. Individually, *readers here* of THE FARMER, say it is the best agricultural paper they have ever read. Long and prosperous, may it live, and to a remunerative end, is our wish. We will say and do all we can for its welfare.—*Yours truly, M. R.*

FOR THE LANCASTER FARMER.

AROUND THE FARM. NO. 4.

Last week was general repair week with us. Every crack and crevice in the barn was carefully stopped up with boards and mortar. Some farmers have an idea that it don't cost anything to have stock shivering during the night, and it don't pay to close cracks; stock must have ventilation! And they say Western cattle have no shelter at all, and they have cattle, (even if they do freeze off their horns and ears)!

All very true; but could they not raise better and cheaper cattle if they would shelter them? Be assured the chop you feed creeps out at the crevices the first cold night and you wonder why your cattle do not take on fat rapidly. It doubly pays to provide a warm place for the stock during the winter. But it should not be warm at the expense of ventilation, the fowl air must be allowed to escape. I ordered sash the size of the upper section of the stable door to let sunlight in and keep cold draughts of air out when the northwestern storms commence to blow, and I think my horses will appreciate it.

Turnips for Milch Cows.

Some time ago a man complained that turnips gave a bad flavor to the butter. Our experience is different. Perhaps it is owing to the small quantity we give them. We cut fine and give about ½ peck, mixed with a few handsful of chop to each cow, and have not noticed the flavor in the butter. In one of my farm journals I noticed that turnips ought to be cut in the morning for evening feeding, so that the flavor would evaporate, and I am convinced by experience that it is a good plan.

I am afraid we are too much absorbed with tobacco and neglect to provide sufficient succulent food in the shape of roots. I think we ought to plant at least an acre in roots for every fifty acres in the farm, for few things are more appreciated by cattle during the long winter.—*Ruralist, Creswell, Pa., Dec. 3d*, 1877.

FOR THE LANCASTER FARMER.

GRAPES AND BEES.

EDITOR OF LANCASTER FARMER—*Dear Sir:* A few weeks ago I gave a statement through *The New Era*, and which you have now transferred to THE FARMER, with some half a dozen articles in opposition to my statement of *facts* "that bees *cut the skins of grapes*, and that they destroyed nearly all of my crop."

Now, with your permission, and in justice to myself, allow me to examine, or criticise, if you please, the various contradictory statements of these writers. Ain't some of them *theorists?*

No. 0. Your own joking, Mr. Editor, "That four blind men, on examining an elephant, all differed as to its appearance. That they were all *specifically* right, *generically* wrong." Though its a fling at my being a *careless observer*, I will pass.

No. 1. In the article formerly claimed by the editor of *The New Era*, as editorial, we now see signed "F. R. D." Of course we know Frank! who says "The bees deserve a good word, for the odium cast upon them by *theorists* and *careless observers*, and no person who brings this charge, ever saw bees *stinging* fruit." True, but we have seen them *cut* the skin of grapes!

No. 2. To my own article published in *The New Era*, in response, as I then thought, of the editor's strictures, against the possibility of the bees damaging sound grapes, I there stated *facts*.

No. 3. "M," of Oregon, declares the bees innocent. If "M" will carefully read my article, he will see that I do not charge bees *generally* as guilty. I stated that I myself kept bees for many years, and that I also had grapes, and that it was only within two or three years that they commenced to injure my grapes. Of course, I alluded to the Italian variety—and when these cut the skin, the black bees will also come and get a share of the sweet juice. He admits "that never before this summer did they visit his grapes," but tries to explain that "The Clinton burst their skins, from some cause unknown to me." Did not grapes *burst* before? at least J. S. says "they did eight years ago."

No. 4. "W," of Strasburg, "is an extensive grower of grapes, but had no trouble before the present year. This year he was unable to gather more than a few perfect bunches. The bees *destroyed* all the rest. Thousands of bees were constantly on my fruit from early dawn until dusk." Then adds, "If the skin is broken in some other way, so be it, and we will either have to do without grapes, or the busy bee, of *the Italian variety*." Just so. As Mr. W., of Strasburg, was not certain whether the bees or some other insect cut the skins of his grapes, (perhaps he did not take the time to watch them closely) "but he does know that they destroyed nearly all his fruit," and adds, "if the skin was broken in some other way, so be it."

No. 5. Now, here is where our friend J. S. comes in, "to relieve the poor bees from the odium cast upon them by a *careless observer*." J. S. lays great stress on the word "if," in W.'s article, and thinks "as the grapes were very *thin-skinned* this year," trys to explain as to the cause of the *skins bursting*, which he says "belongs to natural philosophy and vegetable philosophy," and tries to explain *un*-explainable phenomenal appearances by going back eight years, "when after a rain, the sun striking on the little globules of water on the fruit, acted like a burning lens, the skin of the grapes bursted:" and adds, "let us be sure we are right, and not *jump at conclusions*, as we find many insects that might be taken for Italian bees, and not to be distinguished by a mere *casual observer*." "Eight years ago," bees did *not* injure our grapes. I suppose the reason why they did not, was because there were no Italian bees in our vicinity. Mr. J. S.'s explanation is a very equivocal one! Ugh! the mystery of being mysterious! would it not be more satisfactory to say—as bees come under the order of Natural History, and the grapes under that of Vegetable Physiology, consequently these being opposing forces, and coming into juxtaposition, there will, of course, be a rupture—a "burst"—then the bees can get their fill of the sweet juice, and the elements only to blame!

No. 6. Mr. J. F. Hershey, Mt. Joy, pretends to say "the black bees worked on the broken grapes, for a few years past, quite as much as the Italians do now." (Mr. H. keeps the Italian bees,) and then says, "sound grapes they never damage; had Mr. G.'s grapes all been sound, the bees would never have visited his vines." My dear sir, my grapes were as sound as grapes ever are; indeed, more sound and perfect than usual, as there was no mildew this summer to arrest their growth, and birds and no insects of any kind visited the grapes as the bees had, and kept sole possession till the last grape was sucked dry!

A reverend gentleman, pastor of a congregational church, with whom I have been in correspondence for a number of years, and who is also a live horticulturist, especially a grower of grapes, on writing to him, lately, I incidentally mentioned the loss of my grapes by bees. In a letter just received he says: "I shouldn't hesitate, if I were you, to protect myself with Paris green, or any other such poison against the bees," &c.—*Respectfully, J. B. Garber.*

[Our venerable friend entirely misapprehends us, if he supposes our *simile* was intended as a "fling" at his being a *careless observer*, for we are too deeply impressed to the contrary to reach such a conclusion. We merely meant to infer that isolated observations cannot always be depended on as absolute illustrations of character *per se*.—ED.]

OUR PROSPECTS.

There are many signs that for farmers at least the most of the hard times are over; and if there be not a remarkable career of prosperity ahead for the cultivators of the soil, we shall be very much surprised.

In the first place, the immense amount of thoughtless debt incurred during an inflated currency has been measurably reduced. The people who bought farms at inflated prices, incurring mortgages to be paid when currency and of course the price of farm produce would be near par, have paid up in full the price of their folly, and those who incur debts now will have some reasonable chance to foresee what prices they will get for their products when pay day comes round. There are not near so many western farmers paying ten to twelve per cent. interest on the purchase money of their farms as there once were. The people who have lived on interest will have to go to work with their money. Borrowers are few. The banks hardly know what to do with the money they hold. Instead of putting it "out to interest" capitalists will have to invest it in productive employment. This will put people to work, and the workers will have to buy farm products.

Not by any means among the least of the bright features of the future, is the steady increase in our exports, and the decrease in the amount of manufactured goods. These matters especially interest the farmers of this country, as with industrial prosperity his success is intimately bound. It is generally a good sign when there is a large import of raw material to be used in our industries and worked up to be sold over again at an enhanced value, but when the imports are of articles that we could just as well make wholly for ourselves, it is another thing. Thus imports, heavy though they may be, do not always show things are going wrong. It may show a nation is very wealthy, that she can afford to buy largely, indeed to buy much more than we buy, and this seems to be exactly the condition in which we are finding ourselves.

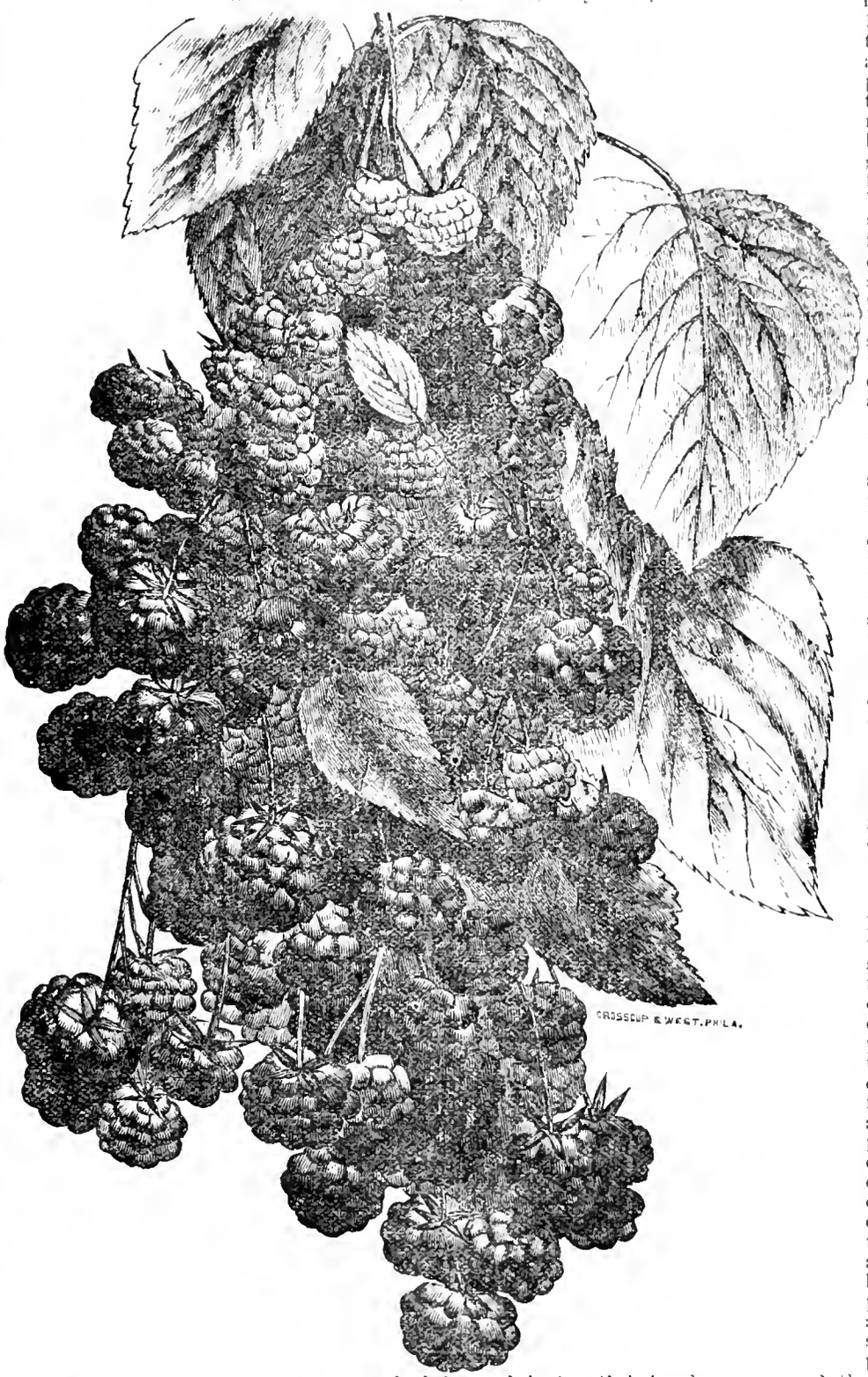
Among all the exports of the few past years, nothing is more gratifying than the increasing shipments of cotton goods. When some of our eastern manufacturers sent some of these wares to England, and undersold the British manufacturers a few years ago, the English comforted themselves by saying that it was simply of our overstock, and were sold only at a loss; but the work begun then has been continued until exporting dry-goods to England is a trade almost as regular as shipping corn. At Manchester there are regular agencies for supplying American goods, and the American brands are generally popular. The amount of goods sent from England to the United States is not one-fourth of what it was a few years ago. The number of yards of cotton goods shipped from the United States in 1877, though not all to England, was over ninety-six millions, by far the largest year's business ever done.

All of this must redound to the farming interest. It costs much less to sell food to operatives in the United States than to operatives in Europe, and the more of them we have the greater is the gain to us.—*Germantown Telegraph.*

☞ Delinquent subscribers will confer a favor by remitting their arrearages immediately, as we must have money to pay the printer.

EARLY PROLIFIC RASPBERRY.

Our illustration represents a single stalk of this magnificent plant, the berries being reduced to about two-thirds their natural size. There were 138 berries on this stalk. A very important and valuable peculiarity about this variety of the raspberry is, that it has never been known to "winter-kill." They have stood successfully, and without a single failure, the test of nine years fruiting, according to the testimony of Mr. Felton, Merchantville, Camden county, N. J., who is the originator of them, and who has had eighteen years experience in their cultivation. As its name implies, it is an early fruit and comes into market immediately after, if not simmultaneously with, the latest strawberries. The plant is short-jointed, of a stocky habit, having very dark foliage, great vigor of growth, and is perfectly hardy, as above stated. The fruit is large, roundish, conical, regularly formed, of a dark-red color, and a rich, brisk, vinous flavor, somewhat inclining to acid. These berries were exhibited at the 'Great Centennial,' and were highly commended by the judges, *vide* report published in the *Cultivator and Country Gentleman*.



There are a great many people who desire to have fruit but do not like to bestow much time or labor in its cultivation; or they may not have time to do anything more than make a hole in the ground and stick a plant into it, and then let it take care of itself; or, again, they may be too negligent or indolent to attend to careful cultivation. Now, if only one-half can be realized that Mr. Fenton realized, under the most ordinary cultivation, then here is a berry that will admirably suit that kind of people. We quote: "Mr. F. has on the back part of his place three acres of unimproved land, planted with these berries, which yield annually abundant crops, without manure or culture. On the 5th of July, 1876, he picked from one row 21 yards long and one yard wide, with only ordinary culture, 58 pint boxes full at one picking, or at the rate of about 6,670 boxes per acre, which at 10 cents per box, would amount to the neat sum of $667 per acre, or $6,670 for ten acres, at one picking, which would hardly be one-fourth of the season's crop." Now, multiply this by four, as a whole season's crop, and afterwards make reasonable deductions for unforeseen contingencies, and there still remains a wide margin of profit.

These plants may be had by addressing Messrs. GIBSON & BENNETT, nurserymen, Woodbury, N. J. Price, $3 per dozen; $20 per 100; $150 per 1,000. Half dozens, half hundreds, and half thousands furnished at the same rates. What can be raised in New Jersey, we think, could be more than realized on the rich soil of Lancaster county.

ADDRESS.*

MR. PRESIDENT: As we are assembled here to-day, representatives of the Lancaster County Agricultural Association, a great name indeed, the interest involves our present, and often our future welfare, as in Holy Writ we find many hints and comparisons on agriculture and its fruits, such as, they will come with joy and gladness, bringing their sheaves with them; and no heart can feel more joy and gladness than the farmer in a good harvest, in his field with one sheaf under each arm, and his mind free from all care, but filled with good prospects before him for a good price for the products of his labor. I hold that Adam and Cain were the first members of such an association, with Adam as its President, who was sent forth out of the garden of Eden to till the ground. His first son, Cain, was a tiller of the soil, his second son, Abel, was a keeper of the sheep, Genesis, 4th chapter. Through jealousy in the field, Cain slew Abel, and the Lord cursed the tillage of Cain. In our day it looks as though the tillage was cursed for some of our farmers, but we rather attribute this last to our own cursing and mismanagement in tillage. We have before us a German article on agriculture which may have been written hundreds of years ago, as the book from which I shall read, in the German language, is several centuries old, which we can apply to ourselves of the present day with profit to all. Although you may say it is too old to harmonize with this progressive age, and is old fogyish, yet it may not be amiss to practice some of its teachings. Solomon, the wisest man on earth, being wise in spiritual, as well as temporal things, says: "He that observeth the wind shall not sow, and he that regardeth the clouds shall not reap, and he that receives no instructions is a fool; but the words of the wise are as goads, and as nails fastened by the masters of assemblies which are given from one shepherd. And further, by these, my son, be admonished; of many books, there is no end, and much speaking is a weariness of the flesh." And fearing I might be wearisome to you will conclude with his conclusion. "Fear God and keep his commandments, for this is the whole duty of man." Let us therefore do good, and improve ourselves in culture, and not be weary: in due time we shall reap.

