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

THE

Lancaster Farmer, A MONTHLY JOURNAL:

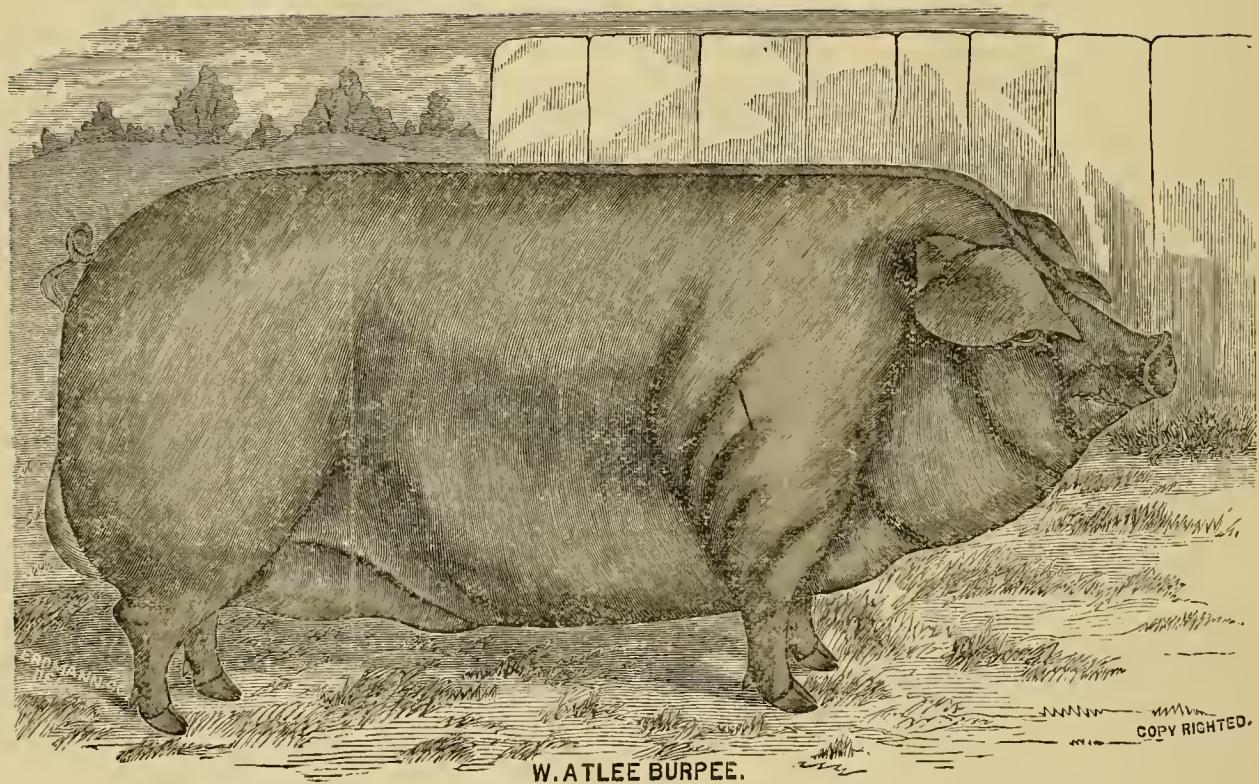
DEVOTED TO

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

EDITED BY PROF. S. S. RATHVON.

VOLUME X.—1878.

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W. ATLEE BURPEE.

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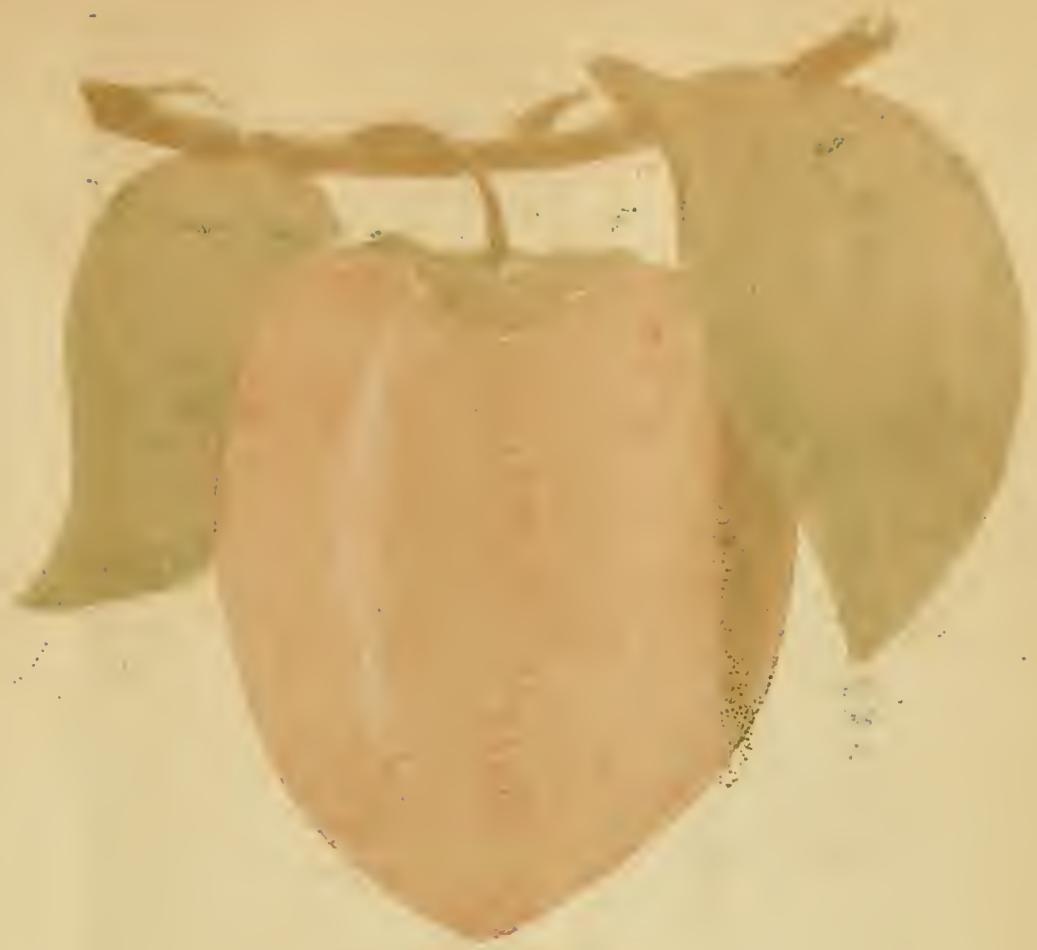
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THE YAMATO.



THE MIKADO.

The Lancaster Farmer.

Prof. S. S. RATHVON, Editor.

LANCASTER, PA., JANUARY, 1878.

Vol. X. No. 1.

OUR TENTH VOLUME.

With the initiation of the New Year we enter upon the tenth volume of THE LANCASTER FARMER, and in doing so, we confess that we are influenced by some of that confidence which so universally attaches to the significance and potency of the number 10. Ten times 10 make one hundred, and ten hundreds make a thousand; a numerical result that never could occur in the absence of the first 10.

Ten just and God-fearing men, we are admonished, might have saved even Sodom and Gomorrah—might have vouchsafed to these ancient cities—notwithstanding their iniquities—a time-lease that might have continued their prosperity down to the present day. If we are unable to prove this, we might reply that the converse is just as difficult to prove. But the ten just men could not be found within their walls, and therefore those “doomed cities of the plain” were converted into smouldering ruins, and even their ruins were submerged, and their subsequent geographical location became questionable, or entirely obliterated.

Is there public patronage enough in our great county to secure to THE LANCASTER FARMER the symbolic 10? Will the representative ten men be found within its limits who will vouchsafe its salvation from the fate of Sodom and of Gomorrah? We trust they will—we believe they will—and this boon secured, THE FARMER may be raised upon a wave of prosperity that will carry it over the “breakers” of adversity, and eventually land it on a friendly shore in triumph. There is a wonderful power in the human *will*; and all we need is the *will* to enable us to find the way. Even numbers are also believed to be ominous of good, and therefore we look to 1878 as the harbinger of a returning prosperity to our country—its commercial, agricultural and manufacturing interests; and through these to a corresponding support of its moral and literary institutions and enterprises. With these hopes we launch our bark again upon the sea of the unknown future for another yearly voyage. Our tenth voyage ought to be crowned with success; and if it is not successful, it will not be because we lacked *faith* in the significance of numbers, or failed to ultimate that faith in *works*. But without God, and the people as *roxi Dei*, or the voice of God, “we can do nothing.” We therefore lean upon the sustaining support of the people, and exhort the people—and especially those among them who compose the farming people—to vouchsafe their pecuniary, their intellectual, and their moral support. We admonish them that nothing can more firmly establish their individuality, their personal identity, and their local reputation, than the sustaining of a representative journal among them. To do this successfully, the personal responsibility is so small, that they might be justified in wishing it were greater. A fraction over nine cents a month—the price of a good cigar—and the postage paid.

Nothing exemplifies more fully and more forcibly the prosperity of a community, than the reasonable success of its local and legitimate enterprises; and nothing can contribute more to its independence and self-reliance. We are not the advocates of a mawkish exclusiveness, but in the sequence of things and events, there are those that are *posterior*, and those that are *anterior*, as well as those that are *intermediate*. There are things of a *primary* consideration, and other things of only a *secondary* relation to them. Local interests cannot be neglected or ignored, without producing local disadvantage or distress. It is

true, that there are those who depend more upon a foreign market than upon a home market, and these will be correspondingly interested in foreign journals. But this is one of those things “which ought to be done, and not leaving the other undone.” Besides, foreign journals that cover most effectually the whole journalistic ground, are largely made up by selections from local journals, and without local journals and local correspondents and contributors, they would furnish but a meagre supply to local patrons and readers. No matter with what ability a foreign journal may be conducted, or with what excellence its columns may be filled, if its contents cannot be locally applied, it can only be of a very limited use to its patrons. It is like plants which bear beautiful leaves and flowers that are never ultimated in useful fruit. It is not so much upon what we *know*, as upon what we are able to bring down into practical use, that the success of all our energies and our enterprises depends. We desire to make our 10th volume far superior to any that has preceded it; for, even if we should not go backwards, we are not content to stand still, but desire to go forward. Even if we should be contented with what we *have*, we are far from being contented with what we *are*; for such a mental or moral condition shuts the door of both physical and intellectual progress. We aim to develop the physical resources and moral character of our “garden of the Keystone State,” but we also aim to be developed with it, in order that our mental garment may be ample enough to be worn with comfort. If our journal is only a “straight jacket,” we desire to increase it to the ample folds of a “cloak of royalty.” We desire to realize that

“No pent up Utica contracts our powers,

The whole unbounded continent is ours.”

Whether we ever shall be able to reach this goal will depend on circumstances; but whether we shall or not, we deem it no crime to entertain or indulge such an ambition, and are not responsible for that which is impossible. Whether THE LANCASTER FARMER will be permitted to develop the uses it desires to develop, and that a progressive people need to have developed, for “ten, ten, double ten, forty-five and fifteen” years, will depend entirely upon its financial basis during the advent of its first ten. The farming interests of our great county are becoming such that it cannot socially and morally well afford to do without its local representative journal, and this would become regrettably apparent if its present publication should happen to be discontinued. Hence we appeal to our patrons, and the friends of agricultural progress, to lend a sustaining hand through the New Year. Write for it; talk for it; secure subscribers for it; and convert it into a moral and social “engine of strength.” Canvass for it under our club and premium solicitations. Let our list of subscribers constitute themselves a “committee of the whole,” and “each man bring his *other man*.”

Whatever we can do through the columns of THE FARMER, or otherwise, to make 1878 a prosperous, a healthy and a happy year, will be cheerfully, honestly, and faithfully done. Not forgetful of the *past*, we desire to admonish them how to appreciate and improve the *present*, and to anticipate the *future*. We do not desire to dictate to them what their own common sense may suggest much better than we can teach; but *knowing* can accomplish nothing without *doing*. Even doing “little by little,” if reasonably persevered in, will eventually bring success. That this success may be *theirs*, and through *theirs*, *ours*, with a *Happy New Year*, is the sincere wish of THE FARMER.

DO BEES REALLY DESTROY FRUIT?

We have already given as much space, in the columns of THE FARMER, to the discussion of this question, as we can well afford, especially at this season of the year—when its practical demonstration is almost impossible—and we therefore trust that those who have their minds made up, *pro* or *con*, will defer an expression of their final sentiments on the subject until the next *bee* and *fruit* season. This will attract the practical attention of those who have not made any observations on the subject, or who may not have been as thorough in their observations as the necessities of the case demands. It is undoubtedly a question of *importance* if, as it is so earnestly alleged by such respectable authority, that bees are very destructive to fruit—especially to the grapes—and denied by other authority of equal respectability; because the questions whether the culture of bees or fruit should be, or should not be, entirely abandoned, seem to be inextricably involved in whatever determination may be come to, as the truth of the matter—or a safe and certain remedy be discovered, whereby their culture may be harmonized. We do not think that a single isolated observation, or even a series of observations made in a single isolated locality, and made without any reference to surrounding circumstances, should be allowed to determine the question either way. Nor do we think that any motive of self-interest should be allowed in extenuation of the characteristics of bees, any more than they should be allowed to ‘be set down in malice.’ Our own experience in our observations of the animal world are to the effect that the habits of animals have undergone, and are still undergoing a change, and, therefore, what may be true at one time and in one place, may be very different at another time, and in another place; and that bees may be as much influenced by the causes that produce these effects as other animals. Although we think it *possible* for bees to offend in the manner charged against them, yet we confess that our sympathies are still with them.

PERSONAL.

The *proceedings* of societies published in THE FARMER, are of permanent value—too valuable indeed to be left to the vicissitudes of a daily paper, all the copies of which, a day or two after publication, are usually destroyed, and often could not be obtained, either “for love or money.” Besides, they are corrected and revised, and are therefore more reliable than those which appear in the columns of the dailies. Very few people file or bind their dailies or weeklies, they are too bulky for convenient handling. In other States, in many parts of our own State, as well as in some localities in our own county, the *real status* of THE LANCASTER COUNTY FARMER, is best known, and in some instances only known, as it is reflected through the proceedings of our local society, and published in their local journal; and when they are quoted, they are quoted from that source. At the end of each year we append an alphabetical index, referring to every article in the whole volume: our patrons, therefore, will act wisely if they preserve their numbers and have them bound. There is not a paper in the country that is more compactly and solidly made up than THE FARMER, or of more local interest. As to reporters, we cannot control them. They go where they list, and report what they please, or what they can. We cannot, therefore, omit the proceedings of our societies, because they happen to be first published in other papers; because, this would be manifestly unjust to those of our readers who never see any of the dailies.

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 February 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.

ABOUT MOSQUITOES.

The most abundant, and therefore the most common species of the mosquito in this latitude, is the "Culex pipiens," or "piping mosquito," from the peculiar piping sound it makes when it is intent on giving its victim a jab in the dark. The cause of these pests making their appearance on the 20th of December last, was in consequence of the high state of the temperature. We noticed bees on the wing the same day. Last winter we noticed a swarm of bees out on the wing, and very active in the month of February. Per-

haps there is no class of animals that presents a greater variety in its developmental conditions than that of insects. Some produce one brood in three, four or five years; some one, two, or three broods within one year, or a summer season; others again, continue to produce one brood after another as long as the favorable temperature of the weather permits them; and this is especially the case with many species belonging to the order "Diptera," which includes all the two-winged flies, and to which the mosquito belongs. Progressive development depends upon certain surrounding conditions, among which are heat, moisture and aliment, accordingly as the insect, for the time being, may be in its oval, its larval, its pupal or its mature state. Through the first three states all insects must successively pass before the last, or adult state can possibly be developed. The incubation of the egg requires a certain temperature, and as long as it continues below the incubating degree, the eggs will be in a state of functional suspension for weeks and months together, and perhaps would continue so for years, unless they were subjected to such violent conditions as would destroy their vitality altogether.

About one year ago nine carloads of silk-worms' eggs arrived at San Francisco from China and Japan, from whence they were shipped "across the Continent" to New York city, and from thence to different European ports, where silk-growing is made a specialty. With these eggs the incubating temperature was prevented by the introduction of ice, and so long as the temperature could have been kept below that point, these eggs might have been transported several times around the globe without their hatching. The same law governs the eggs of mosquitoes, except that they will hatch at a lower temperature than the eggs of the silkworm moth. There they all are, endowed with a vitality that is ready for further development as soon as the normal conditions supervene. And after the young larvae are excluded from the eggs, the case is the same. If surrounded by their special aliment, they begin to feed, and if this is not accessible, of course they all must perish. But if the temperature becomes too low, their further development is arrested, and their functions are suspended; but their development is resumed as soon as the necessary degree of heat is restored, no matter what the season of the year is. And after the larvae are transformed to the pupa state, they are governed by the same laws; and this is especially the case with the mosquitoes and the house-flies. We have seen the mature mosquito developed every month in the year. They and the "Perlidae" (shad-flies) require less heat for their development than perhaps any other families that belong to the Dipterous order. As soon as a few warm days in succession supervene, whether in the months of December, January, February or March, the mosquito and the housefly will evolve from their pupal condition and come forth in their perfect winged state, and will be ready to appropriate their accustomed aliment, whether it be to lap up "inconsiderable trifles," or to pierce human beings and suck their blood. But, should a "cold snap" intervene, their functions will become suspended and they will hibernate in some convenient nook or corner, until a return of their normal temperature.