To show what belongs to agriculture, or tillage of the ground, it seems unnecessary to mention anything, because it is known to every person, and expressly because the difference is so wide in different localities in fields as well as in soil, as the instrumental power used is greater at one place than at another. The fields are cultivated also differently in different localities; at one place oxen are used, at another horses; at one place one pair is sufficient, at another it takes four to six oxen or horses. The plows should be long and narrow, and the plow irons long and narrow, or they will take too much land, whereby the cultivation will not be the better and the draft is heavier. The plow-iron should be of steel, need not be sharpened so often, as it cuts easier and turns the soil better, and is smooth and cannot stick to the plow. The harrows, rollers and plows are of different kinds and make. In some localities the oxen carry the yoke on the horns, at another by the neck; here are the fields broad and short, and there long and

*Read before the Lancaster Agricultural and Horticultural Society, Monday, December 3d, 1877, by Henry Kurtz

narrow; here are the oxen shod, especially on hilly land; in level places we know nothing of it; at some places are the harrows apart in the middle, and are hooked together with iron rings, so they can give and have a better grip. Before everything a good farmer should have plenty of farming implements, so he may not have want in time of need, because it is vexatious and offensive in time of need to borrow from your neighbor and seldom without bad feeling and ill-will, because the most of times you bring it back worse than you got it; therefore, should the farmer in time prepare what he may want in time of need. Especially should the farmer in the winter time repair such implements or make new; or on rainy and stormy weather, when he cannot work in the fields and it compels him to stay in the house, he might repair all kinds of wagons with ladders, beams, dungboards, lime boxes, presses, and anything that is wanted, or may be wanted in the future. Yoke-bows, felloes, spokes, wagon wheels, tongues, hay beams, sieves, sleighs, plows, rollers, dung, hay, corn and straw forks, shovels, rakes, curry combs, trestles, grindstone, all kind of large and small sieves, rider, grain shovel, grain fan, stamper, mallet, troughs, tremel, reber, axes, digging iron, drawing knife, hub rings, auger, ladder, drawing bench, traces, breast chains, bands, plough irons, seed baskets, bags, and all kinds of articles belonging to farming; iron work, horse shoes, shine nails, wagon rings, hub rings, single-tree, sickles, saws, cutting knife, snitzer, steinmeiser, hammer, stamp handle, smith work, sleigh boxes, and everything of the kind at least double on hand, that when the busy time comes, if anything breaks, or is needed, or to have to be fetched at a strange place, when the work is pressing in harvest time or otherwise, and the necessary work must be stopped and the time lost thereby, it is not even enough that the farmer has all these things double and plenty if he does not keep them in a systematic and proper place, because it is a small difference in time of need, something not to have, or have and not know where to find it.

For The Lancaster Farmer.

SPLENIC, OR PERIODIC FEVER OF CATTLE.

In Missouri, Kansas, Arkansas, Virginia, Kentucky, Carolina and Georgia, the so-called Spanish or Texas fever has been the causes of losses prior to and since the war, and this has occasioned the most violent feeling of opposition among stock raisers to the driving of these cattle through those States. A Missourian's letter, to a prairie farmer, says, "Talk to a Missourian about moderation when a drove of Texas cattle is coming and he will call you a fool, while he coolly loads his gun to kill, and he does kill the cattle until the drove takes the back track; and the drovers must be careful not to get between the enraged farmers and the cattle." This looks like a sort of border ruffianism, but it is the way to keep clear of the Texas fever. Illinois will yet have to do the same thing. Congress should do something in the matter; very stringent laws were passed in regard to the rinderpest, and yet it is scarcely more fatal than Texas fever. Texas stock should not be allowed to pass the thirty-fifth parallel of north latitude alive. Texas has five million head, worth eight to ten dollars gold; the net yearly increase, after deducting twenty-five per cent. for loss, by disease and other casualties, amounts to seven hundred and fifty thousand head.

It is impossible to exaggerate the suffering of Texan cattle as they are transported by steamer from the Texan coast to New Orleans and thence to eastern and western cities. They are gathered in droves of two to twelve hundred steers, and driven at the rate of eight to ten miles a day for six to nine hundred miles. Whether we study the malady as seen in Texas, or Smoky Hill, in Kansas, where sudden shocks to the system of a steer that has stampeded, developed symptoms or produce death; or look to the other animals apparently fresh, and grazing, it is evident that a large herd traveling from the region whence splenic fever is propagated, carries not only the active cause of such propagation, but the evidence of specific disease induced, which remains for an indefinite time latent and unobserved. It has been observed whenever and wherever cattle from the States on the Gulf of Mexico have been driven North during the summer months—and is most marked in cattle of Georgia, Tennessee, Virginia, Kentucky, Missouri, Kansas, Illinois and Indiana—wherever these cattle have grazed simultaneously or after Texas herds. It is incapable of communication by simple contact of sick with healthy animals, and in the strict sense of the term is neither contagious nor infectious. It is an enzootic disorder, probably due to the food on which Southern cattle subsist, whereby the system of these animals becomes charged with deleterious principles that is afterwards propagated and dispersed by the excretia of apparently healthy animals as well as obviously sick stock. The malady is probably incapable of communication by inoculation, and the flesh, blood and secretions of such cattle have been handled and consumed by human beings without the manifestation of untoward results. Texas cattle, from all ages, are afflicted with it in a somewhat latent and mild form, and its incubation is from five to six weeks duration; the temperature of the body then rises, the secretions are checked, and indications of depression and listnessness are afforded by drooping head, depressed ears, arched back, approximation of limbs and indisposition to move or to rise when down, urine mostly dark, of port-wine color, and is retained for hours, and then evacuated in considerable quantities; hurried breathing and tremors are almost invariable symptoms, more or less paralysis in hind quarters, fore quarters, or both. When the brain is affected it occasions wild, staring gaze, and in the first case there is more or less blindness. Animals recover, especially if from the South, but in the northern stock is extremely fatal, destroying most every animal attacked. Death usually occurs in three to four days, and may not occur for from twelve days to six weeks. Death is usually produced by great prostration, the animal lying and refusing to rise, retention of urine, head occasionally drawn forcibly around to the right side, and the muscles of the neck twitching without much intermission. Cows having splenic fever will suddenly yield but half the usual quantity of milk; at first the animal eats, ruminates occasionally, and its paunch appears full, but soon it will lie down, preferring a pool of water. The depressed head, drooping ears, arched back, hollow and twitching flanks have a tendency to draw the hind legs under the belly, and knuckling over over at the fetlocks behind, are early and marked symptoms; the skin is dry and rigid. A small delicate blood-clot is apt to be seen on the surface of the droppings; at first the urine is clear. Many cases, it is true, may not be known until the urine is bloody; in ten to fifteen per cent. the urine remains its natural color. When bloody urine flows death will soon follow.

The skin, very often infested with ticks, is occasionally studded with dried drops of blood, as if the animal had sweated blood. The spleen usually presents a dark color, with a deep red pulp, which oozes out of incisions made through the capule, and weigh in native cattle one-half pound, Texas two and a half, and Cherokee two and a quarter pounds, in health; while from splenic fever it is enlarged from two to twelve pounds, but rarely exceeds eight. The scraping with a knife readily forces out the currant-jelly-like pulp, and leaves the trabecular free and clear. In thirty noted diseased spleens Dr. Manheimes found only two in which the trabeculae were firm and sound. They are generally destroyed and undistinguishable from any other part of the tissues of the organ. Dr. Rauch, medical officer of Chicago, affirms that the meat is not poisonous, and is incapable of injuring human beings. The flesh shows no signs of morbid change. During a period of three months cattle were allowed to die in Illinois and Indiana, but when large herds were attacked they tried to get as many sold in eastern markets as possible. Cattle trucks have thus been filled in large numbers with infected steers, which died or were slaughtered and committed to the rendering tanks; but not a single case has transpired to show that these animals have induced any disease in the stock of eastern cattle. How different from rinderpest, or lung fever, which, under similar circumstances, would have caused the farmers of Ohio, Pennsylvania and New York to record a bitter experience, similar to that of the much injured Illinois farmer. Texan steers are the most dangerous immediately after leaving Texas, but after they have traveled a long dstance they are less liable to do mischief; hence the conclusion, that if cattle are driven into Kansas, Missouri or other States in the summer or autumn of one year, and grazed in such States during the winter and spring they can be readily intermixed without danger. Texas herds, therefore, do purify themselves. The point is to know the exact time it takes, and if means can be used to accelerate the result. A nipping frost is the most effectual cure, as it destroys the vegetation upon which the cattle feed, thereby destroying the most plausible source of transmission. Texan steers can graze side by side with native cattle, only having a fence between them, without transmission, thereby thoroughly and successfully refuting the idea of tick transmission, as the ticks are not easily fenced in. Both native and Texan cattle, dead and alive, have been seen entirely free from ticks. There has been no relation whatever between the abundance of the ticks and the severity of the disorder. It is supposed that the ticks are eaten, but close examination has ever failed to trace any of them, during the development of the disease, in the alimentary canal.

The tick is not confined to Gulf coast cattle, which we know communicate the disease, but it is met in many States where cattle are reared that never cause splenic fever. Why should the ticks not communicate the malady from Western steers to other cattle, if they can induce it by crawling from Texan to Western stock? It is not contact with the cattle that transmits the disease, as they have been housed together, watered together, the sick with the well, with no bad effects.

Splenic fever is an enzootic; it originates in the Gulf States. Florida cattle driven north are as dangerous as Texans, deriving the same deleterious properties from the soil on which they are reared, in all probability the vegetation on which they feed. Milk sickness is due to cattle feeding on low woodland pastures, where poisonous plants abound. The poison which contaminates the food is capable, through that food, of attacking a second and third animal or as many as partake of it. Here is a striking similarity between milk sickness or trembles, and splenic fever. The animal, food poisoned, may show no sign unless driven hard or frightened. Texas cattle accustomed to feed on certain pastures thrive, and their systems throw off, in excretions, these poisons for three or four months after they leave their native soil. Herds of these animals necessarily deposit a large amount of whatever they excrete, and thus pastures are contaminated, the grasses of which prove deadly poison to healthy and susceptible cattle. It is certain that the herding of cattle on the lands over which Texan cattle have passed, is the ordinary and probably the invariable cause of splenic fever. The systems are charged with poisonous principles, which accumulate in the bodies of the acclimatized animals that enjoy an immunity.

Southern cattle may be driven so as to improve in condition, and yet for from two weeks to three months continue to excrete the

deleterious poison that affects the cattle of the States through which they are driven. The disease may be, but is very rarely propagated through the feeding of hay. The disease occurs mainly during the hot months and autumn. The frost kills the wild grasses, and consequently the disease disappears; and in the spring, if there are no new herds of Texans on the pasture, there is no disease. Heat was thought to aggravate the disease. There is not the slightest foundation that ticks disseminate all the disease. Splenic fever does not belong to that vast and deadly group of purely contagious and infective diseases, of which the rinderpest, the lung plague and eruptive fevers are typical; that however warm the weather may be, nothing like anthrax poison is developed in the system, and the flesh, blood and other tissues of animals is incapable of inducing any disease in man or animals.

Splenic fever is not malignant typhus or typhoid fever; it has no analogue among human diseases, but is, however, developed under conditions, which prevail where the so-called malaria injuriously affects the human health. Splenic fever may be classed among the incurable maladies, as we know of no antidote to the mysterious poison inducing it. Good nursing meets with very trifling success; bleeding has been resorted to with some success either in consequence or in spite of the remedy. Purgatives have been tried with good results in a few instances, and with depressing and killing effect in many more. Red water in cows of Scotland is often cured by opiates which check the discharge of blood, and with alcoholic stimulants in moderation and free use of mucilaginous drinks, the same has been tried in splenic fever with little or no success. There is only one remedy, that of keeping the cattle positively apart for a season, which will sometimes necessitate the fencing in of local stock, while at other times the Texan must submit to some overcrowding. Texan cattle should reach Western Kansas in the summer or early autumn, keeping the stock fresh on the abundant grasses, and ship East when the packing season begins. Such a course being rigidly adhered to, you will have no more of splenic fever. *Compiled by H. M. K.*

For The Lancaster Farmer.

GYPSUM.

Gypsum has been used as a fertilizer for a long time, but its first earnest advocate in America seems to have been Benjamin Franklin. A story runs that Franklin, to impress his neighbors with its value, caused the "effects of gypsum" to be formed on a clover field against a hillside with this article, and the luxuriant growth induced made converts of all the farmers in the neighborhood.

In order to be able to apply gypsum to the best advantage, it is necessary to know of what it is composed and the manner in which it acts. Its composition is, when nearly pure, sulphuric acid, 44 lbs.; lime, 31 lbs.; water, 20 lbs.; and sand, &c., about 5 lbs.; the two former being, of course, the only valuable ingredients. As far as lime is concerned, its application does not help any in a calcareous soil, or where lime is applied, as in every one hundred pounds of the gypsum there is only about one-half bushel (31 lbs.) of lime. In a soil which is deficient of lime this small amount may help some, and as there are parts of the country where the soil is naturally deficient in the latter and where it would be very expensive to apply it in anything like the quantity applied in Lancaster county, a heavy application of gypsum may have an effect to which we are all strangers. In the time of Dr. Franklin its use was, no doubt, much more apparent than it is now, and in our own neighborhood it was largely used by nearly every farmer some twenty years ago or more, when liming was not practiced so much yet; now it is seldom used.

We now come to sulphuric acid, the only remaining ingredient valuable for its fertilizing properties. This is found more or less in all vegetable matter, and of course the soil must contain enough to supply all the needs of the plant in this respect; as the ingredients of any soil must necessarily be many times greater than the amount taken up by the plant. As the surface of the roots come in contact with only a very small portion, it follows that if the soil is supposed to be destitute of sulphuric acid, which is not often, if, indeed, at all the case, then the application must be many times the amount a crop is supposed to remove.

The following table shows the amount of sulphuric acid removed by the crops named and the amount of gypsum needed to replace the same:

CROP.	Bushels	Tons	Sulphuric acid removed, pounds	Gypsum Required to replace it.
Wheat—Grain	30		0.2	0.5
Straw		2	4.4	10.0
Rye—Grain	30		0.3	0.7
Straw		1½	3.3	7.5
Oats—Grain	40		0.5	1.1
Straw		1	2.6	6.9
Corn—Grain	50		0.6	1.3
Fodder		3	7.2	16.4
Buckwheat—Grain	30		0.3	0.7
Meadow hay		2	9.6	21.8
Timothy hay		2	7.2	16.4
Red Clover hay		2	6.8	15.4
Potatoes	100		3.6	8.2
Turnips	400		16.0	36.3
Sugar-beet root	400		6.0	13.6
Tobacco leaves		1	11.6	26.4

From the above table it will be seen that the amount of acid removed is quite small in all the grains, but in their straws and in hay, roots and tobacco it is considerable. Tobacco and turnips especially remove a notable quantity, and no doubt both of these as well as grass clover and the straws would be materially increased by a liberal application. The quantity recommended is generally from one to two hundred pounds and it is said that a larger application does not generally show more effect than the latter would have done.

Johnston (English) states that in this country the practice is to apply it at the time of putting in the seed, and thinks that in a dry climate it is better to be mixed with the soil. In this section of the country gypsum is applied in nearly all cases as a top dressing, and scattered *over the plants*. My impression is that the above mentioned author made a mistake in both instances; he favors the mixing with the soil in a dry climate because of its insolubility, but with the exception of dry spells this will not hold, for a gallon of water dissolves about one-fourth pound of the gypsum, and to dissolve a dressing of two hundred pounds would take but eight hundred gallons of water, which would be a very slight sprinkling when spread over an acre.

If the sulphuric acid is the object, there is no need of its application in the following cases:

Where sulphate of magnesia, (epsom salts) sulphate of potash, sulphate of soda, or sulphate of ammonia are applied, as these will furnish all the sulphuric acid needed.

Where the sulphate of iron exists in the soil, and lime is applied, the lime and sulphuric acid having a stronger affinity for each other than the latter and iron, they will unite and form sulphate of lime (gypsum).

Gypsum is also sometimes indirectly the promoter of luxuriant vegetation. As in the case of iron and lime, the acid had a stronger affinity for the lime, so it seems to be the case in ammonia and lime, the acid leaving the latter and uniting with the former (which is usually called "fixing the ammonia,") and forming sulphate of ammonia, which is one of the highest priced and most powerful artificial fertilizers known. The great effect sometimes resulting from the use of gypsum may in many cases result from this fixing of the volatile ammonia, and particularly so when the soil has been receiving liberal coats of manure rich in this ingredient.

Probably a better plan for applying the gypsum to bring about this result would be to scatter it at short intervals over the manure pile and thus prevent from the beginning the escape of ammonia; it should be done as often as the stables are cleaned which is generally about once a week. This plan was recommended in the Farmer about a year ago, and the *American Agriculturist* for this month has among its hints the following:

"Ground gypsum spread upon the floors will prevent the pungent odor common to stables. This vapor of ammonia is hurtful to horses' eyes, and the frequent cause of ophthalmia, and resulting blindness,* with which so many horses are troubled. Throw a few pailsful of water upon the floor first, and then scatter around a shovelful of the gypsum."

In consideration of all that has been said above it would appear that in a limestone country, or on land that is limed, the application of the gypsum may not pay for the labor of applying, and to fix the ammonia would probably be better used on the manure pile or even in the stable.

If it is to be applied on the field the following has been found to be the result of application "to clover at different periods in the spring," as quoted by Johnston:

Undressed, 100 pounds; top-dressed, on the 30th of March, 132 pounds; top-dressed, on the 13th of April, 140 pounds; top-dressed, on the 27th of April, 156 pounds.

The effect of a top-dressing of gypsum seems, therefore, to be greatest when it is applied after the leaves have been pretty well developed.—*A. B. K.*

[We, ourself, when a boy working on a farm, suffered more or less from sore eyes, supposed to have been contracted through much contact with horses; but, although a long time ago, it occurs to us the cause was assigned to a pungent dust that arose from them, in our manipulations of the curry comb, and not from the exhalations of vapor; and yet, after all, that *may* have been the cause, and we not know it, or both circumstances may have combined to produce that effect. Ed.]

OLEOMARGARINE—THE NEW SUBSTITUTE FOR BUTTER.

Interesting Letter to Prof. Baker, of Millersville—The Mode of Making Artificial Butter Explained by President Deshler.

We have received from Prof. Baker, of the Millersville State Normal School, a specimen lump of oleomargarine, the new substitute for butter. It looks like butter, its odor is like that of butter, and it tastes like butter—and pretty good butter at that.

Prof. Baker's Letter.

Millersville, Pa., Nov. 7, 1877.

To the Editor of *The New Era.*

Dear Sir: I send you a specimen of *oleomargarine*, or artificial butter, a portion of a quantity sent me for examination by the United States Dairy Company of New York. And the communication received from the president of the company contains so much that seems to me of general interest connected with the history and manufacture of the new product that I send it also, thinking that you might find something in it for the readers of your paper.—*Yours truly, Thos. R. Baker.*

The "Substitute" and How it is Made.

New York, November 1st, 1877,
21 Courtland St., Room 53.

Prof. Thomas R. Baker, State Normal School, Millersville, Lancaster, Penn.:

Dear Sir: Yours of the 20th ult., asking for a specimen of our artificial butter to examine and show to your class, has been received, and we shall take pleasure in complying with your wishes.

It is proper to state that a great deal of this

*I know of a young man who, when a boy, got sore eyes from cleaning a horse stable, and they remained in a bad condition for a long time. I think he cannot see out of one eye now, or it is very much weaker than the other, all resulting from the vapor of ammonia. No doubt many readers have had their eyes set a smarting when going into a horse stable; the use of gypsum will prevent all this.

product is made surreptitiously by infringers upon the patent, of which we are the owners, and that the quality of their article is often exceedingly inferior, owing to their avarice, their uncleanliness, or their departure (ignorantly or otherwise) from the conditions that are essential to the production of a good food-product. Of course we bring suit against infringers wherever we find them and can secure sufficient evidence that they are intruding upon our rights.

It may interest you and the young gentlemen composing your class to have the history of the invention of this new food-product, and some general account of the methods pursued in its manufacture; and though my time is much absorbed otherwise, I have prepared the following brief outline sketch on the subject for your information:

For several years, prior to the year 1869, M. Mege, who is an eminent French chemist, had been employed by the French government to prosecute inquiries looking to the improvement in the manufacture and quality of numerous common articles of domestic food—such as bread and the like. The results of his inquiries, which were in the interests of the working and the rural population, were so marked and useful, that at the instance of the Empress Eugenie he was invited by the government to institute further investigations, having for their aim the production of a fatty food suitable for taking the place of ordinary butter, adapted for the use of sailors on long voyages, and of the poorer classes at home, which might be sold at a much lower price than it, and be capable of longer preservation.

In response to this invitation, M. Mege made a series of elaborate experiments with cattle, on the government farm at Versailles, the object of which was to ascertain from whence the buttery particles in the milk of cows was derived; and the conclusion he finally reached was, that it was produced from the fat of the animal by being reabsorbed and carried into the circulation, and being deprived of its stearine by respiratory combustion, it furnished its butter solids to the udders, where, under the influence of the mammary pepsin, it was changed into globules of butter. Following his investigations still further, and carefully noting and copying the operations of nature in the living animal, M. Mege finally brought to light the hitherto undiscovered secret that the pure fat of slaughtered animals, melted at about the temperature of the natural heat of the body, say from 103° to 125° Fahrenheit, but not in any case to exceed the latter maximum, when duly refined, separated from albumen and membrane, and relieved of its stearine, is *absolutely free from disagreeable or tallowy odor and taste*, is made capable of *prolonged preservation* and is *identical with the butter globules in the milk* of cows. He also ascertained that to raise the temperature in melting above 125° would be destructive of all these results, imparting to the fat by the decomposition of the membrane, fibre, etc., through the agency of a high degree of heat, a disagreeable taste and odor, impairing its capacity for preservation and rendering it unfit for use as an article of food.

M. Mege's next practical step was to churn this pure oil—popularly known as oleomargarine—with water, a small quantity of milk, or the curds of milk, and a suitable quantity of common salt of soda. The result was a product which, when worked in the same manner as ordinary butter, is in almost every respect identical with it, having the same chemical constituents existing in almost the same proportions, and when carefully made being indistinguishable from it in consistence, taste and odor.

Having given you this historical outline of the invention, I will now present to your notice the methods pursued in the manufacture of the product, and I think it will serve to satisfy any reasonable inquirer that the prejudice is utterly unfounded which has been sought to be created against artificial butter, on the ground that it is made from soapfat, from disgusting grease, collected from kitchens and gutters, or from the decomposed fat of animals, diseased or otherwise, in which filth and ordure were present. These are some of the baseless charges which have been coined and diligently circulated by interested parties, who are apprehensive that the Mege patent will supply a formidable competitor for the favor of consumers of butter. How baseless these charges are will appear from the following relation of the process pursued by one of the largest manufactories of this new and important food product, under a license from our company:

The caul fat of freshly slaughtered animals is brought from the large abattoirs in New York and its vicinity, daily from 3 or 4 o'clock p. m. till midnight, in amounts varying from 30,000 to 100,000 pounds per day. As it arrives it is inspected, and any green or decomposed fat rejected. It is then placed in large vats through which a constant stream of cold water is passing, by which means the animal heat is extracted from the fat, and it is cleansed of all foreign matter—blood, albumen, ordure, dirt, etc. When this is completed, the fat is cut into pieces of from four to ten pounds weight and placed in similar tanks through which a constant stream of tepid water is passing, where its cleansing and purification are finally completed. When it has been thus thoroughly cleansed it is fed into hashers driven by steam, such as are used in making sausage meat, out of which it passes, completely minced and disintegrated, into a series of jacketed-kettles—wster-baths, the water of which is raised to a temperature not to exceed 125°F. In these kettles the fat is gradually melted, being constantly stirred the while, until the membrane, animal fiber, etc., are entirely separated and have sunk to the bottom in the form of scrap, leave a limpid refined fat supernatant. This supernatant fat, which consists of pure oil suitable for conversion into butter, and stearine, is then drawn off into large vessels and placed in what is technically known as "the seeding room," where a curious and interesting process takes place—the stearine gradually forming in spongy flocculæ throughout the mass, until in about twenty-four hours it is all crystallized and becomes distinct from the oil in which it is immersed. When this crystallization is complete the mass is allowed to solidify, when it is packed in small cotton bags and subjected to pressure an atmosphere of about 80° F. the pure oil oozing out in a golden stream and the stearine being left in the bags. The oil thus expressed is a beautiful limpid translucent fluid at the temperature of 80°—congealing at a lower temperature—is free alike from membrance, stearine taste and odor, dissolves in the mouth quickly, leaving no trace of stearine adhering to the teeth or gums, and is ready to be converted into butter.

In another part of the factory, faultless in its arrangement and in its sweetness and cleanliness, there are huge churns run by steam, tables for working the butter and all the appliances of a well-ordered butter dairy; and here the oil whose process of manufacture we have witnessed is converted into rich yellow and creamy butter.

Trusting that you will find my long communication of interest to yourself and the young gentlemen under your care.—*I am yours respectfully, M. D. Deshler, President of the United States Dairy Company.*

THE OMNIVOROUS CATERPILLAR.

"All owners of trees should take advantage of the present season to apply the prevention, or means of destruction of the caterpillar, recently so successfully introduced in European parks. The plan is simple, and unattended with peril to the tree. Bore a small gimlet hole into the trunk of the tree, about a yard from the ground, penetrating to the depth of one-third the diameter. Fill this hole with flowers of sulphur, and then plug the aperture with wood. The rising sap will carry the sulphureous impregnation to the farthest extremity of every twig and leaf, and no caterpillar, even of the most infernal origin, can exist upon the tree."—American paper. [Whether the above is much known in England, or whether the writer merely assumes that it is a European custom, in order to give force to his assertion of the efficacy of his nostrum, we are not aware. Certainly, if the caterpillar tribe can be thus easily banished from trees, the fact cannot be too widely known.—Ed. J. F.]

We find the foregoing in the *Journal of Forestry* for the month of September of the present year, a very clever English magazine, published in London. We reproduce it in order to illustrate the subterfuges which writers sometimes resort to, when they desire their statements to be credited by intelligent people.

The author of this pet remedy was no doubt feeling for a foreign indorsement by quoting a foreign precedent, but he gets it very faintly. Twenty or thirty years ago, the sulphur theory had a good many disciples in North America, especially in Pennsylvania, not only as an exterminator of caterpillars, but also of curculios, tree-borers, and codlings, but latterly it has become quite exploded. There were occasional coincidences which gave the remedy some color among those who were entirely ignorant of the economies of insects and their transformations. We may instance the case of Mr. Jones, who witnessed the foliage of a favorite young walnut tree rapidly disappearing under the attacks of a multitude of black caterpillars (the larvæ of "Datana ministra.") and forthwith he bored the hole and applied the sulphur. Within twelve hours thereafter every caterpillar disappeared, and Mr. Jones was in ecstacies. The next year, to his horror, Mr. Jones noticed the caterpillars in increased numbers, and applied the same "sulphureous" antidote, but the insects ignored it altogether; and, through their increased numbers, and his unbounded faith in his remedy, they stripped every leaf off the tree, and then abandoned it for a more luxuriant feeding ground.

Now, the reason for all this is very simple, but the Joneses of society "won't see it." The caterpillars of this insect (a "walnut moth,") when they are fully developed, leave the tree and go into the ground, or spin a sort of loose cocoon among the rubbish on the ground, as the case may be, for when the season is favorable they produce two broods; hence, when Jones applied the sulphur in the first instance, it was about the transforming period, and they deserted the tree in obedience to their natural instinct, and the sulphur had nothing at all to do with it. In the second instance, they were not ready to leave, and they didn't, sulphur, or anything else plugged up in the trunk of the tree to the contrary notwithstanding.

Now, there is something very peculiar in the constitution of some human minds, which leads them to place more confidence in one apparent success of this kind than they would of distrust in a dozen of failures. Any person who has ever attempted to mix flowers of sulphur and an aqueous fluid, must have experienced the difficulty, even after long and violent agitation, and where it is plugged up in a gimlet hole, the difficulty of its being taken up by the sap, becomes still more apparent—indeed, although very fusible, it is absolutely insoluble in water, and if it were not, it would be quite as obnoxious to the life of the tree itself as to the caterpillar.

Of course, if there are any believers in the sulphur remedy, it is not our purpose to disturb them in it; but it appears to us that if there was any virtue in it—so cheap and simple is it in its application—we should not now hear so many complaints about caterpillars, tree-borers, curculios, codlings and the many other insects that infest trees and shrubbery. Moreover, can any one doubt that if "the rising sap will carry the sulphureous impregnation to the farthest extremity of every twig and leaf," it would not also carry

it into and through all the tissues of the fruit; and if virulent enough to kill or expel caterpillars, that it would have the same effect upon curculios and codlings, and also upon any vertebrates (including man) that partook of the fruit? We do not believe that sulphur can arbitrarily have such an effect upon the sap, leaves, and fruit of trees, any more than we do that Paris green arbitrarily affects the quality of the potato tuber. There are applications of sulphur, however, which are obnoxious to insect-life and health, but they are also obnoxious to plant-life and health—continued fumigations, for instance—and we have heard of insects being expelled by applications of the dry powder to the leaves. The exhalations of sulphur in a hot sun cannot be very agreeable to insects, any more than it is to human beings.

When sulphur is administered to animals or to man, it is for the eradication of some infection, and to produce a healthful condition of the physical body, whether applied internally or externally; and, in the latter case, before it can have that effect, there must be a decomposition and assimilation, and this is facilitated by the heat and digestive fluids of the stomach, and its beneficial effects will be in proportion to such assimilation. But to introduce the dry flower of sulphur into a hole in a tree, and then plug it up, such assimilation does not take place, or if so, in an almost imperceptible degree. One instance, at least, came to our knowledge, in which the sulphur had been examined eighteen months after it had been introduced, and it was found that it had not yet undergone any change, but was as dry as when first applied to the tree, and consequently could have been of very little benefit or injury, if any. In conclusion, we do not wish an "American paper" to be considered as a reflex of American opinion on the subject of "omnivorous caterpillars" and the means of their destruction—especially in its resuscitation of obsolete theories. We blunder enough already, in grasping after shadows, without permitting this "straw" to be laid upon our sufficiently heavy burdens, except under protest.—*R.*

THE CHERRY.

Something of its History, Cultivation, and Most Profitable and Best Varieties.

In my pomological studies the cherry has been one of my favorites among fruits, and during the past year, reading so much of its not being a fruit suited to general culture, I conclude that a little more may be said, and perhaps be of interest to many young readers of the journal devoted to rural life pursuits, and also induce thoughts to be written and published by others.

The history of the cherry makes it one of an early period, it having been cultivated before the date of our present record of time. In a communication to the London Horticultural Society, some thirty odd years ago, the cherry is said to have been brought to England from Asia Minor, where then grew two varieties, one having black fruit, the other of an amber color. The trees there attain a height of ninety feet, the stems or bodies measuring five feet in circumference. When Pliny wrote—about the time of the commencement of the Christian era—the cherry numbered something over a dozen varieties known as distinct; at this present time there are something over two hundred and thirty distinct varieties, to which are attached near three hundred synonyms. Writers vary in their statements as to the size of the first known cherries, and also as to its introduction into England, as well as the point from which it was brought. One author says it was taken to Britain in the year 69 B. C., and from Cerasus, a city of Pontus, whence its Latin name. Botanically it belongs to the order *Rosaceæ*. There is a variety in a wild state, native of the states, but the cultivated varieties can not be engrafted, or budded, and healthily grown upon it. It is, however, in all its varieties easily propagated upon any of the different classes—as *Mazzard*, from which come our sweet cherries; *Morello*, to which all our sour and half-way sweet varieties may be said to at least partially belong.

They are readily grown from seed and when taken from isolated trees are liable to produce varieties similar to the parent; but when several different varieties are planted near each other, and the seed taken from them, there is no dependence upon what they may bear of fruit in future. The seed should not be permitted to get dry, but as soon as gathered, cleaned of pulp, mixed half and half with clean sand or fine charcoal, placed in boxes about four inches deep having holes in the bottom for drainage, and then set in the open air, but where they can receive no direct sunlight. Ground for growing them should be prepared in autumn, and as soon as the frost is out in the spring the seed should be sown in drills—distant as you please, but the seeds about four inches apart, and covered with one inch of light soil; over that, a little leaf mold, or fine hay, cut straw, etc.

Pieces of roots of any of the cultivated varieties can be grown, when cut into pieces about four to six inches long and planted in the ground, covering the upper end about one inch deep with light soil. This course is often practiced where by chance a man has only a Mazzard cherry on his place, and desires to grow trees for his own planting from cuttings or buds given him by a friend. Saddle grafting is best, next to budding, and done upon roots early in spring has been successful.

The origin of many of the best varieties of cherries now known can be attributed to Professor Jared Potter Kirtland, of Cleveland, Ohio, who first grew numbers from seeds selected and personally gathered from trees of different varieties growing near each other. Varieties originated by Professor Kirtland rank to-day, not only in this country but abroad, as among the leading best varieties from the earlier to the latest in ripening. As I have heretofore said, the cherry has been one of my favorite fruits, and as long as I live I shall look back upon the many pleasant hours I had when visiting and noting the Kirtland seedling cherry trees, year after year. It caused me many a reminder of my boyhood gatherings of cherries on my father's farm in New England, and of the old "Black Hearts" and "American Hearts" on Branford (Conn.) hills, that I looked over after fifty-odd years and found as productive as when I was a boy.

The cherry in many sections and soils is well fitted to border avenues and for street shades, had we laws giving protection to our property without guards, as we have now our road lines without fences. Then, as in Germany, the traveler, by a simple request, could obtain a cherry, apple or pear as he passed along, for all have varieties of habit of growth suited to shade and beautifying public roadways.

Transplanting

from the seed bed to the nursery row—or from the nursery row to the permanent place for growth—if done in the autumn should be done early, and only on soils dry of surface and base in winter. By "dry" here we mean where the water will not remain stagnant. The moving in spring should also be early, as the cherry is one of the first of fruits to swell its buds.

Pruning at the Time of Transplanting.

This is about the only time that the knife should ever be used on the cherry, then all the ends of the roots should be smoothly cut sloping from the under side; small crossing shoots cut away smoothly at the main stem or branch from which they start, and one-half of the last season's growth of strong shoots should be cut back, leaving the last bud pointing the way the coming shoot should grow, to help form an open, round, regular head.

Standard Trees

for orcharding should have their heads below rather than above three feet from the ground: and, south and on the western prairies and bottom lands, they should not be over two feet.

Dwarfs.