The larvae of mosquitoes hatch, breed, and feed in stagnant pools of water, whether in a swamp, a pond, a marsh, a sluggish stream, a tank, a tub, or a rain stand. But they are always more abundant, develop more rapidly, and live a shorter period during summer than they do during winter. Those that come forth during the winter, in the winged state, are usually the retarded individuals of the preceding autumn. The larvae of house-flies hatch, breed, and feed in cesspools, or in any moist and decomposing and filthy animal or vegetable matter, and their sanitary effect, in the decomposition and removal of filthy garbage is incalculable. The larvae of mosquitoes purify ponds, pools and marshes, that

otherwise might create miasmatic diseases. After flies and mosquitoes have passed the nuptial season, and have deposited their eggs, their life-span is usually very limited; but if those periods are from any cause interrupted or retarded, their lives may be greatly prolonged. This accounts for the appearance and disappearance of house-flies and mosquitoes during winter. It is a mistake to suppose that these flies breed in the houses they occupy. A house that furnishes a nidus for the development of these flies, would require to be an exceedingly filthy house—too filthy for any human being to live in. The oozes of barn-yards, pig-sties and slaughter-houses are prolific places for flies to breed in, but mosquitoes must have stagnant water. This does not militate against the fact that a few flies also hibernate during the winter season. Nor against the fact that those insects which produce only one brood during the year, will not be changed in their developmental conditions by either heat or cold, but will abide their appointed times and seasons.

ONLY A FARMER."

This is about equivalent to *Only a Shoemaker*, or *Only a Blacksmith*, or any other occupation by which an honest living may be obtained. Now, this ought not to wound the feelings of either farmer, shoemaker or blacksmith, or any body else who labors for a living; and it would not, if they were all endowed with "sound discretion," or common intelligence. They might find occasion for pity, or even for contempt, but there is no occasion to feel wounded by such "codfishy" sentiments.

"Did these foolish people ever read their Bibles, they would find that God himself had selected his prophets and kings from among farmers. Noah was a husbandman, and planted a vineyard; Abraham was rich in cattle, and Lot had flocks and herds—inasmuch that there was not pasture enough for both, and they divided the country. Lot selected the plain of Jordan, and Abraham took the hilly country of Canaan.

Jacob was a great cattle-grower, as he presented Esau with several hundred cattle. Moses was a wool-grower, and Gideon was taken from his threshing floor. Saul was a herdsman, even while he was king. David was a shepherd, and was from that occupation to be king of Israel, and the ancestor, according to the flesh, of the Messiah. Uzziah was a cattle-grower. Elisha was plowing, with twelve yoke of oxen before him, when Elijah cast his mantle on him and called him to be a prophet of the Most High. And yet, though God has honored the husbandman—selected his kings and prophets from among farmers—there are those so foolish as to cry out, 'Oh, he's nothing but a farmer!'—"Farm and Shop.

THE HORNS OWL.

The following correspondence explains itself:

QUARRYVILLE, Dec. 24, 1877.

MR. RATHVON—Sir:—I send you this morning by express a large owl that was caught in my poultry yard, and, as it is a fine looking fellow, I thought you could make something of it; and if not, please hand it over to somebody that can. They are rather scarce in this neighborhood. I have not seen one for several years. Please answer in the *Intelligencer*, giving sex and species, and oblige yours as ever,

R. C. EDWARDS.

Thanks to our considerate friend Edwards for his magnificent Christmas gift, although it is only an owl. He does not send us many things, but what he does send go very far towards distinguishing Quarryville, for they are always the handsomest and rarest of their kind. Your bird is the "Great Horned Owl," (*Bubo virginianus*) and a male specimen. They have a large geographical range, but are becoming rare in this locality, which they usually only visit in the winter season. This species feeds on partridges, rabbits, rats, field-mice, pigeons, chickens, reptiles, the larger beetles and moths, and whatsoever

else it can catch and master in an emergency—that is, when pressed with hunger. Otherwise it is rather shy of the human species, prefers remote forests, where it builds a very rough nest of sticks, on very high trees, usually pine tress, which it lines with leaves. It deposits from three to six almost spherical eggs, of a dirty white, or bluish white color. The sexes do not agree very well together except during the nuptial season, and therefore they are generally found solitary; but when two males meet they are almost certain to have a fight, which often ends in the death of one or the other. The male bird takes little or no interest in the building of the nest or in rearing the young. They seem to have very little affection for each other and therefore prefer to be "let alone." They generally come forth from their retreats in the evening, or in the afternoon of cloudy days, in pursuit of prey; but they can also see in bright days, and maraud by day as well as night, when necessitated.

They differ somewhat in their nesting habits in different localities, adapting themselves to surrounding circumstances; for instance, they are said to build their nests in crevices or on shelves of rocks, and also to prey on fish. In the far north they are also said to become very much lighter in color, or nearly white.

Of course, we have had our owl "dressed and stuffed," but in that permanent style in which he may be perpetuated for many Christmas days, and not in that transient manner which continues but a single hour, or for a day at most. In this permanent form he may be "discussed" over and over again, and may constitute the subject of many a mental feast.

"Who would be a turkey hen,
Fed and fattened in a pen,
Kill'd and eat by hungry men,
Upon a Christmas day?"

when he might be as easily "immortalized" in a monumental owl in the museum of the Linnaean Society?

PROGRAMME OF MEETING OF THE PENNSYLVANIA BOARD OF AGRICULTURE.

The Pennsylvania Board of Agriculture will meet at Harrisburg, on Wednesday, January 23, 1878, at 2 P. M., when the regular business of the Board will be transacted, and the Secretary will read his annual report. The following essays will also be read:

Breeding Stock.

Best methods of inducing farmers to breed better stock, by Prof. John Hamilton, State College.

Comparative profit of different kinds of stock, by J. C. Morris, of Susquehanna.

The comparative cost and profit of well and ill bred stock, by W. G. Moore, of Berks.

Conditions and causes which influence the character, color and sex of the offspring of our domestic animals, by Secretary.

Sheep Husbandry.

Breeds best adapted to Pennsylvania soil and climate, by Hon. John L. George, of Washington.

Best breed for profit, by Eastburn Reeder, of Bucks.

Effect of present dog laws, with suggestions for their improvement, by J. P. Barnes, of Lehigh.

Fruit Growing by Farmers.

How made a source of profit, by Rev. James Calder, President Pennsylvania State College.

Varieties best adapted to Pennsylvania, by H. M. Engle, of Lancaster.

How best secured and preserved, by Prof. D. Wilson, of Juniata.

When, where and how to market, by D. H. Foresman, of Lycoming.

Barnyard Manure.

Best and most economical methods of manufacture, by Col. James Young, of Dauphin.

Time and mode of application, by E. G. Fahnestock, of Adams.

Effect upon the various cultivated crops, by A. Robinson, of Mercer.

At 7 P. M., Wednesday, January 23d, Prof. J. P. Lesley, State Geologist and Geologist of the Board of Agriculture, will address the Legislature and Board of Agriculture. Subject: Soils, as regarded from the side of Geology.

ABOUT BATS.

[The following article, which is being widely circulated through the public press, cannot but be interesting to all insect-stricken readers, especially as it illustrates the great value that a large community of bats must be to the vegetation in its vicinity, by the nightly destruction of noxious insects. A "bat-cave" is the best remedy against nightly insects, in the known world, we verily believe. Bats hang themselves up, out of the way, during daylight, and come forth while we are sleeping at night, bent on their useful mission. The Bexar Bat-cave would be a real godsend to Lancaster county, or any other insect-ridden locality in the State.—ED.]

A Remarkable Bat Cave in Bexar County, Texas.

A Chicago Times correspondent who has been roughing it with General Ord in Texas, tells the following:

Toward nightfall we drove toward the bat cave. There was a thunder shower all around the horizon, but the fevered earth appeared to evaporate the moisture as it touched the surface. And the temporary rain brought the heat of a Turkish bath—the perspiration rolling down our faces in little cataracts. If any of our chilly people want what they call here in brief, unpoetic Saxon, "a good sweat," let them come down about the middle of August and wait here until about this time. There will be no superfluous grease left when they get through.

When within less than a mile of the cave, which is situated on the crest of a high bluff, that may be called an irregular table land, General Ord directed my attention to an immense dark shadow in the horizon, extending from the ground line high up into the heavens. It had all the appearance of a strong volume of smoke issuing from the funnel of some gigantic ocean steamer. "It looks like smoke," said the General, "but it is simply a cloud of bats issuing from the cave." On approaching nearer I could distinctly make out the flying vermin, which were, truly, thicker than the densest swarm of bees I have ever seen, and there appeared to be no end to them. We soon reached the cave, which dips into a brambly gorge, and from the capacious mouth shaped like the half choked arch of a bridge, we could see the bats flying out in tens of thousands, the column growing deeper every second. They rose majestically in the ether, and then scattered in pursuit of their insect prey, extending themselves, doubtless, over an area of country simply incomputable. They go in circles, or else "zigzag" through the air, but they find their way home, no matter how far they may wander, with unerring instinct, guided in some measure, perhaps, by the strong ammonial odor which arises from the guano which they have deposited throughout ages in their abiding place.

They begin to leave the cave every afternoon as soon as the sun has, in some measure, lost his power, and they keep leaving at an enormous rate until nine o'clock in the evening, remaining away until the first streak of dawn, when they begin to return, and do not all get back until the forenoon is well advanced. They are a light-colored bat, full of parasites, and breed a smell not at all calculated to stimulate the appetite.

The cave is as gloomy as the realms of Pluto, having a gentle decline for some hundreds of feet, the roof being quite lofty and the floor covered to an incalculable depth with guano deposit, which exhales an effluvia calculated to knock down the strongest kind of a horse. There are two chambers, one opening into the other, the first being the

larger of the two. Both are oval in shape, and would, if the bats were only away, make an excellent abode for outlaws. Scott would have loved to describe such a retreat in his picturesque tale of "Bob Roy McGregor." The guano will be more efficient as a barrier against desperadoes than all the police in Texas. Bats, as you know, do not perch singly, but hang to the wall and to each other just as bees do in "swarm." The temperature of the cave is sufficiently low to prevent them from becoming heated, and how they manage to support the enormous weight of their own masses is a question which only practical naturalists can solve. They manage to do it though, without the slightest apparent discomfort. And there can not, at a moderate computation, be less than thirty millions of bats in those enormous caves! Just think what a destruction they work on the insects of the air. Only for them neither man nor beast could stand the countless swarms of the infernal Texas flies, which have no respect for rank, age, sex, color, or previous condition, and are perfectly indifferent about whether they bite a man with or without the beastly prickly heat.

Before the sun had fairly risen Hennessy, the driver, aroused Gen. Ord thus: "General, I think you had better get up. We are having a norther." This aroused us all, and we listened. Our camp was full two furlongs from the cave, and we could hear a sound "as of many waters"—in volume not unlike Niagara. Said Gen. Ord: "A norther! Why that sound is caused by the returning bats." We looked and saw the tremendous column pouring down from the skies and rushing with amazing velocity into the gorge surrounding the mouth of the cave. We went down to the spot, and the noise became so loud that we almost doubted whether a storm was not raging around us. But the trees were almost unshaken, and the sun rose like a shield of flame, from beyond the heights of Guadalupe. The sweep of the mountain rains through the rocky jaws of the Ciboka could not have made such commotion, and every moment increased the tumult. We stood there until we grew tired, and still that mighty mass kept streaming from the loaded air, while the opening of the cave was as effectually veiled from us as if a curtain had been dropped before, so deep was the volume of "the returning jauzaries." This continued, as I have already remarked, until late in the morning, but we could not wait for all to return. We loaded up and drove away more deeply impressed with the mysteries of the great universe than if a hundred long-haired professors had lectured us for a month in a college devoted to the teaching of natural history.

JANUARY.

Kitchen-Garden Calendar.

IN THE MIDDLE STATES.—January is unfavorable to out-door labor, in the garden especially but little is done. The forcing-beds and green-houses will, of course, require particular attention; and the active man may find something to do in preparing for a more congenial season. Poles and rods for beans and peas may be made ready to use when needed; manure collected; compost heaps formed, (by the way, compost is beyond all comparison the best form in which to apply fertilizers to most vegetable crops, and ample supplies may be readily made by proper attention, as the materials present themselves from time to time during the year;) fruit trees pruned; hedges clipped—those formed of evergreens not until the frost has disappeared; asparagus-beds top-dressed, preparatory to being dug when frost has ceased; when new ones are to be made, plant the *callosum*. Hot-beds for early forcing may be made, and other jobs will present themselves in anticipation of spring. Where there exists the will to work, the opportunity for the useful disposition of time is ever present.—*Landreth's R. R. & A.*

**STANDARD OF EXCELLENCE OF
BERKSHIRE SWINE.**

Adopted by the American Berkshire Association.

COLOR.—Black, with white on feet, face, tip of tail, and an occasional splash on the arm.

FACE AND SNOUT.—Short, the former fine and well dished, and broad between the eyes

EYE.—Very clear, rather large, dark hazel or gray

EAR.—Generally almost erect, but sometimes inclined forward with advancing age, medium size, thin and soft

JOWL.—Full and heavy, running well back on neck

NECK.—Short, and broad on top

HAIR.—Fine and soft, medium thickness

SKIN.—Smooth and pliable

SHOULDER.—Thick and even, broad on top, and deep through chest

BACK.—Broad, short and straight, ribs well sprung, coupling close up to hip

SIDE.—Deep and well let down, straight on bottom line

FLANK.—Well back, and low down on leg, making nearly a straight line with lower part of side

LOIN.—Full and wide

HAM.—Deep and thick, extending well up on back, and holding thickness well down on the hock

TAIL.—Well set up on back, tapering and not coarse

LEGS.—Short, straight and strong, set wide apart, with hoofs erect, and capable of holding good weight

SYMMETRY.—Well proportioned throughout, depending largely on condition

CONDITION.—In a good healthy growing state, not over-fed

STYLE.—Attractive, spirited, indicative of thorough breeding and constitutional vigor

one to three dollars, and seeds, one dollar per dozen.

This fruit is recommended to be planted the same as the apple or pear. A light gravelly soil is preferable. The older the trees are, the better is the flavor of the fruit. The first and second year after bearing, the fruit is somewhat astringent, and contains no seeds; but the older it grows, it improves in size and flavor, and is never affected by the curculio. The trees are said to attain the age of one hundred years, and grow very large. Among the testimonials as to the quality of the fruit, and the character of the vender of the trees, are such names as PROF. ASA GRAY, ADMIRAL RODGERS, HON. W. M. EVARTS, PROF. E. NORTH, N. Y.; HON. B. G. NORTHROP, Conn., and many other notable names in various parts of the country.

Japan, or rather, we may say, the Japanese Islands—for there are a number of these known to foreign nations under the collective name of Japan—lie mainly between the 30th and 55th degrees of north latitude; and between the 133d and 153d degrees of west longitude from Washington; or, the 130th and 150th east from Greenwich. Between the degrees of latitude above named lies all the territory belonging to the United States (except Alaska,) including a portion of Canada on the North, and a strip of Mexico on the South. The peninsula of Florida extends below the southern line of latitude we have above mentioned, a considerable distance. The United States lie between the 7th degrees east, and the 47th west, from Washington, in their longitudinal location, and between the 69th and 127th west from Greenwich. We don't pretend that this is geographically correct to the minute, but the territories we have mentioned are included within the latitudinal and longitudinal lines we have enumerated, except, as before mentioned, Alaska on the north, and Florida on the south; and our object in making these geographical notations, is to illustrate, not only the possibility of successfully growing the "Japanese Persimmon" in latitudes of our country that are parallel with those in its native country, but also its probability. It is true that temperatures of latitude are not always the same in different longitudes, and limited territories surrounded by water are also more or less affected climatically by such situations, and this is also the case, in some degree, by coast or inland locality. But we may fairly infer that time will as successfully work an acclimation in this fruit, as it has done with melons from Asia, pears from the East Indies, filberts from Greece, walnuts and peaches from Persia, beans from Egypt, cucumbers from the Tropics, apples from the East, chestnuts from the Sardis, cherries from Asia, apricots from Armenia, and many other species of vegetation, now successfully cultivated within our territory, which were originally brought from remote localities. The proper northern protection and southern exposure are also involved even in the successful cultivation of many of the fruits which are now acclimated amongst us, and we may expect that it will be equally, if not more important, in this fruit. We are advancing in years—on the downhill of life—and we therefore are not sanguine of seeing the Japanese Persimmon becoming a subject of general culture, but we verily believe that our posterity will, and if we can benefit posterity we are willing to abnegate ourselves.

There is a latitudinal belt including the Southern and Border States, in which it can unquestionably be successfully cultivated, if it will not thrive farther north; in Southern and middle California it thrives as well as it does in Japan itself, and as a general rule averages larger fruit. Among the hill and forest locations of southern Lancaster county it ought to flourish, and no doubt will, if properly cultivated. We remember well the time when our common tomato was regarded as exclusively a house plant, and was potted and raised merely for an ornament. Nobody thought of growing it out in the garden, and this was the same with the egg-plant, but

time and practical experience has solved the problem and has wrought such a change as demonstrates that there is no crop more healthful than the tomato crop, and as a general thing it is also remunerative.

If those of our patrons who desire to make a trial in cultivating the fruit will send to Mr. Loomis, as above directed, for a descriptive circular, they will learn all the particulars in reference to its habits, prospects, and sponsors, and may thus be able to act with reasonable intelligence upon the subject.

MYSTERIES OF A COLD AIR SPRING.*

Interesting Description of the Martic Township Cave—Scientific Theories Concerning It.