Those grown upon Mahaleb or Morello stocks should branch as near the ground as possible, and be so trimmed by summer pinching of ends of twigs and rubbing out of buds that the lower limbs would always be the strongest.

Soil and Situation.

The soil best suited to the best varieties of the cherry may be said to be such as the chestnut and magnolia delight in, viz.: A rich light loam, on a gravelly sub-soil; neither stagnant water nor limestone base will grow the cherry successfully. The rich alluvial deposits often to be found upon creek and river bottoms and prairies, while they may not hold water or contain a base of crude limestone, yet have not the food in them that makes health to the cherry, no matter what variety. The Mazzard and all of the class of sweet cherries are more open and spongy in root and wood than the Morello or Duke. Again, wild cherries do not want lime in large quantities, neither will any variety bear a surplus of water. Place them on level, loamy soil underdrained by a natural gravel, or, if of hard brickmaking clay and well drained both from surface and underground, they will succeed. Again, if the ground is a wet clay, plow it into beds of twelve feet wide, raising the centre of the strip, line-bed, or border, three feet above the base of the dead furrow or ditch between, and trees planted on that centre will succeed. So much for soil. If situation can be commanded, have it where the sun will have no influence after 3 o'clock p. m. If this cannot be obtained when planting the cherry, then at the same time plant upon the western boundary of the orchard a belt forty feet wide of evergreens mingled with deciduous trees—not so thick as to stop the current of air through them, but so that they will break the afternoon sunshine and severely cold winds. Situations sloping south, open to the mid-day and afternoon suns, will be liable to injury from two causes—i. e., creating too rapid circulation of sap, and keeping it rapid until the cold of night affects it, as cold chills the blood in the animal frame; it also induces the early starting of the bud, often bringing it into bloom and rendering it liable to injury from late vernal frosts. Northern exposures are recommended, and where they can be protected from western sun and wind they often do well; but an eastern one I regard as best. The forenoon sun may excite circulation, but not as rapidly as mid-day, or from 1 to 3 o'clock p. m.; while there is, also, more or less of moisture in a morning atmosphere, and none in the afternoon, the tree has a chance to have its circulation gradually checked ere the cold of night, which it has not when planted on ground sloping south, west or north. When planting on either of the last exposures, or on level land, let your *tree* slope to the southwest, as the sun has less effect upon it in that position.—*F. R. Elliott.*

WHAT SHALL WE TEACH OUR GIRLS?

Teach them self-reliance.
Teach them to make bread.
Teach them to make shirts.
Teach them not to wear false hair.
Teach them not to paint and powder.
Teach them to wear thick warm shoes.
Teach them how to wash and iron clothes.
Teach them how to do marketing for the family.
Teach them how to make their own dresses.
Teach them how to cook a good meal of victuals.
Teach them that a dollar is only a hundred cents.
Teach them every day, dry, hard, practical common sense.
Give them a good, substantial common school education.
Teach them to wear calico dresses and to do it like a queen.
Teach them to regard the morals—not the money—of beaux.

Teach them to say "No!" and mean it, or "Yes!" and stick to it.

Teach them to have nothing to do with dissolute or intemperate men.

Teach them all the mysteries of the kitchen, dining-room and the parlor.

Teach them that a good, round, rosy romp is worth fifty delicate consumptives.

Teach them that the more they live within their incomes the more they will save.

Teach them that the further they live beyond their incomes the nearer they get to the poor-house.

Teach them that a good, steady mechanic, without a cent, is worth a dozen oil-pated loafers in broadcloth.

Teach them accomplishments — painting, music, drawing—if you have time and money to do it with.

Teach them the essentials of life—truth, honesty, uprightness—and at a suitable time let them marry.

Teach them that God made them in his own image, and that no amount of tight lacing will improve the model.

FACTS NOT GENERALLY KNOWN.

Melons were found originally in Asia.

The cantaloupe is a native of America, and is so called from the name of a place near Rome, where it was first cultivated in Europe.

The nectarine is said to have received its name from the nectar, the particular drink of the gods.

Pears were originally brought from the East by the Romans.

The Greengage is called after the Gage family, who first took it into England from a monastery in Paris.

Filberts originally came from Greece.

The walnut is a native of Persia, the Caucasus and China.

The Greeks called butter bouturos—"cow cheese."

Before the middle of the seventeenth century tea was not used in England, and was entirely unknown to the Greeks and Romans.

The bean is said to be a native of Egypt.

The cucumber was originally a tropical vegetable.

The pea is a native of the South of Europe.

Spinach is a Persian plant.

The tomato is a native of south America, and takes its name from a Portuguese word.

The turnip came originally from Rome.

Sweet marjoram is a native of Portugal.

Coriander seed came originally from the East.

The clove is a native of Moluccа Island, as also is the nutmeg.

Capers originally grew wild in Greece and Northern Africa.

Garlic came to us first from Sicily and the shores of the Mediterranean.

Ginger is a native of the East and West Indies.

Sage is a native of the South of Europe.

The gooseberry is indigenous to Great Britain.

Cloves come to us from the Indies, and take their name from the Latin *clavus*, or French *clou*, both meaning a nail, to which they have a resemblance.

The horseradish is a native of England.

Vinegar is derived from two French words, *vin aigre*, "sour wine."

The nasturtium came originally from Peru.

Parseley is said to have first come from Egypt, and mythology tells us that it was used to adorn the head of Hercules.

It is a curious fact that while the names of all our domestic animals are of Saxon origin. Norman names are given to the flesh they yield.

When James Buchanan was Minister to England he had ears of corn, hermetically sealed, sent to him from this country.

The word biscuit is French for "twice baked," because, originally, that was the mode of entirely depriving it of moisture to insure its keeping.

Claret is a corruption of *claivet*, a term applied in France to any red or rose colored wine.

Almonds are natives of the northern part of Asia and Africa. In ancient times they were much esteemed by the natives of the East.

Apples were originally brought from the East by the Romans. The crab apple is indigenous to Great Britain.

The asparagus was originally a wild sea-coast plant and is a native of Great Britain.

The chestnut is said by some to have originally come from Sardis in Lydia, and by others from Castenea in Thessaly, from which it takes its name.

The onion was almost an object of worship with the Egyptians two thousand years before the Christian era. It first came from Egypt.

Quinces originally came from Corinth.

Apricots are indigenous to the plains of Armenia.

Cherries were known in Asia as far back as the seventh century.

Damsons originally came from Damascus.

Lemons were used by the Romans to keep moths from their garments, and in the time of Pliny they were considered an excellent counterpoison. They are natives of Asia.

Citron is supposed to be the Median, Assyrian, or Persian apple of the Greeks.

Rhubarb is a native of Asia.

The strawberry takes its name from an ancient custon of putting straw beneath the fruit when it began to ripen. Its delicacy was praised by both Virgil and Ovid.

The peach originally came from Persia.

We are indebted to the infamous Catherine de Medici for ice creams.

TEN RULES FOR FARMERS.

1. Take good papers and read them.
2. Keep an account of farm operations.
3. Do not leave farm implements scattered over the farm exposed to snow, rain and heat.
4. Repair tools and buildings at a proper time, and do not suffer a subsequent expenditure of time and money.
5. Use money judiciously, and do not attend auction sales to purchase all kinds of trumpery because it is cheap.
6. See that fences are well repaired, and cattle not grazing in the meadows, grain fields or orchards.
7. Do not refuse correct experiments, in a small way, of many new things.
8. Plant fruit trees well, care for them and get good crops.
9. Practice economy, by giving stock shelter during the winter; also good food, taking out all that is unsound, half rotten or mouldy.
10. Do not keep tribes of dogs and cats around the premises, who eat more in a month than they are worth in all their lifetime.

SOMETHING ABOUT DRAGON FLIES.

It is not to be wondered at that several young people should wish to know something about Dragon-flies, for they are among the most noticeable of insects. Their long slender bodies, their large heads, with prominent eyes, and their wide-spread, gauzy wings, which reflect beautiful colors in the sunlight, are sure to attract attention. More than all, their rapid flight, now darting with the greatest swiftness, then remaining stationary over a spot, and then as suddenly moving backwards, gives them a mysterious air that no other insects have. It is no wonder that they have been looked upon as harmful insects, for they go about in a silent, strange way, as if there was some mischief to be done. There are over 400 kinds of Dragon-flies, found in various parts of the world, of which we have our share in this country; about 30 are known to live in the Northern States, and there are others in the South, but while they differ in size, color, etc., all have similar ways of living, and a description of the habits of one, answers for all. While their long, snaky bodies, their savage look and their darting flight, make them suspected, and they are generally looked upon as dangerous, I may as well say here, and answer several questions at once, that they are perfectly harmless, so far as man is concerned. They have no piercer or sting, and though the larger ones may be able to pinch with their jaws, if you put your finger there and try to make them do it, they do not bite, sting, or otherwise harm people in any manner. I know that they have a bad reputation. When I was a youngster, they were called "Devil's Darning Needles," and I was told by the older boys that if a boy should tell a fib, one of those "Darning Needles" would come and sew up his mouth. All my playmates must have been very truthful, as I never saw one with his mouth darned by one of these "Needles." But such notions are not found among boys alone; in various places these insects are called by names which show that they are thought to be dangerous. In England they are called "Horse-stingers," and in Scotland "Flying Adders." In some parts of this country they are known among the boys as "Snake Doctors," it being thought that they attend upon snakes, probably because they are seen hovering over the ponds where there are water snakes. On the continent of Europe they have more pleasing names. In France they are *Demoiselles*, or "ladies," and in Germany *Wasserjungfern*, or "Virgins of the Water." In traveling in the Southern States, I had heard them often called "Mosquito Hawks," and was told that they devoured so many mosquitoes that it was considered wrong to kill one of them. At last I had an opportunity to learn that, for once, a popular notion was correct. One excessive hot day in June I happened to be on Lake Pontchartrain, not far from New Orleans; there were several pleasure houses, to which the people came from the city in the cool of the evening for a drive, and for ice-cream and other refreshments. These places were mere sheds, or shelters, and on the inside of them were mosquitos by the million, resting in the heat of the day, to be all fresh to receive the evening visitors. I never before, or since, saw so many mosquitoes, for they were so thick as to make the sides of the building look gray. There were also hundreds of Dragon-flies—good big fellows—which flitted about and fed upon the mosquitos at such a rate, that I saw at once that they were well named "Mosquito Hawks." When we see these insects so busy darting here and there they are no doubt hunting for mosquitoes and other insects upon which they feed. But the early life of the insect is quite as interesting as that of its perfect or winged state. The female insect places her eggs upon the stem of water plants, just at, or below the surface, and from these hatch out the *larvæ*, or the first form of the insect. The larvæ of the butterflies and moths we know as caterpillars, and that they live on plants on the land, but the larvæ of some insects, including the mosquito and Dragon-flies, live entirely in the water until they are ready to change into perfect insects. The larvæ of the Dragon-flies, sometimes called the "Water Tiger," and well deserves that name, for it is one of the most voracious of living creatures. The "Water Tigers" may be found in pools and muddy ponds, and in still places along the margins of rivers, and, though not handsome to look at, they are very interesting to watch. If you wish to study their ways, you can easily catch them with a small net and put them in an aquarium, or what is better, a jar by themselves, in which some water plants are placed. If you put them in an aquarium there will, after a while, be little else left, at least of the smaller inhabitants, for they attack creatures much larger than themselves. It is difficult to say which is the most curious in the "Water-tiger," (which is a convenient and shorter name for the Dragon-fly larva,) its head or its tail. Curiously enough, the creature breathes through its tail! You, no doubt, know that fishes breathe through gills placed in the head, and as the water flows over these they take up the air that is dissolved in the water, and thus carry on a slow

kind of breathing. But in the "Water-tiger" its gills are placed near its tail; it takes in water there through an opening, and forces it out again, and that is its way of breathing. But this opening answers another purpose. The animal crawls quite slowly, and as it is a great feeder it would not get much food did it depend solely upon its legs. If you watch one of them in search of food you will be surprised to see the sluggish fellow dart for its prey with the greatest speed, and this motion is one of the many strange things about the creature. Ordinarily the water passes out of the opening in the tail quite slowly, but, when necessary, the insect can force the water out with a sudden squirt, and that pushes it along through the water with great swiftness, upon the same principle that a rocket is sent through the air. Not less curious are the arrangements at the other end of the insect—at the head. As usually seen, it appears a quiet and rather harmless looking larva. But let a small insect or other animal come within reach and, presto, the mild looking fellows shows a savage pair of pincers and becomes a very tigerish animal. This arrangement for taking its prey is called a "mask," and when not in use is bent down under the head of the insect, and quite out of sight; it is so arranged that whatever is caught by the jaws of this mask is brought, when that is folded under, right opposite the true mouth of the insect, where it can be eaten. These Water-tigers not only prey upon other water insects, but even devour small fishes, and seem to live only to destroy and eat other living things. They go on feeding and growing, some one year, and some, it is said, for two years, when the time comes for them to change to perfect insects—to leave the water, and begin a new life in the air. You know that when caterpillars and most other insects —as I have shown you on several occasions—make this change, they go into the pupal state, and either spin a cocoon, or form a chrysalis in some way, remaining apparently lifeless for some time, and at length break their enclosing shell or skin, and come out a perfect butterfly, moth or beetle. But the Dragon-flies are quite too busy to keep still, and even in the pupal state are as lively and greedy as ever. They change their skin, and show a hump, where their future wings will be, and the eyes of the perfect insect may be seen under the skin, but as to keeping quiet, it doesn't know how. At last its time comes, and the pupal crawls up the stem of some plant, and leaves the water forever. Instead of breathing the water through its tail, it now has to breathe air through openings in its sides, and instead of propelling itself, rocket-like, through the water, it has to dart through the air, and for this it must have wings. All these are provided. The pupal skin at last bursts, and the perfect Dragon-fly slowly pulls itself out. At first the wings are damp, limp and useless, but they gradually spread and dry—and what beautiful wings they are! They are worth a close examination; see the delicate framework, so curiously netted, with a beautiful membrane filling the spaces between; this is wonderfully thin and transparent, and the light often plays on it with rainbow colors. Can anything be more complete than this transformation—from an ugly inhabitant of muddy water, to a light and graceful creature of the air! But there is one thing which the Dragon-fly does not leave behind him with the remains of its former life—he has his appetite, and skims away through the air devouring other insects, quite as effectively, as it did before as a "Water-tiger." There is one thing about the perfect insect you will not fail to notice—that is the great eyes, or rather masses of eyes, as the microscope shows them to be; these, while the insect is alive, have beautiful colors; besides these, there are three little single eyes, usually placed in a row on the front of the head. So far from the Dragon-flies being dangerous, we may look upon them as not only harmless, but so far as they destroy mosquitoes, as really beneficial insects—at any rate, I hope that I have shown you that they are really interesting ones. I have said nothing about the scientific names of these insects, there being several different genera, or kinds, and only those who study entomology will care to know the systematic names, but it is well to know that these belong to the division or sub-order *Neuroptera*, which means nerved-winged, and includes, besides the Dragon-flies, the May-flies, the Lace-wings, and besides others, the Caddis-flies, one of which I told you about, as the insect that builds a stone-house.—*American Agriculturist.*

CURING MEATS.

In cutting up pork, if wanted for family use, take out the chine or back bone the whole length; if too fat, a tip may be cut off this and made into lard. To avoid waste, the bone of the ham should be cut out through with a saw just below the joint, and then the ham should be nicely shaped out with the knife. Cut the shoulder off, three or four ribs wide, and if small, it may be cured with the ribs on, to good advantage. Take all the ribs off the sides, after which they can be made into lard, sausage, bacon—as you may wish. Should you have more bones than you can use while fresh, make a weak pickle of 4 gallons water, 5 lbs. salt, 2 oz. of saltpetre, and one pound brown sugar. This will do for 100 lbs. of meat, and keep it sweet till warm weather. Cut your chines, ribs and pieces for bacon into pieces of convenient size, and drop loosely into this pickle, taking care to keep them covered. After standing six weeks or two months, pour off the pickle; boil and skim till clear, and put back on the meat when cold. This makes meat of delicious quality for boiling, superior to ordinary pickled pork. For pickling pork, cover the bottom of the tub with coarse Turk's Island salt, and pack the meat on edge, then enough salt to entirely cover the meat, and then another layer, till you have it all in. Make a pickle as strong as possible, and pour on the meat till covered, but not to rise above the salt. Keep the pickle entirely covered with salt, or it will become tainted. It is important to use a sweet, clean tub. One in which beef has been cured will not do, as it will soon taint the pickle.

Should the weather be warm and the hogs heavy, they should be cut in two lengthwise, as soon as possible after dressing, as the shoulders often taint before they can get thoroughly cooled. I have heard people wonder why their shoulders did not cure well, as they had taken great pains with their meat, when the real truth was, the meat was injured before it was put into the pickle. Hams and shoulders should be taken out of pickle and repacked at the end of two weeks, as the pickle will become quite fresh near the meat as the salt is absorbed. The great desideratum is to get the bone and joint well cured, and then you will always have good bacon.

Cut the fat into small pieces, and have your iron kettle thoroughly cleaned); put in a pan of the cut fat, and start a slow fire under it. When it begins to melt add more fat and stir it, but do not have the fire very hot; as soon as the fat becomes clear, and cracklings are a light brown, begin to dip out and strain into vessels. If on tin keep them in cold water to prevent the solder from being melted. Bear in mind that lard only needs to be melted, not cooked, and the less it is heated the whiter and harder it will be.

Every one knows how to make sausage, but few have any good rule for seasoning it; here is a good one: To 40 pounds of meat add $\frac{3}{4}$ of a pound of salt; $\frac{1}{4}$ of a pound of black pepper; if red pepper and sage are wanted add them to taste, but I think it better without them. To cure a beef's liver choose a red one of fine grain, lay in on a large meat dish, and sprinkle it daily with a mixture of salt, sugar and saltpetre; each day pour off the blood and wash the liver, and again sprinkle with the mixture; do this daily nine times, then hang it up to dry. Shaved thin and cooked with butter and cream, it is delicious. One pound of salt, $\frac{1}{2}$ ounce of saltpetre (fine), and $\frac{1}{2}$ cupful of pulverized sugar will cure a liver of 20 pounds weight.—*Country Gentleman.*

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The regular monthly meeting of the Lancaster County Agricultural and Horticultural Society was held on Monday afternoon, December 3, in the Athenæum rooms.

The following members were present: Calvin Cooper, President, M. D. Kendig, H. M. Engle, Levi W. Groff, J. B. Garber, Simon P. Eby, Harry Myers, Henry Shiffner, C. L. Hunsecker, Levi S. Reist, Prof. S. S. Rathvon, Peter S. Reist, Joseph F. Witmer, Casper Hiller, Henry Kurtz, Henry Erb, J. M. Johnston, W. H. Brosius, Mr. Bollinger and Mr. Weidle.

The society was called to order by the President, Calvin Cooper, esq.

The regular Secretary, Johnson Miller, being absent, Joseph F. Witmer was elected Secretary *pro tem.* On motion, the reading of the minutes of the last meeting was dispensed with.

Reports on the Condition of Crops.

H. M. Engle said crops have gone into winter quarters in good condition. There is not much else to be said.

M. D. Kendig reported what he thought was an error in the report of the State Board of Agriculture in relation to the wheat crop of this county. With 100 as the standard for a full crop, the yield of this county was given at 76, or about three-fourths of a full crop. He believed the wheat crop was more than that. If not a full crop, it was nearly so.

An informal discussion between the members proved, however, that the general opinion was that the report of the board was about correct. Some of the other crops of the county are given as follows: Rye, 86; oats, 106; hay, 86; potatoes, 126; garden produce, 103; tobacco, 95; apples, 13; peaches, 41; pears, 80; cherries, 35; grapes, 100; berries, 80; corn, 86. These figures were believed to be a very fair average of the crops for 1877.

Reading of Essays.

Prof. S. S. Rathvon proceeded to read an essay on the best method of destroying bark-lice on fruit trees. The essay was of great length and very practical, and the society, on motion of S. P. Eby, voted its thanks to the learned author. See page 178, 179.

S. P. Eby knew of a gentleman who has used a remedy for the bark-lice which has proved effectual. It was a railroad engineer; he took a ball of greasy cotton such as is used by engineers; he put sulphur over it, and then placed it under the trees infected by the lice, and set it on fire; the smoke destroyed the lice effectually. He desired to know the best time to make the application of the oil, to which Prof. Rathvon responded, that warm days in early June was the best time; about that time the young leave their winter homes and travel off.

H. M. Engle thought as we were all interested in the subject of watching insects, all should provide themselves with magnifying glasses, as they cost but a trifle.

Mr. Bollinger said a friend of his tried oil, and three-fourths of his trees died, apple, peach and other trees—did the oil kill them?

Mr. Weidle used whale oil soap; it kills the insects.

M. D. Kendig said he used common lard oil on trees to keep away rabbits, and it had an injurious effect; the bark turned almost black, and it came near finishing them.

P. S. Reist bought a lot of trees in a foreign nursery and most of them died—he didn't have to use any oil whatever to kill them—they all died without that remedy.

S. P. Eby had experience just like Mr. Kendig's, and he is afraid of using lard on young trees.

Casper Hiller stated that raw linseed oil is the thing to use on trees. It is used to prevent fire blight as well. He also uses a compound of whitewash, soft soap and salt. It is cheaper than oil and quite as good.

Joseph Witmer had a tree on which the bark-lice were very plenty. He used an application of common soap suds and it destroyed the insects effectively.

Referred Questions.

"What is the best mode of constructing cisterns?" was the question referred to Andrew Pownall, and answered by him as follows:

Mr. Chairman and Gentlemen of the Agricultural and Horticultural Society of Lancaster County:

A question was referred to me at the meeting of August 6, 1877, which as yet remains unanswered, and which reads thus: "What is the best mode of constructing cisterns for farming purposes?" I would answer now. There is such a difference in situations, and the locations of farm buildings are so varied, that it would be difficult to determine which would be the best way to construct a cistern without first knowing something of the buildings and their surroundings. I would build the cistern in the bridge-way of the barn, if there should be sufficient fall to draw the water off at will in the stock yard. But it

is necessary to bear in mind the necessity of keeping the cistern a sufficient depth under ground to prevent freezing. This plan has one objection, however. Sometimes a careless person is left to draw water for the stock and forgets to shut it off, consequently the water runs to waste, and does damage by flooding the stock yard. But, if properly attended to, such a cistern is preferrable to one with a pump therein, as it is much easier to turn a spigot than to pump water for fifteen or twenty head of stock, and then it is cheaper also. It costs less for pipe that conveys water from cistern to trough than would a pump. I constructed a cistern some years ago, (1870, I believe,) on this plan, that has given entire satisfaction. We have had sufficient water at all times for our stock, (say from twelve to twenty-five head), and you may remember we have had it very dry at times, both winter and summer, during the past seven years. It is built alongside of a bridge wall, and is lined with a sixteen inch stone wall, (a twelve inch wall would answer as well.) The stone used were not more than six inches in thickness, many of them much less, and laid in good mortar; then the whole inside plastered with a good coat of Rosendale cement mortar. The cistern is egg-shaped, with small end down hill, where the pipe connects. The dimensions are twenty-one feet long, twelve feet wide across the middle, and seven feet deep, in the clear. The cistern is arched over and covered with earth to the depth of three feet. I did not keep an account of the cost, the main object in view being to make a good, permanent job. The repairs have not amounted to fifty cents since being built; so you may judge whether I have done well. Hoping the foregoing may be of some benefit to the querist, I am yours,

Most respectfully,

AMBROSE POWNALL.

"Does it pay to steam feed for stock?" was the next question brought up for discussion.

H. H. KURTZ gave an affirmative answer. The advantages of this system are seen in feeding hogs with boiled or steamed corn and slop. The warmth of the slop warms the animals and aids digestion. It is equally beneficial for horned cattle. He has an apparatus for steaming hay, straw and corn-fodder, and has the happiest results from this method. On cold water cattle do not thrive so well as on warm slop and steamed feed. The warmer you give the slop to cattle the better the effects.

S. P. EBY heard a cattle grower remark a few days ago, that he no longer steams the food for his cattle; he found that when turned out of the barn they took cold.

JOS. F. WITMER had no personal experience, but his father-in-law has been steaming the food for his stock for years. He has found he can save one-third the feed. He feeds no whole or unsteamed grain to his hogs. On a visit to James Young, he asked the latter some questions on this subject. His reply was that it was food saving and profitable, and he fed all his cattle in that way.

CASPER HILLER thought that there was no necessity for scalding food for hogs. Once he scalded the corn for his hogs, but now he feeds whole corn, and he thinks with quite as much advantage as before. He does not feed in troughs, but has a brick floor in his pen, and on this he throws the corn, where they must gather it up slowly, and this gives them time to masticate it. When fed in a trough they eat too rapidly and swallow the food whole.

W. H. BROSIUS had some experience in feeding boiled corn to hogs. He was decidedly of the opinthat it pays to steam food for cattle. An animal will develop more rapidly on steamed food. He put up 27 hogs on the 15th day of September, 1869, weighing at that time 4,449 pounds. On October 12th following they weighed 5,973 pounds, having gained 1,525 pounds in 27 days. During this period they consumed 99 bushels and 38 pounds of cornmeal. This was a gain of 21 pounds per head for every day they were thus fed, giving a total of 15¼ pounds of pork for every bushel of cornmeal fed.

L. W. GROFF had a few words to say on steaming food, and approved of feeding warm food, but he had no actual experience in steaming. A cattle dealer whom he knew began to steam food for his stock; he went to much expense and continued it for two years, but finally gave it up. He also knew a hog drover who did the same thing, and also gave it up at the end of two years. He thought they made a mistake in over-boiling the food. Mere scalding might have been better.

H. M. ENGLE asked Mr. Groff whether he had not fattened hogs on distiller's slops. He could not see how men could come to the conclusion that steamed food does not pay. He thinks those who give it up find it too much trouble. He thinks 25 or 33 per cent. of food can be saved. He has come to the conclusion that a load of cornfodder steamed is equal to a load of hay fed dry.

New Business.

H. M. Kurtz was on hand with an essay on an ancient volume he had present with him. (See pp. 181 and 182) Because so old, many may think there is nothing in it; but we may often learn more from those who are gone before than from those of to day. He then proceeded to read out of the book, in German, a number of aphorisms that were very practical in their character, and proved that men had ideas about farm economy two hundred years ago on which we have not improved since that time. But notwithstanding the interest of the extracts, there were very few who understood the language in which they were read, and the propriety of reading any further was raised. Mr. Kurtz proposed to give the substance in English, but the reading was deferred until some future time.

M. D. KENDIG reported a balance in his hands of $9.50, left over from the money collected to buy a cane for Prof. Rathvon; he wished to know what to do with it. On motion, this balance was paid into the treasury of the society.

LEVI S. REIST had seen an article in THE LANCASTER FARMER copied out of *The New Era*, recommending farmers to buy their trees at home. He gave an instance of how men had been swindled by some tree agents, but who, if they had been subscribers of our home journal, would have seen the article referred to and thus have saved their tempers and their money.

Messrs. S. S. Rathvon, Levi S. Reist and C. L. Hunsecker were appointed a committee to examine and report on the fruit on exhibition. Their report was as follows:

We, the undersigned committee, appointed to examine the fruit, &c., on exhibition, beg leave to make the following report:

Mr. William Weidle deposited three varieties of pears, namely: Beurre Clairgeau, Lawrence, and Glout Morceau. These were all of good size, perfect form, and excellent quality. Nothing could possibly excel, at this season of the year, his Lawrence pears. On the whole, he has been very successful in this line of fruit culture.

Mr. Casper Hiller deposited specimens of a seedling Rambo apple, which he obtained at a fruit stand on the corner of East King and Duke streets. This the committee considers an excellent fruit, and worthy of cultivation, and in this opinion they are supported by all who have tested it. These apples were raised in the county, and the vender of them will confer a favor by reporting to the Society or the editor of THE FARMER, the name and residence of the person from whom he purchased them.

DR. J. P. HIESTAND deposited a specimen of oleomargarine butter, from the manufactory of the U. S. Dairy Company, N. Y. A good article of the kind, but not at all comparable with Lancaster county butter.

Mr. J. HUBER deposited choice grape cuttings for distribution.

A prepared specimen of the "Kurtz donation squash" or "pumpkin" was placed on the table, which was pronounced good by those who are partial to that kind of fruit.

Respectfully submitted,

S. S. RATHVON,
C. L. HUNSECKER,
L. S. REIST,
Committee.

H. M. ENGLE thought the society ought to select a room on a second floor for its meetings instead of imposing on the Athæneum Association. A motion to this effect was made and carried. Messrs. S. P. Eby, S. S. Rathvon and Wm. McComsey were appointed a committee to hunt up a room for the future meetings of the society.

A sample of oleomargarine from the manufacturers, the United States Dairy Association, was presented by Prof. Baker, of Millersville, and was tested by the members.

H. M. ENGLE called attention to the fact that some time ago an effort was made to have members prepare essays on the methods of cultivating the various farm crops, but nothing has been done. He for one would furnish an essay on some such subject. He moved the subject of soiling stock be discussed at the next meeting, and the motion was carried.

PROF. S. S. RATHVON read an article on the large pumpkin exhibited by Henry Kurtz at the last meeting. There were 644 seeds in the pumpkin, one by one and a-half inch in size. It proved an excellent article. The walls were only four inches in thickness. Made up into various dishes, it gave general satisfaction.

There being no further busines before the society, on motion it adjourned until the first Monday in January, 1878.

TOBACCO GROWERS' ASSOCIATION.

A stated meeting of the Lancaster county tobacco growers' association was held in the Athenæum on Monday afternoon, November 19. The following members and visitors were present:

M. D. Kendig, president, Manor; W. L. Hershey, secretary, East Hempfield; Henry Kurtz, Mount Joy; Colin Cameron, Elizabeth township; Sylvester Kennedy, Salisbury; Henry Shiffner, Leacock; Wash. L. Hersbey, Rapho; A. P. McIlvaine, Paradise; I. W. G. Wireman, York; J. M. Johnston, Lancaster; George Zentmoyer, Elizabeth; Samuel Smith, Elizabeth; Harry Mayer, East Hempfield; William Rose, Elizabeth township; J. M. Stauffer, Earl; Christian Musser, Earl; A. M. Hiestand, Mt. Joy; F. Y. Erb, Stark county, Ohio; J. M. Hess, Manheim; Joseph E. Miller, East Hempfield; John M. Snavely, East Hempfield; John Diffenbaugh, East Hempfield; J. R. Wilson, East Hempfield; J. G. Rush, Pequea; W. S. Kennedy, Salisbury; Wm. Ruth, Elizabeth township; A. H. Summy, Manheim; Jacob M. Frantz, Manor.

Crop reports having been called for, Mr. Kurtz, of Mount Joy, said stripping had commenced, but not much was yet stripped. Thus far the tobacco has turned out much better than was expected.

Colin Cameron, Elizabeth township, said in his neighborhood there was not as much tobacco grown as in some other sections of the county; he had noticed some little that had been stripped, but not much, the stem at the butt ends of the leaves being as yet too soft to safely tie into hands. Some are stripping the leaves and arranging them, but are not yet putting the tobacco down in bulk, as it would be apt to rot if they did so.

WASH. L. HERSHEY agreed with Mr. Cameron that the tobacco was as yet too soft to strip with safety.

SYLVESTER KENNEDY said there is a good deal stripped in Salisbury, and it looks very well, being of good color and quality. It is also very free from worms.

HENRY SHIFFNER said some farmers in his neighborhood were almost done stripping. The crop is very good, equal to any ever grown in the county, and better and more to the acre than ever before grown in Upper Leacock.

MR. RUSH, of Paradise, said he has stripped about two thousand pounds. That part of the crop which he placed farthest apart on the poles and hung most carefully is not so good as that which he hung more closely together. It was due to say, however, that the tobacco hung most closely was topped lower than that which was hung farther apart.

COLIN CAMERON asked if it was not the common experience of growers that when tobacco was hung too widely apart it would fail to cure as well as if it was hung closer.

HENRY KURTZ answered, that tobacco should be hung as closely as it can hang without touching; otherwise it will mow-burn or rot.

SYLVESTER KENNEDY thought the tobacco should be wilted before it is hung in the shed, then it can be hung closer than if put in green.

W. L. HERSHEY, East Hempfield, thought a good deal depended on the time of year it was cut. If tobacco was cut early and hung far apart, it would be more apt to burn on account of the warm weather. If cut later it would probably cure better.

HENRY KURTZ said that in his neighborhood the tobacco cut latest cured best. That cut in August is more apt to rot than that cut in September. He would let it stand a week or two even if it was ready to cut in August, and not cut until September. Late tobacco also had more body than that cut earlier.

HENRY SHIFFNER favered early planting and early cutting. He thought the tobacco was generally, but of course not always, better when planted and cut early.

"How soon after stripping should tobacco be cased?" was the question proposed last meeting for discussion at this meeting.

COLIN CAMERON said he would not case his tobacco at all; he would rather sell at a low price than attempt to case it. He did not believe there were half a dozen farmers in the county who know how to pack tobacco, and if they do, they are stealing another man's trade. The best policy is to prepare your crop for market and then sell it to the packer.

HENRY SHIFFNER agreed fully with Mr. Cameron.

MR. KENNEDY said he thought we should be under no obligation to packers or anybody else. If we can make more by packing, let us pack; if we can make more by selling before packing, let us sell. We should not allow ourselves to become the victims of any combination of dealers. They will take advantage of the farmer if he is ignorant of the value of his tobacco. Every farmer should know when to pack and how to pack.

HENRY KUETZ read a communication showing that there was an irrepressible conflict of interest between the farmer and the packer. He favored the plan of each farmer packing his own tobacco. He gave some instances in which he had been largely benefited by packing his own crop. He suggested the appointment of a committee of five to complete an arrangement by which an organization of farmers might escape from the extortion of the middle men. His plan contemplated a board of directors selected by the society, who should have charge of the crops of the members and pack it or have it packed at lowest net price. He said that tobacco immediately after stripping is too soft for packing; it should be ranked up in a dark place until it is fit for easing.