Hearing wonderful and seemingly reliable reports of stalactites, pumice or volcanic scoria, etc., being found at and in the vicinity of the Wind Cave, in the northwestern section of Martic township, Lancaster county, Pa., my mineralogical friend, Geo. S. Lamborn, and myself, recently visited the place to ascertain the facts.

At York Furnace station on the Columbia & Port Deposit Railroad, we were joined by Mr. James Clark and his son, of Mount Nebo. We ascended the river hill to the cave by a path purposely prepared for visitors by Mr. John Bair, of York Furnace, distant one-third of a mile south-east of the station. Entering one of the openings, about large enough to admit one man at a time, and creeping about fifteen feet, we descended into a cavity twelve or fifteen feet in diameter and of equal height, from which a number of horizontal galleries extend in different directions. The largest of these we followed for about eighty feet, to a point where it is closed with loose stones, the passage way varying in width from one to seven feet and from four to fifteen feet high. The smaller galleries do not exceed twenty feet in length.

Ten yards northeast from where we first entered is another open fissure, forty feet of which, to where it is closed with fallen stones, can be seen from the outside. Beyond these stones we descended perpendicularly from an opening above to a depth of ten feet, by means of a pole and the assistance of the Messrs. Clark. Here the fissure is four or five feet wide, narrowing and deepening as we proceeded until it became so narrow that we could not get further. This point we estimated to be 170 feet distant horizontally from the place where we entered, and 85 feet below the top of the ground, directly overhead. At least a hundred feet of this gallery is so narrow that but one man can pass at a time, being from ten to thirty feet high. The sides are regular and mostly solid. We concluded that with proper appliances the narrow point, which was at the extent of our exploration, might be passed. Beyond, as far as we could see, there seemed to be more room.

There are, however, no indications of a very extensive cave here—a thing not to be expected anywhere in the oldest stratified rocks. The dip of the rocks is from northeast to southwest, with many parallel seams extending northwest and southeast. It would seem that at some great upheaval two of these seams opened, when large blocks of stone fell in and prevented them from closing when the rocks subsided. On the hill above, there are a number of "sinks," showing that the stones and earth have subsided into openings below.

These eaves or crevices have been known for forty years as the Cold Air Spring, so named on account of a cold current of air which issues from the openings at times. There was no such current at the time of our visit, but Mr. Clark informed us that he had observed it so strong as to disturb the leaves around the opening. Our theory for this strange current was that the northwest wind would drive through the lower crevices of the

JAPANESE PERSIMMON or DATE PLUM

(*Diospyros Kaki.*)

We embellish this number of THE FARMER with illustrations of two of the best varieties of this delicious and valuable fruit, (see illustrations preceding first page,) which is now being grown in different parts of our country—especially along the Pacific slope, in California—where its successful culture seems to be fully established. Competent authorities claim that it commends itself to the public in possessing the following qualities:

1st. The tree is highly ornamental, a prolific bearer, hardy as the pear, and fruits early.

2d. Its fruit is solid, and may be easily transported to any part of the country.

3d. Its season is from October to March, when other fresh fruits are scarce. When dried, it is equal to figs, and can be kept a long time.

4th. It is of a bright yellow, orange, or vermillion color, according to variety; is unsurpassed for the table, and is considered equal to the peach or pear for that purpose; some specimens of the fruit have attained the weight of one pound each, although the usual average is about three-quarters of a pound.

5th. The six best varieties are the IMPERIAL, NIJION, DAIMIO, MIKADO, YAMATO, and the TAIKOON. The two choice varieties are those accompanying this number of our journal, namely, the YAMATO, and the MIKADO, the others being approximations to these forms.

6th. They will fruit in from two to three years, and are as successfully grafted as peaches or pears.

Trees can be sent by mail, on orders to the amount of five dollars and upwards; and may be obtained from Henry Loomis, Nos. 419 and 421 Sansom street, San Francisco, California. Trees from 1 to 3 years old, from

*Read before the Linnean Society December 29, 1857, by W. P. Bolton.

rocks when, during warm weather, it would be warmer than the air inside, and would pass out at the openings above with considerable force.

As we expected, we found no stalactites in rocks so slightly soluble in water. The steel ore on another part of the hill proved to be granulated quartz, colored with iron and manganese. The volcanic (?) scoria, specimens of which have been purchased by some of our acquaintances, could not be found. Persons who were reported as knowing its whereabouts had never heard of it. Indications seemed to be that the volcano from which it was emitted was York Furnace.

ANSWER TO A CORRESPONDENT.

Some days ago a correspondent made the following inquiry: "Why is it that on a frosty morning ice is formed around the stalks of Dittany (*Cunila Mariana*); on last Thursday I found it encircling every stalk that came under my notice in funnel-like form?" Our correspondent further queries whether this can be caused by the heat of the plant congealing the moisture in the surrounding atmosphere. We have gone to the trouble of investigating the subject, and here give the result of our researches.

First, then, the opinion of the ablest vegetable physiologists is that plants and, indeed, vegetable substances of all kinds, generate no inconsiderable degree of heat while growing. The atmosphere is all the while absorbing this caloric. Experiments by able botanists have clearly proven that while the growth of vegetation is apparently suspended during the winter season, nevertheless this is not the case. A certain amount of growth is necessary to sustain the plant's vitality until the approaching spring. While,

therefore, they do not evolve the same amount of heat during winter as in the summer season, there is still a certain portion constantly thrown off during cold weather. In proof of this fact, we need only call attention to the fact that snow always melts more rapidly around the stems of plants and vegetables, the trunks and limbs of trees, and, in short, of all vegetable substances having life, than when brought into contact with any other class of inorganic matter.

Dr. Darlington, in his *Flora Cestrica*, in speaking of the Dittany says: "In the beginning of winter, after a rain, very curious ribbon-like bands of ice may often be observed attached to the base of the stems—produced, I presume, by the moisture of the earth, rising in the dead stems by capillary attraction, and then being gradually forced out horizontally, through a slit, by the process of freezing."

The Dittany is not the only plant that presents this curious and beautiful peculiarity. The Frost Weed (*Helianthemum Canadense*) also has it, and doubtless the striated ice crystals that our correspondent speaks of, have their origin in the cracked bark at the roots or stem of the plant close to the surface of the ground.

If our correspondent has access to a file of

the *Scientific American*, he will find in No. 14, bearing date of April 7, 1877, an article by the eminent naturalist Dr. Le Conte on the subject, and in No. 8, February 24, 1877, of the same periodical, another article on the same subject by J. Stauffer, *et al.*, of this city, who as long ago as 1857, in the February number of the *Horticulturist*, took the ground we have advanced above.—*New Era*.

PEDIGREE OF SHORT-HORN BULL JAVELINE, 23525.

Red Roan, calved April 26th, 1875; bred by W. C. Allen, Buffalo; sold to S. J. Wheeler, Kinnedy, New York; got by Patrician, 12570, out of Undine 15th by Prince of Wales, 6064—Undine 7th by Duke, 4709—Undine 3d by Snowden, 12937—Undine by Fiery Comet, 3932—Wilhelmina by imp. Buckingham 2d, 297—Arabella 5th by Oregon, 1961—Princess by Young Norfolk, 1150—Arabella 4th by Shakespeare, 2195—imp. Arabella by Victory, 3565—Sally by Major, 2252—Old Sally by a grandson of Favorite, 252—by Punch, 531—by Hubback, 309.

This bull was sold to John Allwine, of Dauphin county, Pa., by S. J. Wheeler, of



SHORT-HORN BULL JAVELINE, 23525, owned by Henry Kurtz, Mount Joy, Pa.

New York, and by him to Henry Kurtz, of Mount Joy, Pa., October 20th, 1877.

It will be seen from the foregoing that the above named animal has a very distinguished ancestry, and therefore those of our patrons who desire to breed good stock, will know exactly where to go to secure that end.

CLUBBING.

We offer THE FARMER, clubbed with other first-class publications, at the following prices:

<i>Phrenological Journal</i> and FARMER	- \$3.00, \$2.50
<i>Harper's Monthly</i> and FARMER	- - - 5.00, 4.00
<i>Harper's Weekly</i> and FARMER	- - - 5.00, 4.00
<i>Harper's Bazar</i> and FARMER	- - - 5.00, 4.00
<i>Herald of Health</i> and FARMER	- - - 2.00, 1.50
<i>National Live Stock Journal</i> and FARMER	3.00, 2.50
<i>Mount Joy Herald</i> and FARMER	- - 2.50, 1.75

The first column indicates the regular prices of the two journals respectively, and the second column the club rates if the two are ordered together.

Canvassers wanted for THE FARMER. Send for circular. Liberal inducements.

ADDRESS.*

GENTLEMEN: In accordance with a custom adopted by my predecessors, it becomes my duty to address you at this, the beginning of the new year. Doubtless many of you would much rather listen to an essay on some agricultural topic, such as many of you are much more able to compose than I, than to thus address you at this, the first meeting of the year 1878, and the twelfth since the organization of the society. The year just closed has been one that the agriculturist should look back to with grateful remembrance. If not one of general commercial prosperity, the cultivator of the soil has certainly been blessed with remunerative crops, considerably above the average of the last ten years. The prices, too, realized have been sufficient to encourage the husbandman to prosecute his calling with renewed energy and thankfulness. The many evidences of prosperity among the rural districts show unmistakable signs of the ability of our farmers to command the respect of all unprejudiced Americans. They that possess a few acres, and are able to till it under their own supervision, may be happy in the name that classes them with the progressive agriculturist, while the turbulent mercantile

world is searching every avenue to avoid the murky flood of bankruptcy, that seems likely to swallow those who have been extravagant and improvident housekeepers. I am sorry to see the great ambition of mankind of the present age seems to be to excel each other in fine "turnouts," as if that alone would establish a name, rank and title to respectability, that would give them a position of equality among the so-called aristocrats of the day. I am reminded just here of the words of the poet Young

"The man who builds and wants wherewith to pay, Provides a home from which to run away."

In looking over the past year, I cannot but refer to the great loss to our society of the mild, genial and ever-pleasant countenance of our late departed member, Levi Pownall. His presence among us was always an omen of interest in the proceedings; his gentle disposition, and good, sound judgment on all matters under consideration by the society, could not but command the admiration of all whose privilege it was to commune with him. His heart being always in the right place, he ever had words of kindness to all who approached him, and his amiable disposition and dignified and quiet manner commanded the respect of every one.

In referring to the past year, I trust the success of the thrifty husbandman will stimulate a new era in agriculture. Let there be a disposition among the tillers of the soil to excel in the production of crops. If one acre can be made to produce over sixty bushels of wheat (while the average is less than twenty-five), why cannot whole fields be made to yield likewise? The very best methods of cultiva-

*Read before the Lancaster County Agricultural and Horticultural Society, by President Calvin Cooper.

tion should be adopted that will produce the largest result. If improved machinery and modern modes of cultivation can achieve a revolution in the productiveness of the soil, he who adopts them must certainly have greater chances of success than the one who pursues the old rut and complains that his farming "don't pay." There is evidently much room for still greater improvement. Careful experiment on a small scale at first, would cost but a trifle, while the result might be a field of great benefit to a community. Occasionally, we hear of other sections producing great crops of corn, yielding in some instances over one hundred bushels to the acre. If that, however, should be the standard, I fear there would be few to reach it, but this should not deter any from making every effort within his means to take the most that can be produced from every acre under cultivation. I do not wish to insinuate that our farmers are not progressive, but I think there is still a wide field for improvement.

With the noted fertility of our soil, much is expected of us; hence we should show to the world, by our products, that this truly is the garden spot of the great State of Pennsylvania. I also wish to commend the growing disposition of the ruralist to adorn their homes with the more modern style of architecture. I look forward with pleasure when this county will compare favorably with any of the State, in its handsome "country villas," with neatly clipped lawns, with a few specimen shade trees, shrubbery or flowers, as the taste and purse of its possessor can afford. What adds so much to the attraction of a home as neat, well kept grounds? Ten yards of sward, in good order, will soon suggest other little improvements, such as a flower here, a bush there, soon a bed of annuals that can be grown at the expenditure of a few pennies, at most, which will add more to the comforts and real enjoyment of home than dollars spent in the vanities of the present day. What man returning in the evening to his home, weary of his labors of a hot summer day, but will be attracted and refreshed by the delicious fragrance of an ever-blooming heliotrope, a choice rose, a modest carnation or the thousands of other plants that are given us to make pleasant and adorn the home!

"Be it ever so humble,
There is no place like home."

The growing interest in the proceedings of our society suggests a wider field of usefulness; hence it becomes our duty, as it should be our pleasure, to open wide the door of welcome to all who encourage us with their presence at our meetings. An essay on some subject of interest might be a part of the exercise of every session. A lecturer from abroad occasionally (if publicly announced,) would have a tendency to bring out many that have not as yet graced our rooms with their presence, and foster that social feeling that induces mankind to mingle together as one family, and exchange views and opinions that may result in a mutual benefit to all.

You could also add spirit, and very much assist the chair, by a little more prompt action on the various subjects that are brought up for your consideration. I find too many among you who do not seem inclined to take part until called upon by the chair. This to me does not seem proper, but at times is the only alternative I have to bring out the sense of the society on the numerous subjects under discussion. I therefore trust in the future you will not wait an invitation, but promptly act, and to the point, on all matters brought to your attention.

In conclusion, I tender you my most heartfelt thanks for the uniform kindness and respect you have shown me during the two years I have had the honor to preside as your chairman.

I also renew my appeal for pardon for any act that would wound the feelings of any member or others taking part in the proceedings, and humbly trust that you will believe that it has ever been my desire to increase

the usefulness of the Lancaster County Agricultural and Horticultural Society.

CARE OF DOMESTIC ANIMALS.*

As a rule, domestic animals fare better in the summer than in winter. When they have access to pasture and water in the summer season, they will generally take care of themselves, and go into winter-quarters in from fair to good condition, but these same animals, in many instances, come out the following spring with barely their frames.

This picture applies not only to owners of stock that are possessed of limited means, and can oftentimes not obtain the necessary provender for even a few animals; but there are many who have good farms with abundant means, and provisions to bring their stock out of winter-quarters as well as it went in, but prefer to add the "mighty dollar" to their pile by selling more hay and grain at the expense of the flesh on their animals, except such as are intended for the shambles. This short-sighted policy, if not killing, is at least starving the "goose that lays the golden egg." It has been proven beyond contradiction that the cheapest method to raise live stock, is to keep it in a thriving condition, by which there is a saving of both time and feed. Milch cows, especially good ones, will only pay well when well fed. Working animals will do more work and are less liable to disease when well fed and cared for.

If, however, dollars and cents were the only consideration in this connection, we might let the matter rest, and let everybody conduct the management of his own animals in his own way; but in this enlightened age, where the law takes cognizance of inhuman conduct towards dumb brutes, it would be well for every one to know to what extent he can starve his animals and remain within the pale of the law. Societies for the prevention of cruelty to animals have done very much to educate public sentiment to a higher standard. Although there are still many who claim the right to do with their own animals what they please, there are not a few who have been taught very different lessons, and many more there are that should be taught. In this nineteenth century, where cruel inflictions of punishment are no longer tolerated by law and public sentiment, is it not high time that a similar law be extended to our dumb animals? and also the masses be educated up to the same standard? From a humane stand-point, it does seem cruel to expose animals out doors in the winter season, to rain, sleet and snow, with only coarse feed that will barely sustain life until again the earth puts forth vegetation; and when such animals, sometimes by great effort, succeed in getting a better morsel, by accident or otherwise, they are clubbed by their inhuman masters, as if they perfectly understand their motives.

Our noble animal, the horse, is oftentimes subjected to treatment by men of ungovernable passions, that should not fail to call forth to his protection not only the strong arm of the law, but also of public sentiment. Many cases may be seen that are similar, but much more inhuman than the conduct of Baalam toward his ass. The Arab treats his horse with such kindness that would put to shame a majority of horse owners in Christendom. The circumstance related of the Arab who refused to sell his horse to a Christian, lest he would beat him, is no compliment to the Christian name; neither does it place the latter in a very enviable position, when he applies heavily his whip to his horse through mud or rain, in order to be in time for religious services. The horse, after a fatiguing trip, oftentimes must stand exposed to rain or sleet, while his master is edified with the Gospel of mercy, love, and kindness to all. Of all the domestic animals, none has been more cruelly tortured than the swine. A gate or bars is left open, or a rail is out of the fence, the

dumb brute gets to where are not her assigned rations, another brute or two, perhaps not quite so dumb, are sent to bring her out of mischief; the consequence often is an ear or two partially torn from her head with other lacerations that may cause intense suffering for weeks or months, and all this because the brutes had presumably not as much sense as their owner. This is not an over-drawn picture of what has happened hundreds of times. Fortunately, however, in this section, swine are mostly kept in confinement, hence such inhuman scenes as were formerly common, are now rarely transacted. The assertion is hereby boldly made, that any person that causes, knowingly, any unnecessary suffering to be inflicted upon man or animals, is not worthy the name of moral, let alone the name Christian. As the finer feelings are cultivated in man, the effects upon domestic animals must be obvious, in consequence of their more humane treatment, for there are few animals that do not recognize kindness, but above all, he who bestows the most of it will invariably reap the greatest benefit. There is, therefore, a wide field open for the promotion of happiness to man, and the comfort of his servants, the domestic animals, besides the enjoyment of dollars and cents derived by keeping them.

COMMUNICATION.

EDITOR LANCASTER FARMER.—Please accept the greetings of your old friend "Humbolt." After so long an absence he again offers you his services to the support of THE FARMER, and hereby proposes to review impartially each number, with the object of impressing its contents more emphatically upon its readers. Very valuable matter in publications is oftentimes entirely overlooked, unless special attention is called thereto, while questionable articles frequently passed unchallenged. He does, however, not intend to criticise any editorial matter intentionally, nor assume any editorial functions, but will ape a little after editors in using the word *we*, instead of *I*, which you know appears more authoritative, and assumes somewhat of dignity. He will also prefix his name with something of a title, but the most important part of his communications will be their style. You know, Mr. Editor, that many of the words in our language, have more letters than is convenient for expression. Phonetic is, therefore, destined to be the style of our language by and by, and for the purpose of educating our young farmers up to that standard, has this method been decided upon for our future writing. It is, however, not the common phonetic, but a kind of phonetic of our own, which we think will be highly appreciated by our young friends. You will observe that we have omitted the letter *d*, which is useless in the word *Humbolt*, and we expect to save the writing of many a letter by our improved method. Annexed hereto, you will find a sample of our future style and manner, which the readers of THE FARMER may expect in the forthcoming numbers.—*Von Humbolt, Jan., 1878.*

Revo of a fu Articles in the Dec. No.

The article of "Ruralist" is to the point, and any farmer hu has neglected his hints, has dun so at his own expens, only we dont understand his "fowl air."

We wonder how al the riters on *bees* would work together, if tha wer put into won hive?

Oleomargarine seems destined to take care of itself, but if we must eat tallow instead of butter, we wud lik to no it. The man hu sold dog fat for lard, did not tel the byer, so the latter never got either wors or better for it.

"Ten Rules for Farmers," page 186, shud hav bin printed in capitals. It is tu valuable tu be overlooked.—*V. H.*

[We admire the orthographical economy of VON HUMBOLT, but we are astonished at his extravagance in wasting the letter *W* on "tallo."—ED.

We would ask every reader of THE FARMER to try and procure us a new subscriber.

*Read before the Lancaster County Agricultural and Horticultural Society by H. M. Engle.

THE RELIANCE RASPBERRY.

This raspberry has never been known to "winter-kill," and we place this statement here in the foreground, because, with all imaginable excellence in all other respects, of what value is it if held by such an unstable tenure as winter-killing?

In the opinion of the Centennial Judges, who awarded it one of the prize medals, it approaches the "Philadelphia" in general appearance, but is a much finer berry, and the judges were also impressed with the belief that it would prove a valuable variety.

The Reliance is of a stalky habit, very short jointed, with prominent buds and dark, heavy foliage, great vigor of growth, and perfectly hardy, showing perfectly healthy, uninjured buds on the very tips of the canes.

Fruit large, many of them two and a half inches in circumference, roundish, with large, fleshy seed-beds, adhering slightly to the germ. Color, dark red, with rich, sprightly acid flavor; entirely free from the insipid sweet, characteristic of so many varieties; and will remain in good condition three or four days on the bushes after they are ripe, and can be shipped in perfect order hundreds of miles to market.

The introduction of Felton's new seedling raspberries—"Early Prolific" and "Reliance"—will doubtless mark an epoch in the history of raspberry culture in our country.

These berries ought to find a congenial soil in Lancaster county, even in those localities which have been considered the least fertile, especially in those that make an approximation to the sandy loam of New Jersey.

Our illustration represents two clusters as they usually occur, although it may not represent the general average, but as the variety is always reliable—hence its name—it will be found so on a fair trial.

"The Early Prolific and Reliance,
To all others bid defiance,
And we ask the wise compliance
Of Columbia's every son."

"For we often shall repeat,
With the two your list's complete,
Both for market and to eat,
Till the pleasant work is done."

For circulars and prices, address Gibson & Bennett, Nurserymen, Woodbury, N. J.

ESSAY ON MANURE.

The term manure comprehends any particle of matter that enriches land. In all ages and in almost all countries the cultivators of the earth have found it expedient to use the excrement of animals and minerals to force the growth of vegetables.

In our country, it is true, there is an extensive region which has been and is fat enough in its virgin state to yield abundant crops for a generation or two, without the application of any fertilizer; but it equally true that



large areas of land of a good quality, under a favorable sky, need constant manurial food to keep it in heart. Manure is the farmer's wealth to a great extent: but it must not be entirely depended upon. There are considerations besides, to be heeded. Thorough cultivation and rotation of crops must give assistance to the manure pile.

It is, besides, a matter worthy of the study of every farmer to acquire a better knowledge of the land he cultivates and the different manures be judiciously used. If the land was all alike in quality, the various modes of

applying fertilizers and cultivation would not be deemed necessary; but as land varies very much in quality, even within the limits of a county, different systems of farming are practicable or expedient.

A better knowledge of agricultural chemistry would greatly facilitate our labor in applying the necessary quantity of fertilizers to the soil. Certain plants grow best in a particular soil, and consequently a manure which has the most astonishing effect upon one kind of land may be comparatively useless upon another, and so on indefinitely. It is not enough to have good land, but is indispensable to have a knowledge of the capacity of it, and the proper manure to be applied has enriched many a farmer, and the want of that knowledge has impoverished many more.

Rich fields are well fed, and, as there is an abundance of material for making and applying manure, it is the farmer's mistake not to use them. It is the useless waste of materials that impoverishes the dung pile. If the weeds and other matter about our farms that are unsightly and out of place were removed to the manure heap, they could be made available as manure, and tell on the crops.

It is not the farmer possessing the richest lands who always shows the best conditioned fields. Fields originally yielding meagre crops to their owners, by untiring and ceaseless diligence and skillful husbandry, have increased more than double the yield per acre. Instead of exhausting, he enriches his fields, and what may be wanting in fertility is more than supplied by judicious manuring and management. In different quarters of the globe labor and cultivation have produced effects obviously different. In New England the harsh climate, the rocky soil, and the rugged topography present nothing encouraging to the

agriculturist, but by cultivation and incessant toil of two hundred years many acres have been made highly productive.

Here in Pennsylvania the farmer is favored by nature with a better soil, a more congenial climate and a more even topography; and by his labor and skill has improved his acres into a real paradise. The bulk of all fertility, it is said, consists of three earths—silica, alumina and lime; and as lime enters into the composition of all plants, it necessarily occupies a large place in nature's laboratory. The earth is full of seeds, and well-showered earth is

deep enriched with vegetable life. Some plants flourish most vigorously in a particular locality or soil, and it is almost impossible to eradicate them from it, which is doubtless owing to the soil being agreeable to their nature; hence the importance of applying the proper compost to sustain the soils in fertility. Some soils may be most benefited by vegetable manure, other soils by animal, and others again by mineral manures. And as the sources from which to obtain fertilizers are numerous, they may be given guano, gypsum, lime, salt, cattle dung, chicken dirt, slaughter-house refuse, bone-dust, wood ashes, forest leaves, green sand or marl, sea weeds or kelp, charcoal, offal of breweries and tanneries, of cotton, woolen and paper mills, clover and other grasses, blood of animals, urine, dead carcasses, human ordure and the useless plants which grow spontaneously in our fields and highways. There are other ingredients besides the above that are profitably employed as land enrichers. But the most important consideration with farmers should be the most useful manure for the least money. It is not every farmer that can afford to buy guano and other high priced fertilizers. Cheap land, cheap manure and skillful culture are absolutely essential to ensure success in farming.

The manures which are best known and universally used by our farmers are the barnyard pile and burnt lime, and their value upon the land is incalculable. Large farms, overwrought and impoverished by overcropping, have been made highly productive simply by the liberal application of lime. With lime and an abundance of stable manure no farm need be poor. How important then that nothing should be left to waste about the stalls and the manure pile. Let no fertilizing water escape from the manure heap, for all that is washed away by drenching rain is lost to the farm.*

For THE LANCASTER FARMER.

J. B. G. et. al. vs. ITALIAN BEES.

MR. EDITOR.—In our defense of the “busy bee,” we have chosen the above title and propose to treat the subject in something of a legal form. The plaintiff has laid down his sweeping charges, and asks as the verdict of an intelligent people that the accused shall die, and voluntarily proposes to be the executioner, so far as his locality is concerned.

Having taken no part in the controversy heretofore, you will allow me to state or repeat the charge as made by Mr. J. B. G. and others, viz.: “That Italian honey bees do cut the skins of sound grapes and suck out the liquid portion of the fruit.” This is the charge as we understand it, and the question is “Guilty or Not Guilty.” We will promise, Mr. Editor, to study briefly, all that the case will admit of, but its great importance demands more than a hasty article.

The products of the honey bee, (and mostly from the Italian variety,) in honey and wax, is estimated at \$20,000,000 per annum in the United States, and the value of bees themselves much greater. Hence, if innocent of the charge, their destruction would be a public calamity and a gigantic folly. If guilty of committing occasional depredations, such as complained of, it still remains a question of law, whether the bee-keeper has not rights that a “white man is bound to respect.”

Before introducing testimony for the defense, we will cross-question the witness on the stand.

He says in the November FARMER, “For over fifty years I had from five to forty hives of black bees in a season; I then also had lots of grapes, but the bees did not molest the fruit.” The above statement being admitted; it follows as a sequence that either a different variety of grape is cultivated, or that the Italian bee is more industrious than blacks, for it is a fact we shall not take time just here to prove, that the physical construction and instincts of black and Italian bees are the same, they differing only in color and size. If

the black bee can not cut the skin of a perfect grape, neither can the Italian “or the different crosses of that variety.” Their mandibles are the same.

Again, in the December FARMER he says, “Of course I alluded to the Italian variety, and when these eat the skin, the black bees will also come and get a share of the sweet juice. Exactly, Mr. G., you admit that their tastes and instincts are the same. This is equivalent to saying that when the skin of the grape is broken, honey bees will sip its juices. This we all admit, but that any kind of hive bees gnaw through the skins of grapes, not knowing what is inside, we must emphatically deny, and demand better evidence than the casual observations of one or two witnesses, in one or two localities, and in one or two seasons. The counter experiences of thousands of years, and in thousands of localities, cannot be thus ignored with impunity. Even if bees were guilty, as charged, the indiscriminate resort to poison, suggested, will not bear the test of either moral or economical scrutiny.

The honey bee has been given us by a wise Providence as one has said, “to gather up and convert to the use of man those scraps and fragments of creation that would otherwise be scattered by the merciless wind or lost on the ambient air;” and we may add, that no creature more fully obeys the Divine command to “gather up the fragments that nothing be lost.” When the chosen people of God entered the land of promise, a land where milk and honey flowed, the mammoth clusters of Eschol testified to the innocence of honey bees of that time of the charge now made against them. Although many years after the vines of that same land “cast their fruit before the time in the field,” not from the depredations of bees, but as we are informed, as a punishment for some sin of the people. We do not wish to be understood as intimating that for some sin of Mr. G. his grapes have “bust their peeling.” Our honorable and intelligent jury (your numerous readers) will bear with me in bringing evidence even from remote centuries, to establish the good character of the defendant in this case, for be it remembered that the honey bee is a creature governed by instinct, and not an animal that reasons from cause to effect, and goes on increasing its stock of knowledge for three score years and ten. I have not a doubt but that that antediluvian swarm that had their snow-white combs in the attic of Noah’s ark, built the same hexagonal cells that the honey bees have in this year of grace, 1877, and that under favorable circumstances they sallied forth in quest of the nectar of flowers. The ancients called the bee “Deborah,” or she that blesseth, and truly she has come down through the centuries to us, as a blessing to the cottager and fruit-grower. She goes forth as a blessing to fertilize the fruit blossom, and returns as a blessing with her load of nectar. If the honey bee depredates on fruit this year, she has always done so under like circumstances. That grapes do sometimes burst their skins under certain climatic influences, is a matter we think will be denied by no one, just as apples some seasons decay early, as was the case the past autumn. Baldwins and russets, which are usually our longest keepers in western Pennsylvania, rotted badly before the first of December, but we did not think the bees were to blame for it, though they worked busily upon the piles of rotten apples that were thrown out whenever the weather would permit them to fly. I am credibly informed that in some of the south-western counties of this State, where grapes used to flourish, they have rotted so badly that growers have removed their vines, deeming the land more profitable for other purposes of agriculture.

In this county (Warren) there are but few black bees to be found, but in all parts of the county the Italians are kept, and have been in my locality for the past eleven years; yet the complaint has never been made of them destroying a single grape. Judging from the

amount of bees and queens shipped by me to Lancaster county, I infer that the Italian bees of said county must be largely of my strain of that variety. They do not destroy grapes here, and why there? In Erie county, Pa., and the counties of New York and Ohio bordering on Lake Erie, large quantities of fine grapes are raised and are not injured by bees, notwithstanding Italian bees are kept there; in fact, they are the only kind worth keeping. But the charge made by Mr. G. against bees destroying grapes, is not new, farther than confining it to the Italian variety. In 1867 some of the people of Wenham, Mass., waxed very wroth about the busy bee, and asked the “city dads” to expel every bee from the corporation. But their wrath subsided from some cause, and Wenham is the home of one of the most extensive Italian queen breeders in the United States. It was the opinion of some that the skins of the grapes were cut by honey bees, and the opinion of Dr. H. A. Hagen, of Cambridge, Mass., formerly of Königsberg, Prussia, a learned and distinguished German entomologist, was asked, who gave it as his opinion that honey bees could not cut the skins of grapes. (See *American Bee Journal*, vol. 4, page 18.) At Virden, Illinois, in the summer of 1870, bees worked the grapes, and Mr. J. L. Peabody writes: “It was very dry when grapes began to ripen, and a shower of rain cracked open a great many of them. At first it was laid to the Italian bees, but in some places I noticed more blacks than Italians.” Under date of March 7, 1871, Mr. H. Nesbit, of Cynthiana, Kentucky, writes: “I have had grapes in my garden for twenty years, but I never knew the bees to injure the grape. I keep Italian bees. I think the trouble with Mr. Peabody was in the grapes and not in the bees. It is likely that his grapes had taken the ‘grape cholera,’ or some other disease, that caused them to burst open, and give the bees admission to the sweets.” We will next bring upon the stand, Mr. Charles Dadant, of Hamilton, Illinois, a competent witness in the case, who says he has cultivated bees in a part of France where grapes are the main crop, near the hills of Burgundy, celebrated for the wine produced by the culture of the sugared pineau, a grape richer in sugar than all the American kinds. He declares it a fact well established in that district that *bees are unable to cut the skin of grapes*. In order to establish the fact the most juicy and sugared grapes, pears, sweet cherries, plums, apricots, etc., were put inside the hives (out of the reach of other insects and birds) and never have the bees attacked them if they were not previously scratched. The experiment was repeated again and again, to establish the fact beyond the possibility of a doubt. It was also ascertained that the first cutting of the skin of fruits was made by a kind of wasp, or by birds, or caused by rain falling when the fruit was ripe. In Italy the same experiments have led to the same results. (See the 17 years *French Journal L’Apiculteur*.)

We will next call up statistics of the exports of Italy, the home of the Italian bee, from whence she has been distributed largely through Europe and America, and we find one of her largest exports to be wine. We might multiply our evidence, for we have a very large supply at command, but we deem it quite unnecessary, and fear lest we weary your patience. We think we have established these facts:

1st. By the evidence of Mr. J. B. Garber and Mr. Peabody, that when the Italian bees work grapes the blacks worked also.

2d. By the evidence of Mr. Garber, that black bees have worked upon grapes but one year in fifty.

3d. By the evidence of Mr. Nesbit, that his Italian bees never disturbed his grapes.

4th. By the evidence of Dr. Hagen and Charles Dadant, that honey bees *can not cut the skins of grapes*.

5th. By the above named witnesses that climatic or thermometric influence in con-

nexion with humidity, may cause a rupture of the skins of grapes and other fruit.

The only logical conclusion to be deduced from all the evidence available, *pro* and *con*, is that no kind of hive or domesticated bees attack or despoil sound fruit of any kind. If they did one year, they would every year. If Italian bees destroy sound grapes in Lancaster county, they surely would the grapes of our lake region, where they attain such perfection, and also the more sugary varieties of France and Italy, else we *must* admit that their instincts change. A kind Providence has given to man the honey bee, and furnished its natural food *always* in *open vessels*. But when we find her indomitable industry prompting her to save what she finds going to loss, we ought to commend, not censure. We shall ask, then, as the *verdict* of your readers, that the defendant, Italian bees, "*Not Guilty*," and that they be discharged from the odium heaped upon them; that when the circling year shall usher in the glad spring time, with its beauty and its bloom, she may go forth on her mission of love, providing a bountiful harvest of sweetness for herself, for her friends and her foes.—*W. J. Davis, Youngsville, Pa., Dec. 1877.*

FOR THE LANCASTER FARMER.
CHEMICAL FERTILIZERS.

DEAR SIR.—It gives me pleasure in accordance with your expressed wish, to state the results of my experience in the chemical fertilization of wheat.