J. M. JOHNSTON thought it would be impossible to get along without the aid of the packers or "middle men," as they were termed. From discussions here it is evident that the farmers are not agreed among themselves as to the best means of growing tobacco. Until they are thoroughly acquainted with growing it they had better devote themselves to that branch of the business and leave the packing to

those who understand it. As well might the farmers go into the manufacture of cigars or tobacco, or do their own milling or tanning, or make their own shoes or clothing, as to successfully pack tobacco without learning how to do it.

HENRY SHIPPNER was decidedly opposed to the idea of organizing the growers of tobacco into a packing association. He urged farmers to make themselves thoroughly acquainted with the best methods of growing tobacco. If this were done they could grow twice as much per acre as they do now, and get more for their crop at much less expense to themselves.

COLIN CAMERON was in favor of the farmers packing their own tobacco, and thus save the commission that now went into the pockets of the packer.

WASH. L. HERSHEY read a paper in which he took the ground that Pennsylvania tobacco was no better than it was fifteen years ago; but the increased price now received for it, was owing to the fact that New York dealers came here, made selections of our best leaf and sold it as Connecticut. When it became known that this was done, the New York dealers came among us; the price of our tobacco went up, and Pennsylvania leaf attained a reputation second to none. Now dealers go to Ohio and Wisconsin, purchase inferior tobacco, bring it to Pennsylvania, pack it and palm it off as Pennsylvania leaf, to the great injury of the reputation of our crop. This should be put a stop to, and perhaps the best way to do it would be to organize a movement for the packing of our own tobacco.

"Is fall plowing advisable for tobacco?" was discussed.

COLIN CAMERON said: "Yes, certainly; even if it does not, which it does, kill the worms that prey upon the crop, it mellows the ground and enables it to absorb the valuable qualities of the manure." He believes that tobacco ground should be plowed and manured in the fall; the manure should be plowed down in early spring, by which time it will have rotted, and then the ground should be plowed again at planting time.

A. H. SUMMY would plow down the manure in the fall, then lime the land and in the spring plow down the lime.

HENRY KURTZ thought spring plowing was best. He manured with lime, the corn stubble in the spring, turned it down together with the growing weeds, and never had any trouble in getting a good crop. He thought that if the ground was plowed in the fall it might lose by evaporation some of its fertilizing qualities.

COLIN CAMERON did not believe that plowing could possibly have the effect of impoverishing land. On the contrary he believed every successive plowing, even without manure, tended to enrich the land.

SYLVESTER KENNEDY believed that the more the land was shaded the better would be the succeeding crop. He would leave the second crop tobacco leaves on the ground during the winter as a protection to the surface.

MR. I. W. G. WIREMAN, of York, had cultivated several varieties of tobacco for experiment. After he took off the crop he dug up the roots, and succeeded in pulling out some that measured sixteen inches from the surface. He argued that if a plant struck its roots down sixteen inches the easier it was for the roots to get down there the better for the plant. The amount of tobacco per acre realized in Japan is as much as 4,000 pounds. The Japanese plow or dig down to a depth of sixteen inches. He favored deep plowing, and a frequent mellowing of the soil.

On motion of W. L. Hershey, the thanks of the society were tendered to Mr. Wireman for his address.

"Should tobacco seed be sowed in the fall or in the spring?" was a question referred to Wash. L. Hershey. He answered, that he favored sowing in the spring, though some of his neighbors were very successful in fall sowing. He would recommend spring sowing as being preferable.

SYLVESTER KENNEDY said he had sowed some seed in the fall and covered it with manure; early in the spring he sowed some more just alongside the other, and later in the spring he sowed another bed. That which was sowed in the fall was the best, the plants coming up stronger and thriftier.

HENRY KURTZ and President Kendig favored sowing late in the spring, say about the middle of April. The plants will be ready to set out in four or five weeks thereafter.

A. H. SUMMY had tried several modes of sowing. The best plants he had raised were those sown in the spring in a bed on which he had burned a pile of brush, and buried the seeds in the ashes.

HENRY SHIFFNER said he thought the committee recently appointed to visit the several tobacco growers of the county, inspect their crops and report on their condition, had better be abandoned. He feared the committee's motives might be misunderstood if they reported a crop to be inferior. He declined serving on the committee.

HENRY KURTZ agreed with Mr. Shiffner, and for one would not serve on the committee.

J. M. FRANTZ, a member of the committee, said he would not serve as a member of the committee if Mr. Shiffner declined, for he was certainly the best qualified man in the society to judge of the quality of tobacco when it is ready for market.

After some discussion Messrs. Kurtz and Shiffner withdrew their declinations, and President Kendig was added as a member of the committee.

"What is the best method of utilizing tobacco stems?" Referred to A. H. Summy.

"Is lime beneficial to the culture of tobacco, and how should it be applied to produce the best results?" was proposed for general discussion at next meeting.

HENRY KURTZ exhibited some fine specimens of tobacco of the Centennial and Connecticut seed varieties.

Adjourned.

THE LINNÆAN SOCIETY.

The Linnæan Society met on Saturday, November 24th, and had five members and three visitors present, with the President, Prof. Stahr, in the chair. In the absence of the Secretary, Mrs. Zell was appointed Secretary, *pro. tem.* Dues were collected, and reading the proceedings of the last meeting was dispensed with.

Donations to the Museum.

1. Three large (fossil?) *molar* teeth were donated by Mr. A. C. Stauffer, of Dillerville, Lancaster county, Pa. In digging a drain at the depth of three or four feet, Mr. S. came upon a rock of about a foot in thickness, and in removing it in order to deepen the drain he found these teeth beneath it. They are similar to teeth found in the marl deposits of New Jersey, not much unlike the molars of a horse (*Equus cabalus*), but also strongly resembling the teeth of a species of *Megatherium* found in Georgia.

2. The *vertebral column* of the common cat (*Felis domesticus*) was donated by Mr. Ripple, of North Queen street, in this city. These vertebras—from the *cranium* to the *pelvis*—Mr. R. found between the floor and the ceiling of his house, in making some repairs, where the animal had probably become imprisoned many years ago, and had perished.

3. A box containing 26 cases of "caddice" or "case-worms," and 12 specimens of the exuded *larvæ* in a bottle; donated by Mr. Bullar (teacher,) of Spring Garden, in this county.

Mr. B. found these cases in "Trout run," York county, in searching for crustaceans for bass-bait. They are the cases and larvæ of the ash-colored "caddice-fly," (*Phrygania cinerea*) or an allied species, and belong to the order *Tricoptera*.

4. Two pseudo-amorphous specimens of red-hematite (Iron) donated by Professor Dubbs, of Franklin and Marshall College, and are from Ironton, Lehigh county. One of these specimens is in form similar to the "foot," the "hammer," and part of the barrel of a pistol; and the other is an oblong sphere, or egg-shaped.

5. Two insects—one in a liquid and one dried—donated by S. S. Rathvon. The bottled specimen is "Harris' water beetle" (*Dytiscus Harrisii*,) noticed some weeks ago in the *Daily Intelligencer*. It lived until the 15th of November. The other specimen was a species of solitary HEMIPTERA (*Reduvius humanus*,) that occasionally infests human habitations, and disguises itself by covering its body with small particles of down, dirt, lint, or anything else it can appropriate.

6. A small bottle containing a germinated squash seed, found in a solid and healthy fruit when cut open, on the 20th inst. It had grown three inches, and threw out rootlets; by the same.

Donations to the Library.

1. Telegraphic determinations of longitude in the West Indies and Central America. Donated by Miles Rock, Esq., of the Signal Bureau at Washington, D. C. This is a fine quarto volume, full of scientific matter.

2. Proceedings of the Academy of Natural Sciences of Philadelphia for April, May, June, July and August 1877.

3. An octavo pamphlet, "on the method of the creation of organic types," by E. D. Cope, A.M., donated by the author.

4. THE LANCASTER FARMER for November, the *Journal of Microscopy*, and sundry circulars and papers.

Historical Section.

Two envelopes, containing twenty-one scraps of local and general biographical and historical contributions.

Papers Read.

One paper by Mr. Rathvon relating to the objects donated.

During the session of the society a dark, gloomy and most violent rain-storm prevailed without, which also had a gloomy influence within, from the fact that those present had an ocular demonstration of how the labors of many years and also the whole building may ultimately become ruined, or at least seriously damaged, in consequence of the inefficiency of the roof in keeping out the water during a heavy rain, and in this state of gloomy anxiety the society adjourned to the annual meeting on Saturday, December 29, 1877.

AGRICULTURAL.

Liquid Manure.

The subject of the value of liquid manure in its application to crops, in field, garden and lawns, is again freely discussed. Mechi, the London millionaire alderman, was among the first to apply it to field crops, and for this purpose prepared a great deal of expensive machinery and employed a great many men to do the work. His crops bore testimony to its great fertilizing qualities, and these returns Mr. M. was not slow in laying before the British public. His statistics were liberally quoted in this country, and he has a great many disciples—on paper—as those who adopted his method of applying manure soon abandoned it on account of its expensiveness. These disciples failed to see that in all Mr. Mechi's statements he made no comparison as to the relative expense of the two modes of application and the relative products. This was carefully omitted; and if we are correctly informed—and it looks as if the information is correct, as we have no recent statements from that quarter—the practice has been abandoned by the rich introducer, and it must have been from the fact that the old mode of applying manure to land was the quickest and most profitable.

For small lawns and gardens—where the expense is a matter of no consequence—there is no mode of enrichment so certain and effective as liquid manure, for in these cases it can be applied with water pots commonly used by gardeners. For this purpose a basin should dug from ten to twelve feet in diameter and three feet deep, which should be filled with stable manure, and either a conductor from a roof turned upon it—rain water being the best—or supplied from a hydrant or pump, the water being added gradually, so as to admit of the daily turning over of the mass. In a few days or a week it will be fit for use, and can be applied as the necessity may occur. In this limited way liquid manure can be used with great effect; but upon the farm it would take a mint of money to so dispose it, whatever the beneficial results may be upon the crops.—*Germantown Telegraph.*

Saving Sweet Potatoes.

Commissioner Janes, of Georgia, gives the following directions in his November report: It is very important to save them properly. They are now full of sap, and will be more disposed to rot in the hills. They should be dug when the ground is as dry as possible, and be allowed to dry in the hill before covering with earth. A very simple plan for hilling potatoes is as follows: Select a dry situation, from which the water will easily run; drive down a rough stake, to stand three and a half feet in height, in the centre of a circle of about seven feet in diameter. Raise the edge of this circle by drawing up the earth from without. Cover the entire bed thickly with dry fine straw, or other dry material. Heap the potatoes of this bed around the stake so that the sides may be as steep as possible. Then cover entirely over with dry corn stalks or broom sedge set upright, or with boards, in such a manner as to prevent the rain, which may soak through the earth covering, from reaching the interior. Then cover the whole with several inches of earth taken from immediately around the hill, leaving the top of the hill open for ventilation, but protected from rain. On the approach of severe weather, gradually increase the covering of earth to a depth of one foot.

Opposition to Potatoes.

The London *Spectator* says: "Archdeacon Denison, on the occasion of his twenty-first harvest-home, made the other day a speech on the food and drink question. There were some odd things at this festival—a loaf of 94 pounds and a cheese weighing 90, for example—but nothing quite so odd as what the Archdeacon himself said to the Somerset folk. He fiercely fell foul of the potato, and rated it as if it were no better than a Low Church Bishop. He had made up his mind not to plant another potato as long as he lived. 'To do so was simply to waste the seed and poison the ground, and the more they planted that tuber the more would they poison the ground, until it stank in their nostrils.' People ought to plant, instead of potatoes, peas, beans and beet-root, which were not subject to disease. He did not go with Cobbett in praising beer, which made people's faces red, but he recommended as a substitute for cider 'a delightful beverage, consisting of oatmeal and water, flavored with a little acid.' We do not mind his praising this 'delightful beverage,' which will be sure to be appreciated as it deserves, but it is a little too bad in the Archdeacon, in reserve to the clergy, to go over, horse and foot, to the side of the Colorado beetle."

How Long Will the Forests Last?

Under such a tremendous yearly drain the question naturally comes up, how long will our forests hold out at the present rate of manufacture? It is really an important question, upon which follows the inquiry as to what we are to do for building material when this magnificent wood—pine—is exhausted. One authority after another has entered formally

upon its solution, with satisfactory results in local instances, but very vague ones as to the field at large. At the rate we are cutting it to-day, from thirty to fifty years seems to be agreed upon as about the limit. Twenty years ago there was apparently no limit, for the consumption was not only less, but the means for its manufacture were primitive, and accomplished much smaller results than now. It seems as if it were impossible to further improve the machinery of saw-mills: but the near future may, for all that, see sawing machinery in comparison to which that of the present will be contemptible. So, although twenty years ago there was no foreseeing the end of the timber, now, with the modern mills and myriads of them, we are beginning to calculate with dire certainty as to the time when the "Wooded Age" will be a thing of the past.—*Chas. D. Robinson, Scribner for December.*

Silver Hull Buckwheat.

D. N. Kern writes to the *Practical Farmer*: In the year 1873 I procured one pound of this buckwheat, and from that pound I got one bushel. In 1874 I sowed half a bushel and got twenty bushels. In 1875 I sowed two bushels and got fifty bushels. In 1876 I sowed four quarts and got six bushels. This year, 1877, I sowed four quarts on one-fourth of an acre and got twelve bushels. I found one stalk that stood by itself, some ten feet away from the main patch, that measured three-fourths of an inch across at the base, and it had one hundred and fifty branches; each branch had on an average six spikelets, and each spikelet had on an average ten grains in all nine thousand grains. I would like to hear who had a stalk of common buckwheat that had done better. This buckwheat makes more and better flour than the common kind. But still there are plenty of farmers that sow the common kind and say it is no use to pay two dollars for a bushel when you can get the common kind for one dollar.

Is Hungarian Grass Safe Feed for Horses?

A correspondent objects to our remarks on the healthfulness of Hungarian grass as feed for horses, on the ground "that the seeds are small and hard, very difficult of digestion, and liable to cause inflammation, producing all the symptoms of founder; the grass also is a diuretic, acting strongly on the kidneys and causing weakness of the loins." This is the first time we ever heard charges so serious made against Hungarian grass, and we have known of its being used for a feed for years. The best time to secure the crop is when it is in blossom, and before the seeds have formed. The beards at this time have not reached that degree of stiffness which the writer thinks causes injury to the stomach of the horse, while the embryotic seeds are perfectly harmless. One large farmer in the State has, to our personal knowledge, been using it for feed for his horses, at one time keeping eight on it without injury; but then he always aims to cut at the right time.—*St. Paul Pioneer Press.*

Age of Nursery Trees.

Mr. Aldrich, of Nebraska, set out over 1,000 apple trees, a part of which were three years from the graft; some were two years old; but three-fourths were only one year old when planted, and these succeeded much the best. He decidedly preferred one-year trees. President Furnas said that in the spring of 1867 he planted 100 three-year-old trees, without losing one; the next spring he planted beside them 100 one-year trees, and now the latter are the largest and thriftiest. On the whole, however, he prefers two-year trees, although more care is required in taking them up properly and re-setting them.

Several planters in different parts of the State agreed that young trees when set out, should lean towards the southwest, to protect the stems from the sun's rays.

Interesting Facts.

The number of seeds of wheat in one pound is 10,000.

The number of seeds in one pound of barley is 15,400.

The number of seeds in one pound of oats is 30,000.

The number of seeds in one pound of buckwheat is 25,000.

The number of seeds in one pound of red clover is 249,600.

The number of seeds in one pound of white clover is 688,400.

Virginia Tobacco.

The Baltimore *Bulletin*, referring to the *State*'s interview with the tobacco men of Richmond, very wisely says: "If we substitute for the misnomer 'over-production' the true phrase, pitching larger crops than they have force to till, we will come at the real source of the decline in reputation of Virginia tobacco. The folly of this sort of husbandry is that it destroys all the profits. A Connecticut farmer puts his last year's onion patch in tobacco—a lot of two or three acres at the outside—and makes more of it than the south-side planter makes from a hundred acres."

HORTICULTURAL.

Mice and Young Trees.

There was a great deal said last spring of the injury done to young apple-trees during last winter by mice, and the only remedy that we have yet seen suggested is to stamp the snow firmly around the trees. This is, however, not believed to be a remedy at all, and we doubt if it is of much advantage, even should there be always snow to thus use. But our method *is* a "remedy," and we have tried to impress the fact upon our contemporaries for the past twenty-five years, but we should say, judging from their ignorance in answering imploring correspondents what they must do to save their trees, that it has received but little attention in many quarters.

It is simply to bandage up the stems of the tree with any cotton or woolen cloths or old muslin with two or three wrappings, letting the bandage go into the ground an inch or two, and six or eight inches above ground and tie up. This should be renewed every autumn, if necessary, until the trees are large enough not to be injured. Those who are in earnest for a remedy will try this and save their trees; but it will be too much trouble for others to devote a couple of hours to this labor annually, and they will rather run the risk with the mice.

This method will keep out the borer also, as we have stated on several occasions. Rabbits can gnaw, when the stems are small enough, two feet from the ground, and would require the bandage to be much higher. Tarring would help as a protection, but we have known in many cases the simple bandage to be all-sufficient, and the tar to be injurious to the tree. But the best way to treat rabbits is to *feed* them. They never injure trees, except when snow covers the ground and they have nothing to live on. For this purpose cabbage, turnips, apples, or any vegetable offal will answer, and especially *hay*, of which the rabbit is very fond.