I began in the fall of 1876 the application of chemicals to the soil, with view of increasing its fertility. I had perceived benefits, more or less marked, arising from the application of various patented and compounded mixtures, passing under the name of Raw Bone, Excelsior, Magnum Bonum, Super-Phosphate, etc.; but of their component parts I could form no idea, save at the heavy expense of a chemical analysis. It came at the same time to my observation, that these compounders, without exception, had grown wealthy in a short time, and it seemed a fair deduction, that if it would pay the farmer to use them saddled with such heavy profits, that the use of chemicals, to which they owed their entire value, at a very much less cost, must prove remunerative. Chemistry, through analysis, had established the food of plants, and it only remained for practical experiment to determine the proportions. There was no mysterious secret that could embrace the value of a ton of such compounds from ten to thirty dollars a ton over the cost of ingredients, and the manipulations of the chemicals were so simple as could be done by any man of average intelligence. Experience has demonstrated that the manure of cattle, properly fermented and rotted, is a universal manure; or to speak more plainly, it contains all the elements that are necessary to plant life. Taking this as a basis, I prepared a formula, comprising all its organic and inorganic material, and in as near the same proportion as analysis had established it. My phosphoric acid was derived from burnt bone; ammonia from sulphate of ammonia; potassa from muriate of potash—87°; magnesia from crude sulphate. When formulated the mixture showed 10 per cent. of sulphate and phosphoric acid, 4 per cent. of ammonia and potassa, 1½ per cent ammonia and potassa, 1½ per cent. of magnesia, etc. The cost of mixture was forty dollars per ton, and I applied it to my wheat at the rate of 350 pounds per acre, drilling with seed, with the following results: The first field contained 20 acres, hilly, of light sandy soil, and from which, prior to drilling, I had removed over two hundred loads of quartz stones. This field had been cropped four successive years, and each time was seeded to clover without any result. In rye in '73 it yielded 12 bushels. The crop of wheat for '74, '75 and '76 were respectively 12, 8 and 4½ bushels to an acre. The land seemed a fair specimen of utter exhaustion, and thus peculiarly adapted for experiment. To demonstrate beyond doubt the effects of

the chemicals, I left a belt of land, running the entire length of the field, through its middle, which, though unfertilized, received the same culture and seeding. The heavy equinoctial storm that prevailed shortly after seeding, washed and inflicted very considerable damage. The fertilized portion showed its superiority from its first appearance above ground, and at the time of harvest the field presented the appearance as if a land had been cradled through it. The wheat on the unfertilized belt was not over 12 inches high, and the most scrutinizing examination failed to detect a single clover plant; its product in wheat was nil. The fertilized portion showed a heavy stand of straw and good head, well filled, and when harvested, the average of the entire field was 20½ bushels—thresher's measure, weighing 62½ pounds to the bushel. The stand of clover was splendid, more luxuriant than I had ever before seen.

The second field contained 20 acres, but of land in much better order. It had yielded thirty-five bushels of corn, followed by a crop of oats—twenty-seven bushels. The soil was medium heavy and micaceous; the surface rocks of quartz and sandstone, and with a northern exposure. The same culture and quantity of fertilizer was applied, and seeded to timothy at the time of drilling. The growth of grain was continuous from its first appearance above ground, and a short time before harvest was pronounced the finest show in our county; it was estimated from 40 to 45 bushels. A violent storm, however, prostrated nearly one half of it, and compelled the use of scythes to secure it. The heads of prostrate wheat did not mature, and in many cases not half filled. The portion uninjured was very fine, but the yield was not kept separate. The average of the entire field was 30½ bushels, weighing 63 pounds to the bushel. The timothy was most luxuriant—over 18 inches in height.

The third experiment was on 20 acres in two plots, one of 22 acres was in corn, of a light soil and micaceous, with a surface rock of quartz and limestone, and southern hillside. The yield of corn was 25 bushels to an acre, and owing to its removal, the wheat was not drilled till October 2d. The other plot of 8 acres was a strong tenacious clay, with limestone surface rocks, and which was in a tough blue grass sod. It had been in wheat 7 years prior, and had then produced 14 bushels of wheat without manure. The same application was made as before, and seeded to clover. Being of southern exposure, it escaped the storm; the growth of straw was very heavy. The product of both patches was threshed together, and the yield was 32½ bushels per acre, weighing 64 pounds to the bushel. The stand of clover on corn land was very indifferent, and upon the clay sod the natural grasses choked it out entire, so I plowed up both pieces and reset with wheat. In order to ascertain if increased quantity of any one of ingredients in fertilizer were needed by the land, I top-dressed in March, each field with each ingredient separate. There was no response save in the two fields of clay, heavier soils, where the potash showed the straw full 6 inches higher, and a perceptible larger and heavier head of wheat. This leads me to the conclusion that a heavier administration of potash would be beneficial, and possibly a diminution of ammonia and phosphoric acid might not injure the yield. The wheat seeded was the Fultz, and was of superior quality. These results have satisfied me that a crop could be produced, and the next question was, would it pay? I am satisfied from a knowledge of my lands, of these past average productions of wheat, that I had an excess of wheat over what I should have had without the application of chemicals, of 1000 bushels. This surplus brought me \$1,500; the cost of chemical application was \$420, and allowing \$80 for extra threshing and labor would leave \$1000 as a profit on an investment of \$420 for twelve months—and besides, in this estimate, I have charged the entire manure to this one crop. Nor have I included the increased

value of 40 acres set in grass, one half of which I could in no event have succeeded in setting; nor have I included the increased weight of straw, which if sold, would have yielded near one half cost of fertilizer.

The season was a most propitious one for wheat, and may have added very considerable to the yield, but there is still a very large margin of profit after any such deductions. I can but believe in very heavy benefits yet to accrue to soil where applied such clover and timothy never before stood on my farm. I have seeded this year 100 acres to wheat, and have applied the formula (with some variations for experiment) to all of it.

I also experimented upon three half-acre plots of potatoes, applying a formula which represented the ash, and adding 5 per cent. of ammonia. The soil in each were entirely different, one sod, one clay, one sandy. The results were at the rate of 265, 255 and 210 bushels to an acre. The heaviest yield I had ever before obtained by the most lavish application of manure, was 85 bushels. The results in my vegetable garden were even more marked. The application of muriatic potash 85°, one tablespoonful in hill, produced Early York cabbage, one of which measured in circumference, around the outer extremities of leaves 14 feet 9 inches. Its effect on sweet potatoes was also great.

The exhaustion of lands must soon form a serious question in the older States, the steady decreasing yields point in one direction, either bankruptcy or emigration. The fertile lands of the West are hastening its solution. They are our competitors, and cheap freights have brought them to our doors. We must produce more at less cost—it must become a struggle for life, in which, as Darwin says, the "fittest will survive." The old routine will be superseded, and those who do not follow will go under. Europe has already solved and met the question. The fertility of the land must be restored, in returning that which has been abstracted—there is no other road save through chemicals. Prussia, Germany and France have so decided and acted. In Prussia alone, there are sixty experimental stations where the farmer can have his chemicals analyzed at the expense of the Government, (and no one farm is without them). Connecticut has already profited by Prussia's experience, and established a station, which last year saved to its farmers over \$200,000 in the manures they purchased for the tobacco and other crops. We are making an effort in the same direction. Our poor, worn out lands have invited the enemy to our doors. Your State, with its rich lands, is undergoing impoverishment. In another generation, you will probably mark on the thermometer of production, as low a degree as ourselves. We have only antedated you in squandering the organic wealth of our land.—Yours truly, J. L. W., Cockeysville, Md., Dec. 24, 1877.

FOR THE LANCASTER FARMER.

SPECIALTIES IN FARMING.

The tendency of farming and kindred occupations seems to lean towards specialties. Like in trades, I suppose greater proficiency is thus acquired by the individual, but unlike in trades, any untoward circumstances are accompanied with many times more disastrous results; as commonly all the capital possessed, and perhaps a great deal borrowed, is embarked in the enterprise.

Many sharp men engage in these specialties with the purpose to make money when the tide is rising, but quit as soon as there is any sign of ebbing, but in most cases there is no sign of this ebbing any more than there is a sign of a coming financial crash—there is a sudden downfall in prices through over-production or other causes, and the product that had before paid well on the investment, is now the cause of far greater loss than the gains of previous years. And to make bad worse, these very men, when such an event happens, instead of getting out of the business as best they can, reason thus: "Now this is a pretty mess, but there is the consolation that I have

fared as well as the rest—am disgusted—wonder if the others have an intention of quitting. I believe that most of them will, and commence on something else. Shouldn't wonder but what this will be the case, and then there will be a rise in prices. Guess I will try it another lick."

And he does try another "lick," but hosts of others have done this also, and the consequence is there is a still further decline in prices, sweeping away all but the firmest. This was the case in the hop business, in Wisconsin, a few years ago. Hops had been bringing thirty to forty cents a pound, paying extraordinary profits and attracting many into the business, until at last there was an over-supply, and prices fell below the paying point. The course of reasoning indicated above, was adopted by many, and the consequence was still lower prices, and in the third year of the decline, I believe some were sold as low as five and seven cents a pound for the new crops, and two and three cents for the old (one year old) crop. Great distress resulted in the hop districts, as not only the farmers failed, but also merchants, who advanced goods on long credits in expectation of being paid when money came in from crops sold.

In this county the tobacco fever is raging at present, and there is scarcely any doubt but what there will be another hop story, with the variation of a difference in crop and territory, and yet there will be more than this difference. As is well known, hops are at their best and consequently at the highest price just after they are harvested and until a new crop comes in; the one year old crop seldom brings more than one-third to one-half what the new incoming crop can be sold for, and when two or three years old is scarcely looked at. Tobacco, on the contrary, when cased, becomes more valuable for a number of years, in comparison to the new crop, but just here the danger is the greater, for there may be a large accumulation before prices show any slackening off, but when the downward course has begun it will be a long time before bottom is reached. Of course the reasoning on the hop question will be applied to the tobacco, and it will be a few years over-raising before there is a halt called; and to make matters worse tobacco is a somewhat easier though not less costly crop to raise than hops, when raised and tended as it now is. This will tempt new districts to come in, and such districts are proverbial for careless handling, but they may make what they consider pretty fair profits and continue to raise this low quality and throwing so much on the market, though much of it would be only called "stuff" by the more experienced growers, help to depress the prices of all but perhaps the very finest grades.

This crash in tobacco may not happen for years, particularly if other crops are fairly remunerative, but should these latter bring low prices for some years, there will then be attention turned to the better paying one of tobacco, and this is one of the crops that cannot bear the increase of area that wheat, corn or cotton can. I believe that the only safe course for the farmers of this county and other tobacco growing districts lies in less acreage and better farming.

The raising of sheep for their wool has attracted a great deal attention in parts of the far west for a number of years and there have been individuals who counted them by the thousands. Several times within our recollection has wool fallen to such low prices that whole flocks have been slaughtered for pelts, in some cases the tallow being saved, in others not. This killing is not to be confounded with that which is done to work off old sheep, whose best days are over, and are therefore consigned to the tallow kettle, as there can be more money made by this course than to keep them. Aside from the waste of good meat, many condemn this on the score of inhumanity, but the same plea could be urged in favor of superannuated horses, which are usually killed when their working days

are over, or when there is a loss in keeping them longer.

Just now there is an unusual interest taken in chickens, &c., and one can scarcely take up a paper devoted professedly to agriculture without seeing the headings: "Profit in Raising Fowls," "Profit in Raising Eggs," "Profit made from a Dozen Hens," &c. Some of these articles are written by persons who have really made money from raising fowls or eggs, or that have known others to do so; but there are also many articles sent into the papers by fanciers who raise and sell a particular breed and recommend these as the only *ne plus ultra* for all purposes, or the only kind out of which profit is sure when raised for market fowls, or when raised for eggs. My make up may be at fault, but I am always suspicious when a particular thing is so strongly urged to the exclusion of all others of the same kind. There is no doubt that many of those that go into the business of exclusively raising fowls, will find in this as in all other business ventures, that the sun does not shine all the time.

It may be claimed by some that specialties are a necessity in some parts, as nothing else can be raised that will pay. This may be indeed the case in a few, very few, places, but may not the majority of cases be the result of popular (sectional) opinion, and not based on real and trustworthy experiments?

When we look to the rice fields of Carolina, the cotton acres of the "Cotton Belt," the sugar cane bottoms of Louisiana, or any other place where specialties are carried on to the exclusion of nearly all other farm production, we find that the few become vastly wealthy; some make a living but the majority remain poor, and the majority of people in such districts are bound to remain poor; for those that have been more successful will in time possess the lands, and they or their children will be at the beck of the few who have made a specialty pay.

It may be claimed by some that introducing the cultivation or raising of something new to the district is rather risky, on account of ignorance in cultivation, harvesting and disposing. This might have been the case years ago, but now there is hardly a product raised that has not a special treatise thereon by which any ordinarily intelligent person can learn all the ins and outs of the same, and the only contingencies that must be settled by the undertaker are climate, soil and situation.

Variety is the antidote of the poison—specialty, and in the district where the greatest variety is raised will be comparatively the greatest number of the class of well-to-do and independent farmers found. Another happy result from variety will be that the area of land possessed will become less and less, as in a variety one man cannot oversee so much. This will make a closer neighborhood, land will rise in value with the increase of conveniences, such as churches, schools and stores, and individuals possessing small farms who have not made much money, but a good living merely, will find as old age comes on that they are really pretty well off, on account of the increased value of their possessions.—A. B. K.

FOR THE LANCASTER FARMER. CHOLERA AMONG FOWLS.

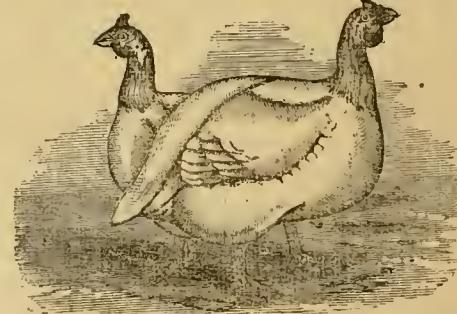
This disease, so common among fowls of late years, is not, in my estimation, necessarily fatal. It may continue on the premises for years and break out occasionally among the fowls, with but little loss, if proper care is extended to them. In this disease, an ounce of preventive is worth far more than a pound of cure. A flock of common fowls, especially, will and do become naturalized to the disease, so that but few cases prove fatal, though the whole flock are somewhat affected by it; as for turkeys, and the web-footed family, I can not speak.

I have a cheap and simple remedy for the prevention and cure of cholera, which I can

recommend to the readers of THE FARMER as one, if properly used, that will always prove effectual. If the disease is bad among them, and there are many deaths, turpentine should be poured quite freely on their perch, if they roost in a house, that they may be compelled to breathe its fumes during the night. All whole grain, particularly corn, should be kept out of their reach as much as possible; and feed them twice a day, with a wet feed composed principally of wheat bran, with the addition of a little corn meal to make the particles adhere better, and render the food more edible. This food should always be wet, in part at least, by water that has had asafoetida in it. For this purpose, a small lump of this gum should be kept in a quart bottle, filled with water, and one quart of this water will contain a sufficiency of asafoetida for one feed. Under this treatment the deaths will rapidly decrease, and in less than a week, though the disease may still prevail to some extent, yet no deaths may occur. The cure being now effected, a return can be prevented by using this kind of food occasionally, at least once in every two weeks, or every week, particularly in the spring and fall, when the disease is most likely to prevail. This food is the cheapest that can be provided for a flock of fowls, and if they were fed two or three times a week with this kind of food, I am confident that no deaths will ever occur from cholera.—W. M. W., Fulton, 1st mo. 2d, 1878.

FOR THE LANCASTER FARMER. GUINEA FOWLS.

Were it not for the great prejudice to Guineas, on account of their cruelty to other poultry and their disposition to wander afar from home, they would certainly be one of our most popular barnyard fowls. As it is, we consider that the Guinea is judged of much more serious drawbacks than it possesses. Both the faults named can, to a great degree, be overcome—the first by kind treatment and by hatching the eggs under hens. This also has the effect of making them more domestic, and then, if they have secluded nests, or there are bushes or coarse grass near by, where they can make their own nests, there will be little



trouble on account of their roaming. Now, for the merits of the Guineas—no domesticated fowl furnishes such rich, game-like flesh, or is so prized by epicures. Their eggs also partake of an elegant, rich flavor, highly esteemed. While their eggs are not so large as ordinary hen's eggs, yet they are produced in great abundance, which more than compensates. In rearing young chicks they should be fed very often, as they have small crops and can digest only a small amount at each time. Guineas make excellent "watch dogs," so to speak, giving ample notice of the approach of hen-roost robbers. In the wild state they mate in pairs, but a domesticated male will readily serve a couple of hens. The small cut given herewith was drawn from life of a couple of snow white Guineas. These, with their spotless plumage, form a most pleasing contrast on the green grass of the lawn or field. They are more rare than the common pearl Guineas, and while they have no extra merit, yet their beauty will command them to favorable notice.—W. Atlee Burpee.

Readers of THE FARMER will do well by consulting our club rates. See page 5.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The Lancaster County Agricultural and Horticultural Society was held a meeting in the Atheneum library room on Monday afternoon, January 7th, 1878.

The following members and visitors were present: Calvin Cooper, president, Bird-in-Hand; Johnson Miller, secretary, Warwick; Levi W. Groff, West Earl; Henry M. Engle, Marietta; Martin D. Kendig, Manor; Casper Hiller, Conestoga; Simon P. Eby, city; Daniel Smyeck, city; Jacob Bollinger, Warwick; Wm. McComsey, city; Henry Kurtz, Mount Joy; Henry Shiffner Leacock; C. L. Hunsecker, Manheim; Levi S. Reist, Oregon; L. Witmer, Paradise; Peter S. Reist, Manheim; Prof. S. S. Rathvon, city; D. L. Resh, Bird-in-Hand; Henry Erb, Manheim; B. Frauke Landis, East Lampeter; Wm. Rush, Drumore; John Moore, Mount Joy; Christian Hostetter, Eden; Samuel Erb, Warwick; John Miller, Oregon; D. S. Dyar, city; John M. Stehman, East Hempfield; E. S. Hoover, _____; David G. Swartz, city; I. L. Landis, Manheim; J. F. Hess, Manheim; Hon. David Mumma, State Senator, Harrisburg.