Setting Trees.

The art of making fruit and other trees grow and thrive, lies in a few brief rules as follows:

Dig them up with great care, retaining a large proportion of their roots; and any roots mangled, to be cut off at the mangled ends smoothly with a sharp knife.

To be kept in the shade, if set out the same day they are dug up. If not set the same day, dig a trench in your garden deep enough to receive the roots, pack in the trees side by side as closely as possible, with the tops touching the ground, then cover the roots; a foot deep with soil, treading and packing it around the roots; and if the trees are to remain a few days, it would be well to cover the r tops with any coarse litter to shade them from the sun.

When set, trim the trees according to the extent or quantity of roots they have, by shortening in the branches, and by removing a superfluous branch here and there. From one-third to one-half of the top of a tree, when reset, should always be shortened in.

Dig holes of ample size, so that all the roots will be in their natural, horizontal position; and place the surface soil by itself, to be first used around the roots, and the subsoil on top. Pack the earth firmly among the roots, and before the holes are entirely filled up, turn half of a pail of water into each, and wait a few hours to finish filling them.

No manure should be put among the roots; but it may be placed over them, near the surface of the ground. A mulch of barnyard litter around the trunks of the trees is very good to ward off the effects of a drouth.

How Jacob Taylor Grows Plums.

Jacob Taylor, a colored citizen of East Nottingham, owns a little property in the western part of the township, near Hopewell. He has several trees of blue or prune plums, which bear an abundant crop every other year. A few years ago when he had but one tree, it bore seven bushels, which he sent to the Philadelphia market, and his net receipts were $4 per bushel—$28. Previous to that year Jacob's tree did not bear any perfect fruit, the curculio, the deadly enemy of the plum, always stinging the green fruit when well-grown, causing it to fall off. At the suggestion of a neighbor he soaked corn cobs in molasses diluted with water and hung them in bunches on the limbs, and tied a band of cotton saturated with the same solution around the trunk of the tree. The theory is that the band prevents the insect from ascending the tree, and when any do pass this blockade they are attracted to the sweetened cobs and deposit their eggs therein instead of the fruit. His trees bear every other year and only when he practices this curculio remedy. He supplied many of our citizens with plums last week at forty cts. per half peck.—*Oxford Press.*

Budding.

The eminent horticulturist, Samuel Miller, formerly of Lebanon, now the editor of the horticultural department of *Colman's Rural World* (St. Louis,) thus discourses as "an old hand" on a subject which is under discussion in the western papers:

One says every intelligent horticulturist does it so and so; we have tried his plan, but it goes too slow. Another says that wood should not be left attached to the bud; while others bud without the horizontal cut. One method which we have practiced for forty years, with fair success, we still adhere to. Cut a cross through the bark, then a downward cut, an inch and a half in length, lift the bark carefully and insert the bud. To tie with strips of rags, as one recommends, will do where but a few buds are set; but for our purpose we would have to rob the ragman.

This season we have some 5,000 to set. With anything like a fair chance, we count on 90 per cent. to grow. The taking out of the wood is useless labor, and even often tears the germ out with it; and as to the cutting out of the bud, so described by the doctor, and cut a similar one out of the tree, the bud must be held to tie it. I often cut five buds, have four of them between my lips, set all of them, then the tie, thus saving the trouble of laying down the knife and picking up again. Old as I am I can bud 1,000 in a day and tie myself.

American Fruit in Europe.

The foreign demand for American fruit is now so great that Europe and Australia will take nearly all the fruit, fresh and dried (dried peaches excepted) which the United States can land in their markets in good condition. England prefers fresh fruit, and since October of last year has taken 396,000 barrels from the United States, beginning with the latter part of October, at the rate of 8,000 barrels a week, increasing in four weeks to 17,000 barrels. The average in December was 20,00 barrels weekly, and one week the number ran up 28,525. These were mostly Baldwins, Greenings, Russets, and Newtown Pippins. It is estimated that England will take an average of from 12,000 to 15,000 barrels a week for the entire season of nine months. The working classes of Germany and the workingmen of Australia are the chief customers for American dried fruit abroad, but the poor people of England and Russia buy to a limited extent. As long as dried apples can be exported from New York at five or even seven cents a pound, the workingmen of Europe and Australia will buy all that can be spared. The business of exporting fruit is one that has been chiefly built up since 1865.

Cracked Pears.

Chas. C. Mullen, of West Philadelphia, writes to the Germantown *Telegraph*: Seeing in your paper of July 25th an article on "Cracked Pears," I have to say that all my varieties rusted, became hard as a stone, and cracked open. My beautiful white Doyennes shared the same fate. For the last two years I have sowed salt around the trunks of the trees, enough to make the ground white, and the result is, I have no more flinty, hard, cracked pears, and my white Doyennes have regained their plump size and beautiful rosy blush.

I write this for the benefit of all who like perfect fruit. I have no doubt the mystery lies at the roots, salt being death to all the worm tribe. I believe applied to all apple orchards it would be as effectual as scalding now is to pear trees. I apply the salt but once a year, and whitewash the trees with a strong salt pickle to prevent washing off.

Forest Planting in France.

The past spring has been very favorable to the large areas in France lately planted in forests. It is stated that 5,000,000 hectares or 12,350,000 acres—about half the area of Ohio—have become unproductive as agricultural lands. Pine trees without any cultivation and a very inexpensive supervision can be made to grow upon these barren acres, netting about $2.50 per annual of profit. This would add to the productive capacity of these lands about $30,000,000 per annum. Other trees have been planted with similar economic results, and now landed proprietors are looking to tree-planting as a means of utililzing their unproductive acres.

THE grape yield in Ohio has been very satisfactory this year, although there were serious apprehensions of a failure in the spring. From Put-in-Bay alone 20,000 baskets were shipped. They have fetched from two and a-half cents a pound for Concords to six cents for choice Delawares. Catawbas have sold for four cents and upward. We are now using the latter grape and they cannot be surpassed by any out-door grape and by few in-door.

THE farmers of Minnesota have taken hold of the tree planting business in earnest. Over 10,000,000 of cuttings were set out during the past year, most of which are doing well. The young trees consist largely of cottonwood and white willow, but there is also a liberal sprinkling of maple, larch, white oak, etc.

DOMESTIC ECONOMY.

Economy in the Use of Fuel.

Much money is wasted in the too rapid combustion of coal, especially when the heating apparatus is a furnace in the cellar. If this is left to the management of servants, they will keep the fire-box full, and all the dampers open, with the grate-bars red hot below, and the thermometer among the eighties in the rooms above. This is too hot for health, injures doors and furniture, uses up the furnace, and wastes fuel. In running a furnace for the last three years, we have found "pea coal," which is the screened refuse of the coal yard, an excellent regulator of the heat and a great saving in the coal bill. It is often thrown away in the coal yard, and when sold, can generally be had at half the price of furnace coal, or less. It contains as much carbon as coal of larger size, and if the combustion is properly regulated, will go as far in heating a house. For all that is consumed there is a reduction of one-half in the cost. But it is of special service in the regulation of the combustion of the coarser coal in moderate weather, or during the night, when a lower temperature is desirable for sleeping rooms. Ordinarily, a furnace need be visited but three times a day to keep up a comfortable warmth in the rooms above. Beginning in the morning at six o'clock, the ashes are well shaken down, fresh coarse coal is added, and a thin layer of pea coal on top of this. This process is repeated at mid-day, and at nine or ten in the evening, on retiring for the night. More of pea coal is added at the last visit, to check the combustion for the night. In the morning the whole mass of coal in the fire-box is completely ignited, and there is a good fire to begin with. More or less of pea coal is used according to the temperature of the weather. It is the best regulator of combustion we have ever tried, and saves from a quarter to a third in the expenses of heating for the winter. This is an item worth looking after in these hard times.—*American Agriculturist.*

Extravagance.

A charming and intelligent Frenchwoman, who prides herself on being an accomplished housekeeper, declares that every family of moderate means in America throws away enough to support a family of equal size. She can prepare dinner from food which an American housekeeper would throw away. She says it is distressing to see, as she often does, a man at market buying a steak from the round because his straightened circumstances forbid the purchase of choicer cuts. She does not pity him because it is from the round, but for the wretched, unpalatable manner in which it will be served to him at dinner, hardened and dried by broiling, instead of being stewed with vegetables and delicately flavored after the French method. When poverty tries the soul and empties the pocket-book, high-priced table luxuries have to be abandoned, and as a consequence cheaper meats and inferior cuts are bought, and a miserable, inadequate, poorly supplied table is the result. And still the expenditure is far beyond that of a French family, who will fare sumptuously on half the money.

A Cure for Diptheria.

Dr. Chenery, of Boston, is honest enough to publish his specific for the cure of diptheria. It is hyposulphite of soda. He says it is a sure remedy; that he uses it in his practice, and has cured more than one hundred and fifty cases. We are told: "A dose of hyposulphite is from five to fifteen grains or more in syrup every two or three hours, according to the age and circumstances of the patient. Purging is the one evil which an overdose can produce, hence as much as the patient can bear without producing that result is a good rule in the severer cases. The solution or mixture can be used in doses of five drops to half a drachm in milk. For thorough stimulation the amount is greater than can be taken in water. Dr. Chenery usually gives the specific in such doses as can be readily taken in milk, using milk besides as food for small children. It is said, however, that hyposulphite prevents the digestion of milk, and therefore it should not be given in less than one hour after administering the medicine."

Canada claims to have produced the largest cheese on record. From the Ingersoll factory has been turned out a cheese weighing 7,000 pounds. It was 6 feet 10 inches in diameter, 3 feet in height and 21 feet in circumference. It required one milking of 7,000 cows, or 35 tons of milk, to produce it.

Household Recipes.

Molasses Fruit Cake.—1 pound of sugar and ¾ pound of butter, beaten to a cream. Slightly warm 2 cups of molasses and mix well with the butter and sugar, next the well-beaten yolks of 6 eggs and ½ cup of sour cream; 1 tablespoonful of cinnamon and 1 of cloves; 1 tablespoonful of ginger if desired; 2 pounds of sifted flour, with the well-beaten whites of 6 eggs; 1 heaping teaspoonful of soda, dissolved in hot water, and at the last 1 pound of currants, well washed and dried. Flour the fruit well before mixing. Bake in two bread pans in a slow oven.

Irreproachable Way to Broil a Steak.—First see that the fire is clear and not too much of it; open wide all the drafts, to carry off the smoke that is made during the process of boiling; then see that the gridiron is smooth and quite clean; rub it well with whiting or chalk; lay on your steak. Do not pound it, nor after it is in the fire stick a fork into it, as the juice will escape. Neither salt nor pepper it; do that on the dish. Place the gridiron close to the fire for the first few minutes, to carbonize the surface, then turn it over quickly to carbonize the other side. Now it should be exposed to a slower fire, to do which place two bricks on their edges, and rest the gridiron on them. The steak should be turned repeatedly and carefully, and when it feels rather firm to the touch it is rare, and, if so liked, it should be taken off, laid on a hot dish, on which 1½ ounces of butter has been melted, less than one-half teaspoonful of salt, a pinch of white pepper and one teaspoonful of chopped parsley, well mixed; lay the steak on one side and then on the other. Serve immediately.

Small-Pox—To Prevent Pitting.—A great discovery is reported to have been made by a surgeon of the English army in China to prevent pitting or marking the face. The mode of treatment is as follows:

When in small-pox the preceding fever is at its height, and just before the eruption appears, the chest is thoroughly rubbed with croton oil and Tartar-emetic ointment. This causes the whole of the body to break out to the relief of the rest. It also secures a full and complete eruption, and thus prevents the disease from attacking the internal organs. This is said to be now the established mode of treatment in the English army in China, by general orders, and is regarded as perfectly effectual.

Cure for Chapped Hands.—One part of glycerine, four of Pond's Extract or Witch Hazel, four of water; put in a bottle and shake well; it is ready for use immediately; it is well to shake thoroughly each time of using.

Cottage Pudding.—One cup of sugar, two and a half teaspoons butter, two eggs, one cup milk, one pint flour, two teaspoons baking powder. Serve with wine sauce.

Chickens.—In frying chickens we try to have the lard very hot, sprinkle the pieces well with flour, put them in and cover tightly for awhile, cook as fast as possible without burning. After a little while take off the lid, season with salt and pepper, and if brown turn the pieces and brown again as fast as possible. We think the meat is more tender and much more juicy than when allowed a long time over a slow fire.

Mush.—While the pot of water is boiling stir in the sifted meal slowly, beating hard, when thick enough, until the whole mass is smooth and then we pour it out into a crock and set in a cool place. We generally put the salt in the water. We have not yet noticed any raw taste about it.

Cheese and Bread Toast.—Grate half a cup of good cheese—use your crumbs and dry pieces—mix with it one cup of grated bread and the yolk of one egg, half a spoonful of butter, and three spoonfuls of rich cream. Add a salt spoonful of salt, and a sprinkle of cayenne and mustard if desired. Toast two or three slices of bread, spread the cheese mixture on quite thick, put into the oven a minute or two, and send to table hot. Or lay on a top slice, and make sandwich. Take a sharp knife and cut into four pieces.

Cooking Potatoes.—The Nebraska style is as follows: Wash them well in cold water, cut off a small piece of each end, put them into the pot and fill up with the coldest water you can get. Do this at least two hours before the time to put them over the fire, then boil quickly until done, (by fork proof); take off the fire, lay them on a napkin in their jackets, cover up with the corners and serve.

Indian Muffins.—One quart of Indian meal, scalded, one quart of wheat flour, stirred in the meal when cool, one dessert spoonful of salt, one tablespoonful of melted butter, four tablespoonfuls of condensed eggs, and one-half cake of compressed yeast, or two cents' worth of bakers' yeast, and milk sufficient to form a stiff batter. If for breakfast, set over night; for lunch, early in the morning.

Mince Pies Without Meat.—One cupful sugar, one cupful molasses, one cupful water, one and one half pounds raisins, (chopped,) one-half cupful weak vinegar, one-half cupful butter, a little salt, three eggs, three pounded crackers, spices to suit the taste. This will make six small pies.

Lunch Cake.—One large tablespoonful butter or lard melted in one cupful hot water, two cupsful molasses, one quart flour, stir two teaspoonsful baking powder into the molasses; line tin with buttered paper and bake.

New England Sponge Cake.—Eight eggs, their weight in sugar, half their weight in flour, a lemon rind grated, and add juice; beat the whites separate and add last; line the pan with buttered paper, and bake in a pretty quick oven three-quarters of an hour.

LIVE STOCK.

Caring for Stock.

This is a daily operation now, and, until grass grows in the spring, will be the most important one on the farm. Much of the annual profit of the farmer in many cases, *all* the profit depends upon his skill and experience in feeding and managing the stock through the winter. He must guard against waste of feed, waste of flesh, waste of vitality, for all these mean a waste of money. Five cents a day appears like a small sum, but when it applies to an animal in loss or gain, during five months of the year, it may represent a large proportion of the entire year's profit or loss, as the case may be. The first care of the farmer should be to provide warm shelter for every animal he possesses. This advice has been repeated so often that it has become trite, but it is just as good advice as it ever was, and nine out of ten farmers can still profit by it, though they may have read it a thousand times. Nine-tenths of the cattle sheds and stables of the country are not half warm enough for proper winter protection. More care is given, generally, to the horse stables, but three-fourths of these will not keep the animals comfortable during the cold weather of winter in the Northern States. The flooring and the sides should be absolutely air-tight, and ventilation provided for at the top. The practice of tying horses up with a halter should be abandoned. Each horse should have a roomy box, with a door at the rear opening into a hall or passage way. The manner in which horses are usually tied up in narrow stalls, with no liberty whatever, is cruel, and is a fruitful source of injury. Give them liberty of movement and room to turn round and lie down if they desire. A recent writer asserts that the temperature inside the stable should be but little higher than outside, as this would avoid sudden change from warm to cold and *vice versa* in taking the animals in and out. He is a merciful man, truly, but how would he like the application of his theory in his own case? Sudden and extreme alterations are to be avoided, of course, wherever possible, but this writer did not take into consideration the difference between the state of rest inside the stable, and active exercise outside—a difference, as Captain Cuttle would say, "as is a difference." We would not advise close, unventilated stables, but if they are made warm enough to keep the animals from shivering and the dung from freezing to them whenever they lie down, and are kept clean, we would rather risk them than the well ventilated stables so commonly seen—ventilated all over, sides, floor and overhead.

Feeding ranks in importance with shelter, in a consideration of this subject. Every farmer thinks he knows just how to feed to the best advantage, and perhaps they do know better than they practice. Most farmers could improve in one respect, at least and that is giving more variety of food. How common is the practice of confining cattle to corn fodder the whole winter, and horses and sheep to hay. It would be easy to exchange two or three times a week—give the horses, or even the sheep, a bundle of fodder, and the cattle a nip of nice hay—and yet a great many never do this much, even. A feed of roots occasionally would contribute ten times its cost to the welfare of the animals—horses, sheep, cattle and hogs—and in lieu of roots, a cooked meal of chopped hay, or fodder, with grain or meal of some kind, would answer the same purpose. Furnish a variety somehow, for it is as necessary to animals as to men.

Watering Horses.