On motion the reading of the minutes of last meeting was dispensed with.

Wm. McComsey, from the committee appointed to make inquiries as to whether a more eligible and convenient room in which to hold the meetings of the society could be secured, reported that the Board of Trade Room, No. 38 East King street, could be had at a rent of \$2.50 for each meeting, including fuel, furniture and the services of a janitor. The room is large, pleasant and nicely carpeted. If a change of meeting-place should be made the committee would recommend the Board of Trade room, but it might be advisable before doing so to look at the condition of the society's finances, and see if they will warrant the proposed change, as the society has not heretofore paid any rent, and has been somewhat negligent in the management of its finances.

On motion of H. M. Engle, the further consideration of the matter was postponed until after the report of the treasurer shall have been read.

On motion the presentation of crop reports was not made, there being little or no change since last month.

H. M. Engle reported the rainfall for November to have been 73.16 inches and for December 15.16 inches.

Mr. C. L. Hunsecker read an interesting essay on manures. (See page 7 of this number.)

Mr. Levi S. Reist had not looked up the exact meaning of the word "manure," but had examined into the meaning of the word dung. It is a popular belief that this word means only the excrement of animals, but this is a mistake. Dung means anything that enriches soil, and comes from a German word meaning to serve. It means anything that will help the farmer by improving his ground.*

Mr. Kurtz said that if a farmer had plenty of barnyard manure he could raise any kind of grain, and it was wisdom to make all the manure possible. You cannot get too much of it. It is to our interest to have a large manure pile.

Mr. Hiller thought the essay was very good and to the point. We are just beginning to know the value of manure. Now we all have tobacco on the brain. He did not know how long this would last or what we would profit by it, but one thing we would learn—how to cultivate and manure properly. And if we learn that it will certainly be of great use to us.

On motion, a vote of thanks was tendered to Mr. Hunsecker for his essay.

Mr. H. M. Engle then read a humane essay on the "Care of Domestic Animals." (See page 6 of this number.)

S. P. Eby agreed with all the essayist had said about the cruelty and foolishness of those who neglect or misuse their stock; but he thought there were some who erred on the other side by overfeeding them and keeping them too fat, thus making more uncomfortable and more likely to contract disease.

The matter was further discussed by Henry Kurtz and P. S. Reist, both of whom agreed in the main with the essayist.

On motion of J. L. Witmer, the further consideration of the matter was postponed to enable the society to go into an election of officers for the ensuing year.

Previous to which the president read the usual annual address. (See page 5 of this number.)

The address was received with applause and a vote of thanks awarded the president.

On motion of Wm. McComsey, Calvin Cooper was unanimously re-elected president, notwithstanding that gentleman's earnest appeal to select some other and abler presiding officer.

S. P. Eby and Prof. S. S. Rathvon were appointed

a committee to audit the treasurer's account and report the result. After examining the vouchers the committee reported the books correct, the balance in the treasury being \$93.84. The committee further stated that the society would receive from the County Commissioners a gratuity of \$39.50.

On motion the chair appointed Peter S. Reist, Henry Kurtz, M. D. Kendig, J. L. Witmer and Ephraim Hoover a committee to select and report to the society the other officers for the ensuing year.

The committee after consultation reported the following, and they were unanimously chosen:

Vice Presidents—H. M. Engle, Casper Hiller, Levi S. Reist, J. C. Linville, William McComsey.

Recording Secretary—J. F. Witmer.

Corresponding Secretary—Johnson Miller.

Treasurer—Levi W. Groff.

Entomologist—Prof. S. S. Rathvon.

Librarian—S. P. Eby.

Botanist—J. S. Stauffer.

Business Committee—M. D. Kendig, Ephraim Hoover, Jacob Bollinger.

Messrs. Henry M. Engle, Jacob Bollinger and B. F. Landis, appointed to test and report on fruits exhibited, made the following report:

Three varieties of oranges, from St. Augustine, Florida, by J. F. Hess, common grape and Mandarin, two specimens measuring from fifteen to sixteen inches in circumference. Three specimens of apples Cart House and Seedling Rambo, by Levi S. Reist. Eleven varieties of apples from Kansas, by J. H. Moore, very fine; among which are Rome Beauty, Belle Flower, Cart House, Swaar, Jennison, Golden Pippin, and others new to your committee. Pears—Beurre Clairgau, and one for a name by Daniel Smyeck.

H. M. ENGLE,

B. FRANK LANDIS.

The question of changing the place of meeting having again come up, S. P. Eby moved that the society continue to meet in the Atheneum.

Johnson Miller moved to amend by leasing the board of trade rooms.

After a long and spirited debate, in which Messrs. Eby, Kurtz, L. W. Reist, Engle, Swartz, McComsey, Kendig and Hunsecker took part, Mr. Miller's amendment was rejected and Mr. Eby's motion adopted.

A bill for \$2 due Jacob Heline, janitor, was ordered to be paid, and Mr. Heline was re-elected janitor so long as the society continues to meet in the Atheneum.

Messrs. C. L. Hunsecker, S. P. Eby and D. G. Swartz were appointed a committee to confer with the city authorities, the Atheneum and Linnean societies, and make such arrangements for leasing the room as may be necessary.

The chair called attention to the meeting of the State Board of Agriculture at Harrisburg, on January 23, and of the Pennsylvania Fruit Growers' Society at Williamsport, on January 16.

Mr. Engle presented a petition for the passage of an act of assembly enlarging the powers of the State Board of Agriculture.

After discussion and explanation of the proposed law, a motion was made and carried that the officers sign the petition in the name of the society, and that members of the society sign it in their individual capacity.

A Little Spice by Way of Variety.

I. L. Landis wished to make a statement and have it answered. Some three or four months ago a member of this society wished to exhibit a useful agricultural implement and the chair would not permit him to do so. At a following meeting a stranger, who does not belong to the society, brought before it another agricultural implement, and he was permitted to exhibit it and explain its merits. Mr. Landis would like to know why this discrimination was made in favor of an outsider and against a member of the society.

PRESIDENT COOPER explained that when Mr. Landis offered to exhibit a patent post-hole digger, he (the president) had told him that it would not be permitted while the society was in business session, but that if he could get an audience during the recess, while the society was engaged in social intercourse, he was welcome to exhibit the implement. At the subsequent meeting, when Mr. Sutton exhibited a model of Mr. Groff's improved grain drill, he had previously obtained unanimous consent of the society to do so. The president said he had always ruled against permitting agents to exhibit and explain patented articles during the session of the society, because he believed a great deal of time would be thus consumed and that the regular business of the society would be interfered with.

MR. LANDIS replied that if this was an agricultural and horticultural society, every new and valuable invention relating to those subjects should be introduced and explained for the benefit of members. They were of as much importance, at least, as the fruits and vegetables which are regularly exhibited and reported upon by a special committee.

MR. ENGLE said he concurred with Mr. Landis that there was as much impropriety in showing fruits and vegetables as agricultural implements. They often interfere with other business, and though he likes to see fine fruits, he had often thought it would be better to dispense with their exhibit. If

the society permitted agents to exhibit at its meetings all the implements or other patents they chose to bring, the entire time of the society would be thus taken up to the exclusion of other business.

Mr. Engle suggested that, as the society is now entering upon new year, it would be well to take measures to cut out business for the year, and have it published beforehand, so that members and others would know what subjects were to be considered at any particular meeting, and prepare themselves accordingly.

Senator Mumma.

LEVI S. REIST introduced State Senator Mumma, of Dauphin county, and Mr. Engle called upon him for a speech.

MR. MUMMA responded at some length, saying that he had been a farmer for many years, though he was not now actively engaged in that pursuit. He gave a brief statement of his own experience in planting orchards, growing tobacco and using fertilizers. He congratulated Lancaster county on having such a live agricultural society, and encouraged the society to continue its good work. He regarded the Lancaster county tobacco as being the best in the country and the most profitable crop that could be grown. Societies such as this are the best means of disseminating useful information among agriculturists. If farmers thoroughly understood the nature of their soil, hundreds of thousands of dollars now wasted in the misapplication of manures might be saved, and larger crops grown at much less expense.

The chair appointed M. D. Kendig, Casper Hiller and P. S. Reist delegates to the fruit growers' convention, Williamsport.

On motion of Mr. Witmer, a paper on "Selling," by Levi W. Groff, deferred at a former meeting, was selected for consideration at next meeting.

The president announced that an interesting paper on grape culture, by a practical grape grower, would also be presented at next meeting.

The following question was chosen for general discussion at next meeting:

"How shall the farm be conducted to produce the best pecuniary results?"

The following questions were referred:

"What produces abortion in cows?" Referred to Johnson Miller.

"When is the proper time to apply barnyard manure, and how?" Referred to Jacob Bollinger.

TOBACCO GROWERS' ASSOCIATION.

A stated meeting of the Lancaster County Tobacco Growers' Association was held in the Atheneum, on Monday afternoon, December 17th. The following members and visitors were present:

M. D. Kendig, president, Manor; W. L. Hershey, secretary, East Hempfield; Henry Shiffner, Leacock; A. H. Yeager, East Lampeter; J. M. Johnston, city; A. P. McIlvaine, Paradise; A. H. Summy, Manheim; Harry Mayer, East Hempfield; J. G. Rush, Willow Street; J. M. Frantz, Lancaster; Henry Kurtz, Mount Joy; Washington Hershey, West Hempfield; John Brady, Millersville; Michael Landis, Lancaster; Elias Hershey, Paradise; A. C. Stone, Salisbury; M. G. Miller, Manheim; Jacob Hess, Manheim township; Moses Garber, Mount Joy; S. G. Garber, Mount Joy; Christian Musser, Earl; John Sener, Willow Street; C. L. Hunsecker, Manheim; John Kean, Bart; A. H. Cain, Christiansburg; M. A. Frantz, Dauphin county; Andrew F. Frantz, Lancaster; Amos R. Frantz, Waynesboro, Franklin county; Samuel Wolf, Akron; Samuel Bushong, Upper Leacock; Mr. Lefevre, Lampeter; J. M. Stauffer, New Holland; J. Hartman Hershey, Rohrerstown; Frank R. Diffenderfer, city; Clare Carpenter, city; Abraham Weidener, Neffsville.

Crop Reports.

Crop reports being called for, Henry Kurtz, of Mount Joy, said the tobacco in his section is nearly all stripped, and is good in color and quality. Some farmers have sold a little and others have had good offers. One man received 30 cents for a lot; another 20 cents round; another, 5, 10, and 18 cents. In the neighborhood of Akron he saw some good tobacco and also in other sections of the county which he had visited.

Mr. A. H. Yeager, of East Lampeter, said about one half the crop was stripped. It looks very well. He knew of none being sold, but the buyers had been around looking at it.

W. L. Hershey, of northern East Hempfield, said two-thirds of the crop in that district is stripped. Has seen no buyer yet. The crop is in good condition.

Utilizing Tobacco Stalks.

"What is the best method of utilizing tobacco stalks?" was the question referred at last meeting to A. H. Summy, but that gentleman not being present President M. D. Kendig said in answer to it, that he would spread the stalks on the grass lawn as a top dressing. They will kill noxious weeds, enrich the soil and protect the grass. He would also place the stalks around the butts of shrubs and young trees to keep the mice away. If he had any left he would

*We think Mr. Reist is mistaken in this. Webster's Unabridged Dictionary gives the definition as follows: *Dung*—The excrement of animals.—*Ed.*

cut up and use them as a concentrated manure by mixing them with hen manure and putting them in the rows of the new tobacco.

HENRY SHIFFNER had disposed of the stalks in three different ways: a part of them he put on the manure pile; another part he cut up fine, spread over the ground and plowed under for the next year's crop; and a third portion he burned, and applied the ashes to the land. The result was equally good in each case.

JOHN SENER, Willow Street, said that he generally hauled out the stalks, spread them on the ground, and plowed them down. Last year after plowing a tract of ground he made furrows with a shovel harrow and plowed the stalks under. He found that they did as well as the barnyard manure.

Lime on Tobacco Land.

"Is lime beneficial in the culture of tobacco, and how should it be applied to produce the best results?" was the next taken up for discussion.

HENRY KURTZ had no doubt that lime was an excellent fertilizer for tobacco. His plan was to spread manure on the land, plow it down, and dress on top with lime. One hundred bushels per acre was not too much. He generally put it on in the spring, but believed it would do better if time could be spared to put it on the preceding fall.

HENRY SHIFFNER regarded lime as being very beneficial in the cultivation of tobacco, and he thought that top dressing was the best way to apply it. Tobacco requires a great deal of moisture, and lime has a tendency to keep the ground moist.

SYLVESTER KENNEDY said that lime was the best of fertilizers. Its good effects are felt longer than those of any other manure. Ten or twelve years after lime has been applied its action can still be seen in the soil. In Chester county and in the eastern and southern parts of Lancaster county the copious use of lime is a necessity. They sow it on the ground and let it lie on top for a year or two before plowing it under.

JOHN SENER said that he derived more benefit by slackening the lime, spreading it broadcast and plowing it under at once. He had followed this plan for thirty years with good results.

PRESIDENT KENDIG spoke in favor of the free use of lime in the cultivation of tobacco, and believed that very strong barnyard manure had a tendency to produce coarse and undesirable leaves.

MR. KENNEDY said there was a great difference in the quality of lime, and there should be different modes of applying the different qualities, as they will act differently on different kinds of soil. He knew that the yellow, sandy-looking lime would act quicker than the white Pequea lime, but that its effects would not last half as long. He had noticed that crops liberally limed remained greener and matured less slowly than those on which no lime was used.

HENRY KURTZ said that in his profession as a tanner he had occasion to use large quantities of lime, and that his experience was that the white lime was much stronger than the yellow. By using one half the quantity of the former the hair could be removed from hides much more rapidly than by the use of yellow lime. He believed its action on the soil was similar, and that white lime would show results twice as long as yellow lime. He thought the white lime of Mount Joy was much stronger than that of Pequea.

A. H. YEAGER agreed that white lime was the stronger, but he feared it was too strong for some soils and did more harm than good.

A. P. McILVAINE had used both white and gray lime in different parts of the same field. The gray acted much more rapidly and for the first year or so showed the best results, but it soon ran out and had to be renewed, while the white lime, acting more slowly, lasted much longer. He would use a much smaller proportion of white than of gray lime. The latter would be preferable for temporary tenants, as it would act at once, but the white lime was better for land-owners.

At this point of the proceeding Mr. A. H. Summy entered the room, and, being called upon answer the question as to the best mode of utilizing tobacco stalks, said that his only experience in the matter was that, having a bad plot of ground on which nothing but sorrel would grow, he strewed it with tobacco stalks, plowed them down and planted corn. He got a pretty good crop, and this was followed next year by a first-rate crop of tobacco.

The discussion of the lime question was resumed. Mr. C. L. Hunsecker said that if all soils were alike the proper quantity of lime to be used might be easily determined; but the great differences in soil make the question one to be governed greatly by judgment and experience. While some farms have been ruined by the too free use of lime, others have been greatly benefited. When judiciously applied he believed it to be the best of fertilizers. It tends to keep the ground cool and hastens the maturity of some crops as wheat and oats. The theory that good tobacco cannot be grown without barnyard manure he looked upon as "all fudge."

MICHAEL FRANTZ, of Harrisburg, had been in the

lime business and shipped great quantities of it. Where white and gray lime came into competition the latter was regarded as being about one-half the value of the former. He had not had much experience in tobacco-growing, but as lime was known to keep the soil cool and moist, and as tobacco required coolness and moisture, he had no doubt that great benefit would result from its use.

A. M. FRANTZ thought the subject a very important one and deserving of a more critical discussion than was possible in a public meeting. It should be scientifically and chemically considered, and made the subject of an essay by some one fully competent for the task. He does not think, as been said today, that lime tends to mature wheat or oats, but rather that it retards its maturing. He had limed a part of a field of oats and left the other unlimed, and on that part which was limed the crop did not mature as rapidly as the other.

C. L. HUNSECKER looked upon lime as the greatest of fertilizers for almost any crop. In answer to a remark made by one of the speakers he said that lime has no effect in producing mildew now than there was thirty or forty years ago, though ten times as much lime is now used as was then. He eulogized the "Pennsylvania Dutch" farmers who had done so much for the country by their practical farming, and stated that the rich Irishmen around Lancaster, who boasted of their fine farms, had been taught how to farm by their German neighbors.

On motion of Harry Mayer, Mr. Hunsecker was requested to prepare an essay on the subject of "application of lime to land" and read it before society. Mr. Hunsecker consented to do so.

SYLVESTER KENNEDY said in reply to Mr. Hunsecker that the Irish and Scotch-Irish farmers of Lancaster county were fully as intelligent and progressive as their Dutch neighbors, and their farms would show as good results as can be found anywhere among the Dutch. The soil of the lower section of the county settled by the Scotch-Irish was naturally thinner and poorer than that of the central and upper townships, and required a different treatment in cultivation. He mentioned a plan of liming adopted by a Jersey friend of his, on poor, thin land. In the spring he limed it and let the lime lie on top two years. Then he put it in corn and sowed it in grass. He got a pretty good crop of corn, while the grass grew very rank. On the following October he plowed down the grass and sowed wheat, getting a very good crop. Mr. Kennedy believed the plan to be a good one, and recommended its adoption by those having thin soils.

A. H. SUMMY knew of a case in which a man had purchased a tract of worn-out York county land, on which nothing would thrive. He put on it 100 bushels of lime to the acre, and got a good crop of corn the first year. Mr. Summy followed his example by liming in the same proportion a barren tract on Chestnut Hill. He raised a good crop of corn the first year, and the next year put the ground in tobacco, and had a fine crop.

Tobacco in Bulk.

A. P. McILVAINE, who had not had much experience in curing tobacco, asked if it would be injured by heating in bulk, and if so how the heating could be prevented.

MR. KURTZ advised that it be shifted around until it cooled off, and then repack it.

MR. SHIFFNER said tobacco would not sweat much in bulk if it were properly dried before stripping. A mistake made by many growers is that they strip too soon. It is better that it should not sweat in the cellar, for if it does it will be apt to smell of the cellar. The sweating may be prevented by proping up the hands as they lie in bulk, by putting shingles under the butts of them. He thinks the tobacco should not be taken out of bulk and scattered around, as recommended by Mr. Kurtz, after it begins to sweat, as the leaf will become coarse and rough. It is not so apt to sweat if the bulk in which it is put down is not too large, say not more than three feet in height.

PRESIDENT KENDIG said that on one occasion before he had much experience in curing tobacco he had his crop put down in bulk about five feet in height and in good condition. It began to sweat, and, becoming alarmed lest it should rot, he called in a neighbor who had had more experience. His neighbor said, "Let it alone, it will come out all right." Mr. K. determined to let one-half of it alone and repack the other half. That which he had not disturbed, and which he feared would rot, cured finely, while that which he had repacked became rough and worse.

MR. SHIFFNER said that last year there were but few chances to strip tobacco until very late in the season. The result was there were no complaints of sweating in bulk. This year the weather has been favorable for stripping; much of the crop has been stripped too early, and we hear many complaints of its sweating. He had already stripped some of his own tobacco, but he believed it would be better not to strip till after the holidays.

J. G. RUSH favored early stripping if the tobacco was sufficiently dry to warrant its being stripped.

He presented a hand or two of his own tobacco which was very fine.

Bills Paid.

The following bills being approved by the Finance Committee were ordered to be paid: Jacob Helene, services as janitor, \$5; subscription to N. Y. *Tobacco Leaf*, \$4.10; subscription to the U. S. *Tobacco Journal*, \$2.

Business for Next Meeting.

The following questions were announced for discussion at next meeting:

"Is the manure made from feeding grain with straw and hay any richer or stronger than that made in the stable with the same substances without grain?" Referred to Jacob M. Frantz.

"What variety of tobacco should we cultivate?" For general discussion.

The committee appointed at a former meeting to visit the principal tobacco growers in different sections of the county, and report to the society, reported progress and asked to be continued, as they had not yet been able to complete their labors. They promised to report at next meeting.

The President called attention to the fact that at the next stated meeting the society would elect officers for the ensuing year. He also stated that a few of the members had neglected to pay their annual dues, and hoped they would come prepared to settle up.

On motion, adjourned.

THE LINNÆAN SOCIETY.

The annual meeting of the Linnaean Society was held on Saturday, December 29th, 1877. President Rev. J. S. Stahr being absent, Vice President Prof. T. R. Baker took the chair. Nine members present. After collecting dues and reading of the minutes, the donations to the museum were examined. First was one bottle containing six Salamanders, which were found in the city limits, by Masters Jas. Stewart and Jas. Kelly, who deserve encouragement for the interest they take in natural history. These specimens have the brick red dorsal stripe, and are not rare under stones, and are named by Prof. Cope, *Desmognathus ochropterus*. The novelty is in finding them out and lively so late in the year as December 28; but this mild winter, so far, has brought out the "dandelion" and blue-field violet. Mr. James Stewart, Sr., when in Northern Texas, last fall, obtained a large fossil-like part of a Ram's horn, which he donated; Dana, in his *Geology*, page 472, says some of the "Ammonite" found beyond the Mississippi, are over three feet in diameter. The genus *Crioceras*, which name refers to a ram's horn, and has an open coil, and his Figure 786 of *C. Duralli*, comes very close to this specimen. An immature fruit of the Banana, grown in the hot-house of Geo. O. Hensel, the *Musa sapientum* of the Palm family, was presented. Mrs. Gibbons presented some fossil shells and belemnites found near Woodstown, New Jersey. Quite a variety of fossils are found abundant in many of the archæaceous beds, called *Green sand* or *marl*, which sometimes contain ninety per cent. of a greenish silicate of iron and potash, with a trace of phosphate of lime; hence valuable for fertilizing purposes. She also presented beautiful thin, transparent shells, forming the entire external covering of the young of the Horse-shoe crab, *Limulus polyphemus*, which are as pretty as they are curious. Mrs. Dr. Sarah Taylor, of Woodstown, New Jersey, sends us per Mrs. Gibbons, what she called a leaf and fruit pods of the Egyptian Lotus or sacred bean of India (said to have sprung from seeds thrown into a pond), which a gentleman brought from the River Nile. Mr. Stauffer said all this might be true, only that the *Nelumbium luteum*, which grows in the Delaware river, known as water chinquapin, and sometimes called lotus, and sacred bean, is so much like the specimen, that he doubts the story. Dr. Gray does say that the *Nelumbium speciosum* or *N. Lorus*, the sacred bean of India, is cultivated in *choice conservatories*. Now about a mill-pond, in New Jersey, Mrs. Gibbons had also a large full top of one of the tall growing composite plants, called *Alder* in New Jersey. This is evidently a *cacalia*. As the radical leaves and caulin are absent, it was not determined whether it was *Cacalia atriplicifolia*, the great Indian plantain, or the *C. reniformis*. Both grow in New Jersey and attain a height of nine feet. Mr. Bolton also desired to know the name of a *Liliaceous* plant, that has small axillary flowers, and elongates the flaccid stem, until the end bends down and sends up a tuft of leaves, propagating a new plant; flowers, minute; no means to analyze them in their condition without a fresh specimen. Other plants were discussed. S. S. Rathvon donated to the Historical branch a fancy Revolutionary dress buckle, also two envelopes containing twenty or more historical clippings.

To the Library was presented a copy of the U. S. Coast Survey for 1874. By request, Rev. J. H. Dubbs, A. M., presented a copy of each of three several addresses, delivered by him at various times on topics of general interest. THE LANCASTER FARMER for December, 1877, and sundry American and European Book Catalogues, from publishing houses, were presented.

Papers Read.

Miscellaneous notes on deposits, by S. S. Rathvon, No. 483. Notes on remarkable mild weather for December, 1877, by Mrs. P. E. Gibbons, No. 484. Mr. Wilmer P. Bolton read a paper on the exploration of a cave near the river in Martic township, nearly opposite to York Furnace, called the "cold wind cave." This is published in the present number of THE FARMER, page 4. Notations of a Revolutionary relic on an old-fashioned dress "buckle" deposited by S. S. Rathvon, No. 485. The annual reports of the Curators and record of Secretary and Treasurer were read, Nos. 486, 487 and 488.

Considering the few members that actually meet and keep the society alive, the limited working material and the small income of ten cents per month per member (and this fee is withheld by many of the members) the progress of the society is surprising. Here are object lessons of value to the community and pupils of the schools, if a public spirit could be aroused and made to see its utility, and come to the front to aid and assist us to place it in a more useful position, so as to be more available to the public.

Receipts for the entire year, \$44.10; balance of last year, \$13.44; expenses paid still leaves a balance of \$10.94 in the treasury. This was the time for electing new officers for the ensuing year, and as no electioneering or ambition was manifest, and all present holding office were willing to confer the honor on others, could such others have been found, on motion the old officers were nominated, and, no one opposing, on casting the ballot, the result was:

President—Rev. J. S. Stahr.

Vice Presidents—Rev. J. H. Dubbs, Prof. J. R. Baker.

Recording Secretary—J. Stauffer.

Assistant Secretary—Mrs. P. E. Gibbons.

Corresponding Secretary—Rev. D. Geissinger.

Treasurer—S. S. Rathvon.

Librarian—Mrs. L. A. Zell.

Curators—Messrs. C. A. Heinitsh, S. S. Rathvon and W. P. Bolton.

Keys are wanted to some of the drawers, and on motion the treasurer was authorized to procure such keys as were needed, at the expense of the society.

Under scientific gossip mention was made, with an expression of thanks, to the press for publishing our proceedings as a local matter, free of charge. Botanical, Geological and Historical questions were discussed by members present. On motion, adjourned till Saturday, January 26th, 1878.

AGRICULTURAL.**Agricultural Outlook.**

Advance sheets of the reports of the department of agriculture show the enormous aggregate yield of three hundred and sixty million bushels of wheat for 1877, or fifty million more than ever before produced. The corn product was thirteen hundred bushels with correspondingly large yields of oats and potatoes. The report states that there never was a greater abundance in the land. Out of the wheat product, it is estimated, deducting for home consumption, that upwards of one hundred and ten million bushels of wheat can be spared for export. The largest export yet made in one year was ninety-one million bushels, with an average of sixty-three million bushels. The department is also in receipt of information from the wheat producing sections of Europe, from which it is ascertained that the wheat crop in Southwestern Europe which produces the largest amount of surplus, is good, and in Southern Russia amounting to twenty-five per cent. above the average crop. In Northwestern and Northern Europe it is poor. It is also stated in communications from the Southern sections of Russia that if the war should stop shortly there will be a large shipment, and that the shippers are now ready to take advantage of the first opportunity. Great Britain, offering the largest market for wheat, will, it is stated, require about one hundred million bushels of the present season's yield. American surplus will have, as usual, a demand in English markets, with an increase subject to the contingencies of the existing struggle in Southwestern Europe being prolonged into another season. The department is also in receipt of very flattering accounts of the encouragement which the great yield of last season is having upon every class of enterprise. The average of winter wheat for this year is greater than that of last year.

A Portable Fence.

A correspondent of the *Country Gentleman* writes: As far as my observation extends, the following kind of fence is little used among farmers, notwithstanding it is very cheap and handy to have, for dividing a field, enclosing stacks of hay or grain, or making enclosures for sheep or calves. I take three hewed or sawed sticks, four or five feet in length, placing one at each end of the boards that I am about to use, and one in the centre; fasten them down securely for a platform. I then take 14-foot boards, 6 inches wide, (I prefer that length to 12 or 16 feet,) and lay them on this platform, leaving spaces between the boards of 7, 6 and 5 inches. I use three cross pieces, 4 feet long and 5 or 6 inches wide, securely nailed with annealed or wrought nails,

and clinched, placing one at each end and one in the centre. The bottom board will be five inches from the ground, and the section or panel will rest on the cross pieces. When putting up this fence, I let it lap the width of the cross pieces, and drive two stakes, one on each side of the panels, and fasten with wifles, or wire, and I then have as good a fence as I want for turning stock. Where a fence is needed only for a short time, one stake is all that is necessary. Two men can draw and build fifty rods of this fence in a day, and not work very hard at that. This fence can be made in a different form where a man has plenty of short pieces of boards, say 3½ or 4 feet long, by nailing them to two 2 by 4-inch scantlings 14 feet long, leaving spaces between the pickets or boards 3 inches wide. In localities where fencing is scarce, and the farmer has not the means to fence his entire farm, this kind of fencing is very handy, as fields that are occupied with grain can be stripped of their fences, and good enclosures made for the pastures, and whenever other fields are wanted for grazing this fence can be easily changed.

Pulverizing Manure.

A farmer in an adjoining town was harrowing his barley stubble the other day before plowing. I asked him why he did so, and he said it was to break the clods of manure as spread from the heaps. The idea is an excellent one, and worthy of adoption wherever possible. A large clod of manure has enough material to fertilize ten or twenty or more wheat plants, but if left unbroken it will probably be reached by only one or two. The "patchy" appearance of wheat which has been recently manured is well known, and it results from the unequal distribution of the manure. The grain is uneven, some places ripening earlier than others, and hence it cannot be harvested without loss. A more serious matter is the waste of the manure itself. To be sure it is all in the field and will be available sometime, but that is not what the good farmer wants. It is said that it is better to have a nimble sixpence than a slow shilling, but in most farming operations it is getting a nimble shilling or a tardy sixpence. If a lot of lumpy manure is broken into pieces one-fourth as large as before, its direct value is increased four-fold. Before the crops have extracted the fertility of the dressing of manure the farmer is or should be ready to supply them with more. I have no doubt that by the simple act of harrowing, that manure more than doubled its value for next year's wheat and clover, and the harrowing did not cost 50 cents per acre.

Where winter grain is top-dressed the manure is usually dragged about in cultivating until it touches nearly all the surface soil. What is left on the surface has its fertilizing elements washed into the soil as evenly as possible. This is one reason why top-dressing is generally reckoned the best method, unless the manure is mixed with long straw, which will clog the drills in sowing.

Cost of a Bushel of Wheat.

Richland county, Illinois, is called a fair region for wheat, but where the average yield of the State is taken, it is about 14 bushels to the acre. This county, during the last two years, has done a fraction better. Wheat was worth with us, last fall at seeding time, \$1.50 per bushel; harvest hands were paid from \$2 to \$2.50; for a man and team we paid \$2.50 and board, and for other kinds of work in the same proportion. I will now give the cost of raising wheat in this part of Illinois, taking one acre as a basis for calculations, and estimating the yield at 15 bushels, which is a large average for the township, county, or State:

Plowing one acre,	- - - - -	\$1 50
Harrowing,	- - - - -	30
1½ bushels seed at \$1.50 per bushel,	- - - - -	2 25
Drilling,	- - - - -	50
Board,	- - - - -	1 00
Cutting,	- - - - -	75
Binding,	- - - - -	75
Shocking,	- - - - -	25
Hauling and stacking,	- - - - -	50
Threshing, 15 bushels,	- - - - -	1 87
Hauling,	- - - - -	1 00
Rent,	- - - - -	3 50
Total,	- - - - -	\$14 37
Or a fraction over 90 cents a bushel.		

Improving Wheat.

It was stated by a visiting farmer to our county fair, one of the judges from Lancaster county, that Levi Groff, of Earl township, that county, had adopted the Helges plan of cultivating wheat with good result. The gain was about 11 bushels to the acre; he had about six acres cultivated, and about the same drilled on the common plan; the cultivated wheat yielded 36 bushels to the acre, and the drilled and uncultivated yielded 25 bushels to the acre. The cultivating at this rate would give a large profit to the farmer.

Another statement by a Maryland farmer, one of the judges, was that of mixing the seed, the Lancaster wheat with the Fultz, had improved the size of the heads and quality of the Fultz, producing a better yield.—*York Despatch*.

HORTICULTURAL.**Cultivation of the Lilac.**

In an admirable paper on the Lilac, read by Geo. Ellwanger before the recent meeting of the Western New York Horticultural Society, the following directions are given for its culture and management:

It is adapted to almost any soil and climate. In park or garden, lawn or hedge, it lays claim to distinction for effectiveness and beauty. In city gardens, where there is only limited space, it is one of the cleanest and most satisfactory of shrubs, either as a well-shaped bush or a low tree with nearly balanced head.

But it is in large places that its charms can be displayed to the best advantage. In lawns, where large clumps of the snowy-colored varieties can be planted, it has few superiors in point of brilliancy and fragrance. Clumps of lilac, Josikaea introduced with fine effect in the Central Park, and, when in flower, are among the finest attractions.

In this climate it takes the place of the rhododendron, so much prized in England. Besides being very hardy, it has the additional advantage of its fragrance, which the hardy rhododendrons do not possess.

In grounds sufficiently large, it can be used for ornamental hedges. Its dark green foliage is not affected by atmospheric changes, nor has it any insect enemies. It, therefore, always forms a clean and handsome background, and, when in flower, is a feature of the park or garden.

Where privet hedges are already grown, the lilac can be grafted with no little effectiveness, at intervals of about ten to fifteen feet. The lilac grafts, when grown, project over the privet, and form round or pyramidal heads varying the monotony of the ordinary formal hedge.

By many the lilac and other highly fragrant flower shrubs are considered invigorating and healthy as atmospheric purifiers and dispellers of noxious vapors. I well recollect when the cholera was raging throughout Europe in, I think, 1830, the savants of the city of Stuttgart, where I was then residing, ordered the burning of fragrant herbs in the market place, to prevent infection. Whether owing to this means or not, the city escaped the dreadful scourge.

Culture and Management.—Although it will thrive and flower in any soil, an annual top-dressing of stable manure will well repay the trouble and expense, in the fuller development and beauty of both flowers and foliage.

Half standards, for single specimens, can be grown either on their own roots or grafted on the common sorts, as well as on the ash or privet. In order to render them attractive they must have well balanced, bushy heads, and be kept in form by regular thinning and pruning. After the flowers have faded they should be removed, in order to cause new growth that will insure profuse blooming the following season. By this means the flowers may also be very much enlarged.

For Winter Flowering.—In all large continental cities, and particularly Paris, the lilac is in great request for winter flowering. The common purple is generally used for forcing, and when kept in houses darkened by mats or otherwise, produces pure white flowers. In order to produce the best results the plants should be carefully selected in the spring and planted in pots; then plunged in the ground during the summer, and kept well watered. In September they should be repotted into rich compost and in succession, according as required, be placed in an atmosphere of 60 to 70 degrees Fahrenheit, which should gradually be increased to 80 degrees, and even as high as 100 degrees. The roots should be well supplied with water, and the plants should receive frequent syringing with tepid water. They may also be taken up carefully with balls in the fall to be forced the following winter, but we recommend the former method. When no forcing house is accessible a warm room answers very well in its stead.

New Vegetables.