This subject is again on the carpet, and there are as many views as there are writers as to when, how often and how much water a horse is to be allowed daily. Some think once a day is enough, some twice, some thrice, and some that water should always be in reach of a horse when in the stable! People accustomed to use, feed and water horses soon find out how to treat them, and in this treatment how often they should be watered daily. Those who only drive horses and know nothing more about them, may neglect them through ignorance or inattention, but must understand that they should be watered three times a day at regular intervals with cold water in summer, if it can be had, and mild water in winter. Pump or spring water meets these conditions. If driven they should not be watered until cooled off, and then they should be allowed as much as they can drink, and not be fed at, immediately after. In the stable the same things settle themselves. The common practice is to water before feeding. Horses watered three times a day—morning, noon and night—will be in far better condition for work of any kind than if watered half a dozen times, as some people driving allow their horses to be. They will sweat less and be more lively, and we believe will be in better health. Once and a half or twice a day even is not sufficient, though horses can get along with it as can cattle, but it is not advisable or humane. In fields where there are full watering troughs cattle will be found to go to them about three times a day and horses the same.—*Connecticut Farmer.*

Take Care of the Horses.

The Illinois Humane Society, through an appeal issued by their committee, make the following suggestions, which owners of horses will save their own interests by attending to.

1. SHOES.—If horses are sharp shod in icy weather, they will pull larger loads to greater advantage; it is poor economy to neglect the proper shoeing of horses, which may thus be seriously injured.

2. BLANKETS, ETC.—Horses should be protected by blankets or water-proof covers from rain or snow, while standing. The cost of a blanket is very small, and its use would repay the outlay very many times.

Any woolen or other protection placed under the pad or saddle, and extending back over the hips, will be found very useful, as protecting a weak part of the animal.

3. CLIPPING.—The clipping of horses at this season is considered to be, at least imprudent, and by this society inhumane; owners are respectfully urged to allow the animals to retain the covering which nature has provided.

4. CHECK REINS.—Work horses, if at all, should be checked very low; they can thus pull to greater advantage, protect their eyes from rain or snow, and are less liable to stumble or injure themselves. It will be noticed that the city railway companies have largely abandoned the use of check reins.

5. BITS.—It is prudent to warm with the hands, or otherwise, bits before placing them in the horses' mouths.

Knowing Horses.

A few mornings since the milk wagon of Mr. S. Wm. Cox, near Rosedale, was harnessed and brought to the door ready to go to the railway station. Mr. Cox went into the house for a few minutes, leaving "Bob" unhitchd as was the usual custom. Bob waited for some time when, probably fearing that the milk would be too late for the train, he trotted off. When the owner came out the team had gone and he started for the station on foot. Arriving there he found that Bob had made the trip in good order, and had backed up to the platform where he was patiently waiting for the wagon to be unloaded.

This animal was not more knowing than one owned by a friend of ours near Marshallton. Last winter his little son attended school a mile away. In the morning he rode a favorite horse to the school, where on being turned loose he trotted home. In the evenings he was again turned loose, and proceeding to the school he awaited the appearance of his young master to be ridden home again.—*Kennett Advance.*

Propagating Rabbits.

A foreign correspondent of that veteran journal, the New York *Evening Post*, in its weekly edition, speaks of the propagation of rabbits in Italy, a business that we have often thought could be profitably conducted here on a much larger scale than at present. The correspondent says that the rearing of rabbits in Upper Italy has been very extensively pursued for years, and is now extending itself throughout the country. For the pelts and skins alone of this little animal, Italy pays foreign countries twelve million francs annually. As an article of food it is highly esteemed, and in fact almost every portion of the rabbit can be turned to profitable account. With us many of the cheaper furs for sale are made of the skin of the rabbit which is dyed in various hues.

LITERARY AND PERSONAL.

SCHOOL TEXT BOOKS.—The study of United States History, although sadly neglected in past years, has received new impetus of late, largely owing to the improvements in books upon that subject. We have recently given some attention to school histories and have found one so eminently worthy of recommendation as to deserve more than a passing notice. The book referred to is Prof. Ridpath's History of the United States, already largely in use in this State and several of the Western States, and highly commended wherever its merits are understood. Experienced educators everywhere vie with each other in the heartiness of their words of approval for its correctness, beautiful style, elegant illustrations, comprehensive charts, authoritative maps, and other noteworthy features; while students are said to seize upon and devour its terse, instructive and entertaining narrative with all the avidity of youth in the perusal of an exciting romance. It is fact dressed in elegant periods, noble diction, impressive characterizations, and illuminted by appropriate incident and beautiful pictures. The publishers have made the most elegant and attractive school-book now before the public.

It is not the purpose of this article to analyze its merits nor indicate all the details in which it is superior to anything of the kind yet seen in this part of the country. A notice like this must be general, but our readers will thank us for a word about one valuable feature which really ought to be seen to be adequately appreciated. The colored chronological charts, which show at a glance—what cannot be gleaned from the text of any history—the men and events which were contemporaneous, make a new and valuable feature by distinguished merit and peculiar to this work. More than fifty topographical diagrams show the vicinity of every battle and important event; and the maps—which are not only geographical but civil and historical—show the political divisions of the country from time to time, with comprehensive indices of our territorial growth.

It is as neat a volume in its physical proportions, general make-up and illustrations, as one would wish to see. Its publishers, (Messrs. Jones Brothers & Co., of Philadelphia, Cincinnati and Chicago,) have spared neither pains nor expense to render it acceptable to both eye and mind, and we learn they are reaping a rich reward for their enterprise and forethought in its large sales. If our citizens look into the merits of this history, we have no doubt but that the sales will be further accelerated.

Prof. B. F. Shaub, our County Superintendent, endorses the work in the following terms:

"I have carefully examined Ridpath's History of the United States. I like it in every respect. In appearance it is the most attractive school history that I have seen. Its matter is well selected and charmingly presented. It is a book that can rest on its *own merit.*

DICKENS' LITTLE FOLKS.—Nothing has given the writings of Charles Dickens so strong a hold upon the hearts of parents as the well-known excellence of his portrayal of children and their interests. These delineations having received the approval of readers of mature age, it seemed a worthy effort to make the young also participants in the emjoyment of these classic fictions.

With this view, the different child characters have been detached from the large mass of matter with which they were originally connected, and presented in the author's own language, to a new class of readers, to whom the little volumes will, we doubt not, be as attractive as the larger originals have so long proven to the general public.

A series of twelve volumes has been prepared, presenting, among others, the following characters: "Little Paul, from Dombey & Son; "Smike," from Nicholas Nickleby; "Little Nell," from The Old Curiosity Shop; "The Child Wife," from David Copperfield, &c., &c.

A new edition of the first volume of this series, "Little Paul," from Dombey & Son, has just been issued, illustrated by Darley, and attractively bound. The other volumes will follow at short intervals.

For sale by all booksellers, or sent post-paid for $1 by the publisher, John R. Anderson, Hartford, Conn.

EXTRACTS from the "Transactions of the Academy of Sciences of St. Louis, Vol. III. No. 4." By Chas. V. Riley, M. A., Ph. D., State Entomologist of Missouri. An exceedingly interesting contribution to natural science, in a well executed octavo pamphlet of 34 pages, with one plate containing 40 finely engraved figures, illustrating the Hypermetamorphoses of *Epicauta* and *Horina*, insects belonging to the family of "Blister Beetles," or Oil Beetles;" besides several wood-cuts. The letter-press relates mainly to the "Larvæ Characters and Habits of the Blister Beetles belonging to the genera *Macrobasis* Lec., and *Epicauta*, Falen; with remarks on other species of the family MELOIDÆ;" and especially to a remarkable new genus in said family, which has been found infesting the cells of the Mason bee in the United States; with additional notes and remarks on other insects. It is very probable that these papers will possess little interest to the masses of mankind, but to those who are laboring in the field of practical entomology, with little time and few oportunities to make personal observations on the habits of insects, they will be a welcome help in solving problems heretofore dark or ambiguous, and these will appreciate the labors of Prof. Riley, and accord to him the credit due.

GONE ON BEFORE, O'ER THE RIVER OF TIME.—A most magnificent song by Prof. P. O. Hudson, adapted for Organ or Piano, and most respectfully and affectionately inscribed to the memory of a beloved comrade and brother, Major Joseph Barton, who was for a number of years a member of the Continental Vocalists (with the author.) Major Barton passed to his spirit home March 10th, 1877, at Urbana, Ohio. The song will no doubt become very popular as the melody is beautiful and the words are well adapted to it.

1st Verse.

Lov'd ones are passing from shore to shore,
One more has been called and gone on before,
Gone to his home in that beautiful land,
Where angels stand watching its magical strand,
We know he was welcomed by friends o'er the stream,
When mortal we oft sang as "only a dream,"
Now a bright spirit in splendor is seen,
In his new home of em'rald, lily and green."

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Helmick's *Musical Monthly*, 25 cents each number or $2.50 per year.

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This is a neat 12 mo. volume of over one hundred pages, and contains a large amount of useful matter, condensed in a small space, that is highly important to nurserymen, seedsmen, market gardeners and farmers generally. This little work sells readily at $1.00 a copy. We will send THE LANCASTER FARMER to any address, post paid, for one year, and a copy of this book, at the low price of $1.50.

THE "HERALD OF HEALTH" for 1878, will be a volume of great importance to farmers and mechanics, inasmuch as it proposes to publish, during the year, twelve articles especially devoted to the moral and physical interests of these classes of people; besides other rich and varied literature, which we shall notice more fully in our January number. This excellent journal is published by Wood & Holbrook, 13 and 15 Laight street, New York, at $1.00 a year. THE LANCASTER FARMER and the *Herald of Health* will be furnished to subscribers, postage paid, at $1.50 a year in advance. Address the Editor or Publisher of FARMER, 101 North Queen street, Lancaster, Pa.

NOTICE.—In our advertising columns is noticed *Stoddart's Musical Library*, a serial publication, now under way, which from its extraordinary cheapness will effect a revolution in the music publishing interest. Messrs. Stoddart & Co. agree to give for the low price of one dime, a collection of the most popular instrumental and vocal music, printed on full size music paper, of the best quality. The same amount and quality in fact as would cost $1.50 if published separately. This is a step in the right direction, and one which will find instant and hearty favor with those whom it is intended to benefit.

THE DOMINION FARMER AND AGRICULTURAL GAZETTE, a monthly periodical devoted to the improvement of live stock and the interests of stock raisers, dairymen and the general farmer. Office Main street, Drayton, Ontario, Canada. Price 50 cents. Single copies 5 cents. By Proctor Brothers. No. 1 vol. 1, issued 15th of November, is on our table—an eight-page quarto—and from its neat appearance and solid contents, we think it worthy of encouragement, and tender it a hearty "God speed."

PRETTY LITTLE BLUE EYED STRANGER, is the title of one of the prettiest songs we have ever heard. It was composed by Bobby Newcomb, the celebrated minstrel professional. The melody is bound to captivate every lover of a good song and remain fresh in their memory a lifetime. Price, 35 cents per copy. For sale by any music dealer in the United States, or can be had from the publisher, F. W. Helmick, 50 West Fourth street, Cincinnati, O.

VICKS' ILLUSTRATED MONTHLY MAGAZINE for January, 1878, is on our table, and is a realization of the most sanguine anticipations that the most fastidious could have indulged, from its announcement in the last number of the *Floral Guide*. Its frontispiece, an illustration of "Phlox and Pansy," is superb. Full of valuable floral literature, and profusely illustrated from beginning to end, the scenic aspect of which is "just heavenly."

"TOUCH ME GENTLY, FATHER TIME," is the title of a new and beautiful song and chorus, by CHARLIE BAKER, author of the famous "*He Holds the Fort of Heaven.*" Dealers are ordering it by the thousand. The whole country will soon be singing "*Touch me Gently, Father Time.*" Any music dealer will mail you this beautiful song for 40 cents. Published by F. W. Helmick, 50 West Fourth street, Cincinnati, Ohio.

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WE are under obligations to Mr. A. C. Veterling, of Allegheny city, for a miniature folio, admirably compiled and tastefully executed, and containing the Ten Commandments, a brief summary of the Doctrines of the New Church, the inspired books of the Sacred Scripture and the Creed, as used in the Pittsburg New Church Sunday-school, and which ought to be appreciated and used by Sunday-schools *per se.*

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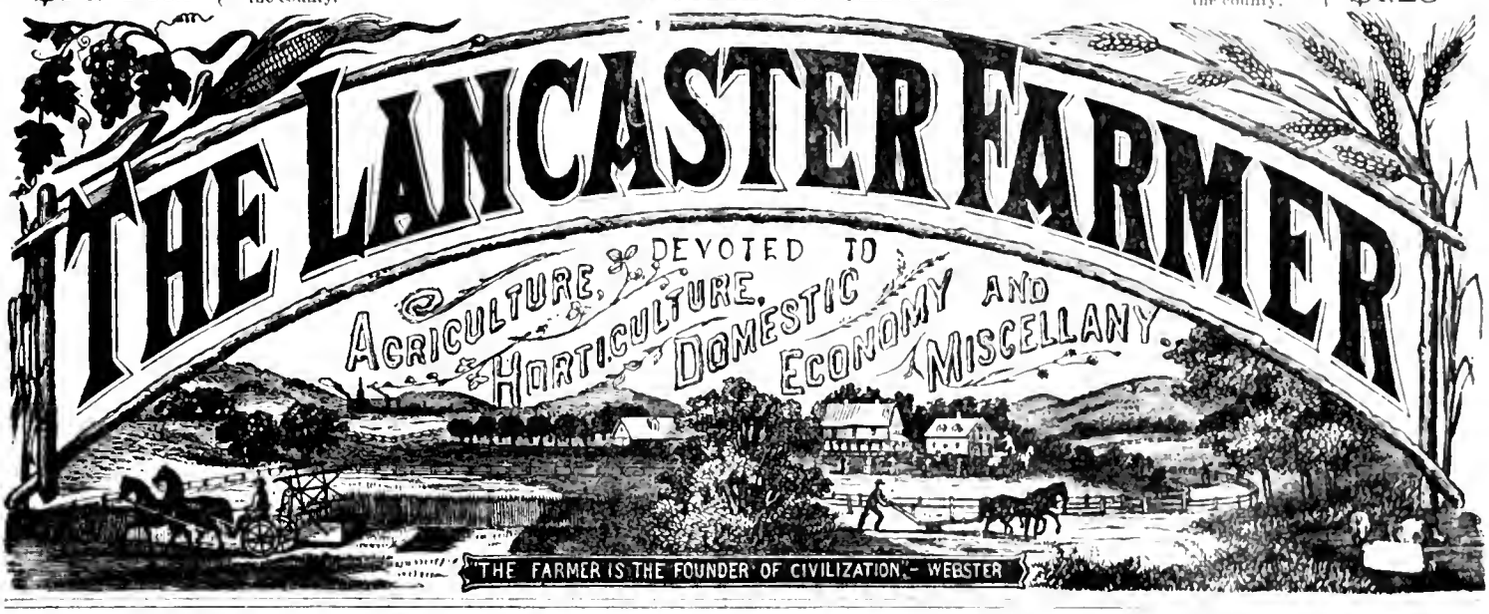

Prof. S. S. RATHVON, Editor. LANCASTER, JANUARY 15, 1878. LINNÆUS RATHVON, Publisher.

CONTENTS OF THIS NUMBER.

PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*.....	2:40 a. m.	4:05 a. m.
Way Passenger†	4:50 a. m.	7:50 a. m.
Niagara Express.....	9.35 a. m	10:40 a. m.
Col. Accommodation..	7:20 p. m.	Col. 8.00 p. m.
Mail train via Mt. Joy.....	11:20 a. m.	1:00 p. m.
No. 2 via Columbia.....	11:20 a. m.	1:25 p. m.
Sunday Mail.....	11:20 a. m	1:50 p. m.
Fast Line*.	2:10 p. m	3:25 p. m.
Frederick Accommodation.	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accom.....	6:00 p. m.	8:10 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:00 p. m.
Harrisburg Express.....	7:25 p. m.	8:40 p. m.
Pittsburg Express	9:25 p. m.	10:50 p. m.
Cincinnati Express*.....	11:30 p. m.	1:15 a. m.

EASTWARD.	Lancaster.	Philadelphia.
Atlantic Express*.....	12:30 a. m.	3:00 a. m.
Philadelphia Express†.....	4:10 a. m.	7:00 a. m.
Harrisburg Express.....	7:35 a. m.	10:00 a. m.
Columbia Accommodation..	9.28 p. m.	12:50 p. m.
Pacific Express*	1:20 p. m.	3.45 p. m.
Sunday Mail.....	2:00 p. m.	5:00 p. m.
Johnstown Express.....	3:05 p. m.	6:00 p. m.
Day Express*.....	5:15 p. m.	7:20 p. m.
Harrisburg Accom.....	5:50 p. m.	9:00 p. m.

The Hanover Accommodation, west, connects at Lancaster with Niagara Express, west, at 9:35 a. m., and will run through to Hanover.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 2:10 p. m., and runs to Frederick.

The Pacific Express, east, on Sunday, when flagged, will stop at Middletown, Elizabethtown, Mount Joy and Landisville.

*The only trains which run daily.

†Runs daily, except Monday.

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