The past season's experience has proved the value of at least a few of the newer vegetables brought out by the seedsmen. Among tomatoes the Trophy is by far the best of all the newer varieties, although this is now well established. The "Little Gem," for twenty-five seed of which I gave twenty-five cents, is little, and a gem certainly, sweet-flavored, solid, smooth, and bears abundantly; but it is no better than the Trophy. The "One Hundred Days Tomato" is good for nothing, being late, small, and very much misshapen. "Key's Prolific" is good, bears abundantly; but is not preferable to the Trophy. It was the only variety, out of a dozen or more, that the potato bugs took a fancy to. Of peas, Laxton's "Alpha," the "Little Gem," a dwarf, and Laxton's "Supreme," have turned out excellently. The second needs no bushing, bears large pods very plentifully, and is very sweet. For early, second early, and late I shall plant "Little Gems" next year. The "Supreme" is a fine pea, having long, full pods. It grows about three feet high. Dreer's Improved dwarf Lima bean is an acquisition. It is very prolific, the pods are closely filled, and it bears about double the crop

of the common sort. But of all the prolific vegetables the "green prolific cucumber" has taken the palm. For pickles, either for use or for sale, there can be none better. One hill of three plants has produced more than half a bushel of cucumbers, which grew in bunches and with remarkable rapidity. Peruvian guano may have helped, but there is a great deal in the variety itself. Of squashes, a new cross-breed of Mr. Gregory, of Marblehead, named the Bntman, has proved better than the Marblehead, one of its parents. For pies it is superior to any that I have grown. The flesh, when cooked, is dry, sweet, and very full of flavor. This variety is vigorous enough to withstand a hundred borers in each vine without perishing. The "Early Peabody" sweet potato is another acquisition. It is red-skinned, and early enough to permit of its growth far north. I doubt not, even in Canada. It is too soon, as yet, to decide as to its quality.

Suggestions About Plants.

To succeed well some judgment is required in choosing proper stems. Old wood will grow if taken at the right time, which is when new leaves are just forming on it; they will take longer to grow than young shoots, but will eventually make nice plants. It is well to know this in case of a large plant getting broken. Take the slip from the lower part of the plant, as near the root as you can choose one. When slips break off short and crisp they are sure to root, although this rule will not hold good for woody plants, such as roses, azaleas, &c. Set the cutting, before they wilt; if you carry them any distance, sprinkle them with water as soon as taken from the bush, and wrap up tightly in paper, putting an extra dry piece of paper outside, tying it tightly. You can carry slips three days in this way, not opening the parcel until you are ready to set them out at once. Take any ordinary dish, either earthenware or tin, about an inch and a half deep, fill with silver sand, adding water sufficient to completely saturate the sand, but the water must not stand on top of it. Be sure it does not get dry. Place the slips in the sand almost up to the second eye—if the eye touches the sides or bottom of the dish they will root quicker; keep the dish in the sun, even if you have to move it from spot to spot. In from five to eight days the roots will have appeared or will be ready to do so, when you can pot the slips, using one-half good garden soil and one-half sand, setting in a shady, cool place for three days, and gradually bringing into warmth and light.

Sowing Flower Seeds.

The rule which we have adopted for beds in open ground is to cover all seed from three to five times their short diameter, small seed receiving only a slight sprinkling, and larger a more copious sifting of the fine mould. No seed should be sown when the soil is not dry enough to be reduced to fine powder. The best soil is sandy loam, but a large proportion of clay makes a good material if dry enough to be made perfectly mellow. The addition of sand and leaf mould will make any soil of proper consistency. The best way to sow seeds is, in the first place, in drills or circle; then the weeds may be easily taken out. If sown broadcast it will be more difficult to keep the bed clean. Provide a quantity of finely pulverized mould in a basket or barrow, and cover by sprinkling it evenly with the hand. Avoid soaking the beds with water until the plants are dry. If the surface is likely to become too dry after sowing, which is often the case, put on a thin, gauzy mulching. This may be pulverized moss, thin canvas, or even a newspaper. Every person who plants a flower garden should know the hardy plants—which usually come up soon, and may be sown early—from the tender, which are often more tardy in appearing, and should be sown later.

Bury the Rubbish.

Hundreds of insect pests find safe winter quarters in the rubbish of the fields and gardens. The prunings of currant bushes, raspberries and blackberries, dead squash vines, loose pieces of bark, bunches of weeds, and such rubbish, hide multitudes of eggs, larvae, pupae or perfect insects. Such loose stuff had better be burned; to consign them to the manure heap is only to propagate the pests. When burned there is an end of them, and of much unsightly waste which no neat person should have about his premises.

Rust on Blackberries.

Charles Phelps in the *Fruit Recorder* states that he has dealt with rust as follows: "The first year of rust I cut the bushes off and burned them, as recommended in the *Recorder* last year. I cut off the leaves, and left the canes standing. The result was the canes leafed out again, without rust. I think it is worth other persons trying the coming summer."

A HINT TO GRAPE GROWERS.—A vine grower under glass, writes that it is now generally admitted that inside borders, which have been properly drained and constructed, can hardly receive too much water when the vines are in active growth.

DOMESTIC ECONOMY.

Scarlet Fever.

The Boston Board of Health has issued the following as a circular, sending it to every house in the city. It deserves a careful reading:

Scarlet fever is like small pox in its power to spread rapidly from person to person. It is highly contagious. The disease shows its first signs in about one week after exposure, as a general rule, and persons who escape the illness during a fortnight after exposure may feel themselves free from attack. Scarlet fever, searlatina, canker rash and rash fever are names of the one and the same dangerous disease.

When a case of scarlet fever occurs in any family, the sick person should be placed in a room apart from the other inmates of the house, and should be nursed, as far as possible, by one person only. The sick chamber should be well warmed. Its furniture should be such as will permit of cleaning without injury, and all extra articles, such as window drapery and woolen carpets, should be removed from the room during the sickness. The family should not mingle with other people. Visitors to an infected house should be warned of the presence of a dangerous disease therein, and children especially should not be admitted.

On recovery the sick person should not mingle with the well until the roughness of the skin, due to the disease, shall have disappeared. A month is considered an average period during which isolation is needed. The clothing, before being used by the patient or the nurse, should be cleansed by boiling for at least one hour, or if that cannot be done, by free and prolonged exposure to out-door air and sunlight. The walls of the room should be dry rubbed, and the cloths used for that purpose should be burned without previous shaking. The ceiling should be scraped and whitened; the floor should be washed with soap and water, and carbolic acid may be added to the water—one pint to three or four gallons. The infected clothing should be cleaned by itself, and not sent to the laundry.

Useful Hints for Home.

TO CURE BILIOUS HEADACHE.—Drink the juice of two oranges or of one lemon, about half an hour before breakfast every morning.

CURE FOR BILIOUS HEADACH, II.—Dissolve and drink two teaspoonsful of finely powdered charcoal in one-half a tumblerful of water; it will relieve in 15 minutes; take a seidlitz powder an hour afterward.

CURE FOR CHRONIC RHEUMATISM.—Dr. Bonnet, of Graulbet, France, recommends and prescribes for chronic rheumatism the use of the essential oil of turpentine by friction. He used it himself with perfect success, having almost instantaneously got rid of rheumatic pains in both knees and in the left shoulder.

TO CURE HOARSENESS.—Beat well the whites of two eggs, add two tablespoonsfuls white sugar, grate in half a nutmeg, add a pint of lukewarm water, stir well and drink often. Repeat the preparation if necessary.

ASTHMA.—One ounce flour sulphur, one ounce pulverized sugar, small quantity of ground capsicum, enough to barely flavor it; dose, as much as a three-cent piece can hold, every two hours; rub the chest and spine with butter and salt. The homeopathic remedies are arsenic and capsicum; avoid sauces, cheese, cakes, pies and gravies as food.

TO PREPARE MULLEIN LEAVES.—Mullein leaves for catarrh are to be dried and powdered as fine as you would powder sage, and the smoke drawn through the nostrils from the mouth, but not swallowed.

TO MAKE THE HANDS SOFT.—Take equal portions of glycerine and alcohol; mix well; before retiring at night wash the hands in warm water and rub well with the lotion.

TO KEEP THE HANDS SOFT, II.—Take three pounds common yellow soap, one ounce of camphor dissolved in one ounce of rose-water and ounce lavender water; beat the above in a mortar until it becomes a paste; make it into balls to dry, and place it in a cool place for the winter.

HAIR INVIGORATOR.—Bay rum, one pint; alcohol, one-half pint; castor oil, one-half ounce; carbonate of ammonia, one-quarter ounce; tincture of cantharides, one-half ounce; mix them well. This mixture will promote the growth of the hair and prevent it from falling out.

Suggestive to Fault-Finders.

"Now, deacon, I've just one word to say. I can't bear your preaching! I get no good. There's so much in it that I don't want that I grow lean on it. I lose my time and pains."

"Mr. Bunnell, come in here. There's my cow Thankful—she can teach you theology."

"A cow teach theology! What do you mean?"

"Now see! I have just thrown her a forkful of hay. Just watch her. There now! She has found a stick—you know sticks will get into the hay—and see how she tosses it to one side, and leaves it, and goes on to eat what is good. There again! She has found a burdock, and she throws it one side and goes on eating. There again! She does not relish

that bunch of daisies, and she leaves them and—goes on eating. Before morning she will clear the manager of all save a few sticks and weeds, and she will give milk. There's milk in that hay, and she knows how to get it out, albeit there may be now and then a stick or a weed which she leaves. But if she refused to eat, and spent the time in scolding about the fodder, she, too, would 'grow lean,' and her milk would be dried up. Just so with our preaching. Let the old cow teach you. Get all the good you can out of it and leave the rest. You will find a great deal of nourishment in it."

Household Recipes.

DOUGHNUTS.—Three eggs, two cupfuls sugar, one and one-half cupfuls milk, butter size of a small egg, two teaspoonsfuls cream tartar rubbed into a quart of flour, one teaspoonful soda dissolved in milk, a little salt, and one-half nutmeg; use flour enough to roll out soft; cut in fancy shapes and drop into boiling lard. A slice of raw potato put in the fat will prevent it from burning.

ALMOND MACCAROONS.—Scald 12 pounds of almonds; take off skins and throw into cold water till all are done, then pound them with one tablespoonful essence lemon to smooth paste, add equal weight of powdered sugar and whites of three eggs; work the paste well with the back of a spoon, then dip fingers into cold water and make into little balls and lay on white paper; dip hand in cold water and pass over each one; bake in cool oven three-quarters of an hour.

LEMON PUDDING.—One-half pound sugar, one-quarter pound butter well creamed, yolks of eight eggs. Pour this mixture into a rich crust of pastry, after adding the grated rind of two lemons. Then partially bake it. Beat the whites very stiff, and add a spoonful of sugar for each egg. Then add the juice of two lemons, pour this meringue over the pudding and brown it quickly.

SILVER PIE.—Peel and grate one large white potato. Add the juice and grated rind of a lemon, the beaten white of one egg, one cupful of white sugar, and one of cold water. Bake in a nice paste. After baking, spread on top the whites of three eggs, frothed, sweetened and flavored with lemon. Set again on the fire and brown. Lay on small pieces of jelly or jam, just before taking it to the table.

RICE CROQUETTS.—Wash well one teacupful of rice; put it to boil in a pint of milk, the same of hot water, until quite tender, but dry; while hot add a piece of butter the size of an egg, two tablespoonsfuls of white sugar, two eggs, the juice and grated peel of one lemon; stir this up well; have ready the yolks of two eggs, beaten on a plate, some fine cracker crumbs on another; make up the rice with your hands in rolls about three inches long and two inches round; dip into the egg, then into the crumbs; fry them in hot lard to a light brown. Served hot.

CURES FOR HOUSEHOLD PESTS.—Rats are said to have such a dislike for potash that if it is powdered and scattered around their haunts they will leave them. A piece of rag well soaked in a solution of cayenne is a capital thing to put into rat or mice holes, as they will not attempt to eat it. A plug of wood covered with a piece of flannel so prepared may be used to fill up the holes. Cockroaches and ants have a similar dislike to cayenne, and a little strewed about a cellar will keep it clear of them.

LADY FINGERS.—Rub half a pound of butter into a pound of flour; add half a pound of sugar; grate in the rind of two lemons, and squeeze in the juice of one; then add three eggs; make into a roll the size of the middle finger; it will spread in the oven to a thin cake; dip in chocolate icing.

SNORT CAKES.—One pound sifted flour, quarter of a pound butter, and half as much lard, very little salt, a pinch of soda, well dissolved in just vinegar enough to cover it; work all well together with ice-cold water enough to make a stiff dough; roll it into paste half an inch thick; cut it into round cakes; prick the top with a fork, bake in a quick oven.

TO PREPARE SQUASH FOR PIES.—Saw a squash in half, clean out the seeds, etc., then place one end down in a pan containing an inch or so of boiling water, placing small strips of wood or thick wire underneath them, so that the edge will not burn on the pan. Let it steam until thoroughly tender. The flesh of the squash is then easily scraped out with a spoon, and run through a colander, if thought desirable, though it is not necessary, there being no hard lumps in it. By this plan none of the aroma of the squash is lost, while it greatly reduces the labor of preparation. Another plan is to take the two halves after cleaning from seeds, etc., join them together and bind firmly with twine, and place in the oven to bake until tender. There is little, if any difference in the result, but I give the preference to the first method as being much the easier.

MOths IN CARPETS.—A good way to kill them is to take a coarse towl and wring it out of clean water. Spread it smoothly on the carpet, then iron it dry with a good hot iron, repeating the operation on all suspected places, and those least used. It does not injure the carpet in the least. It is not necessary to press hard, heat and steam being the agents, and they do the work effectually on worms and eggs.

LIVE STOCK.**Sheep for Profit.**

In a paper recently read before the Hillsdale (Michigan) institute, Alexander Hewitt gave the following reasons for keeping sheep: "But while I advocate mixed husbandry as a rule, there are preferences among farmers with regard to the kind of stock most profitable for them to keep, which is very proper; for while one man can see certain success in the future from breeding good horses, another can see it much more clearly in the production of good cattle. The man who would go aside to kick a sheep has no business with the care of that inoffensive animal. Sheep give quicker returns than cattle or horses. Suppose, for illustration, that a farmer gets \$4 per head for twenty-five good sheep soon after shearing, consisting principally of grade Merino ewes and a full-blooded ram, \$100, and that he also pays the same sum for four steers, say fifteen months old, and keeps them on his farm for a period of two years and three months. Now at the end of the first year his sheep will produce, at six pounds per head, one hundred and fifty pounds of wool, and that at forty cents per pound, which is below the average price for the last twenty years, would be \$60; and during the next three months he sells the increase, or a part of the original stock and a part of the lambs, as he shall deem best—say 15 in number—at \$3 per head, which would be \$45; this added to the \$60 received for wool, makes \$105. Continue the experiment another year, with the same result, and we have \$210 received for wool and sheep sold, and the original stock, worth \$100—altogether \$310. Now the steers are three years and six months old, and we will estimate them at thirteen hundred pounds each, at five cents a pound, or \$65 per head, making for the four \$260, or \$50 in favor of the sheep, allowing the interest on the \$105 first received to pay for shearing, tagging, etc. The question I have for solution is, 'Which has cost the most in time and feed, the twenty-five sheep or the four steers?' Never having demonstrated an experience of the kind myself, I am unable to say, but from general knowledge and observation, should think them about equal. Another point in favor of the sheep is they do not usually die in debt to the farmer, for we see from above calculations that they are a sort of pay-as-you-go investment, which system ought to have a prominent place in all business transactions." Some will object to Mr. Hewitt's estimation in considering twenty-five sheep as equivalent to four steers. Where the ewes and lambs are in pasture during the spring and early summer, we would prefer to furnish pasture for four steers; but during the winter we think the advantage would be on the side of the twenty-five sheep; ewes and lambs are close nippers of early pasture.

Animal Instinct.

The mysterious provision in the life of animals which is called instinct has always challenged the wonder of man, and piqued his curiosity as to its nature and operation. The carpenter-bee—as an instance hardly more striking than numberless others—never beholds her young; but, after having laid her own eggs, she deposits a store of food such as they will require, of a peculiar kind which she has never tasted since the larva-period of her own life, and dies. In the construction of the cell, too, there is a marvelous forethought shown. It is bored with herculean labor into wood, and the eggs are deposited, on after the other, in closely-sealed apartments, each with a ration of food. Her wisdom is not balked, even by the necessity that the first-laid eggs, at the bottom of the long tube, must hatch out their larva before the others; for she provides a back door for their exit at that end. The common theory is that instinct—apparently so wise and far-seeing—is a blind, mechanical impulse, implanted at the creation of animal races for the preservation of life; and, viewing them in the wild state, the answer seems adequate.

Sheltering Cattle.

Farmers who look after the comfort of their cattle, but rarely suffer pecuniary loss by disease or death. In the stable cleanliness and ventilation are, with an occasional currying, the important requirements that promote health. Experiments have proven that cows in milk and old oxen retain their condition in confined and warm quarters during winter, while animals under three years thrive better in a well sheltered yard, with shed attached, the floor of which should be covered with dried leaves, or refuse straw, which would afford them a resting place during the nights. Leaves make an excellent winter-bedding and every farmer should have a supply on hand to renew the beds from time to time. A shelter from the rain and snow and northeasterly winds is the only protection the younger animals require during the inclement season, as their blood circulates more freely than that of the older cattle and possess greater powers of endurance.

ENTOMOLOGICAL.**Something About Insects.**

An old friend of mine, an enthusiastic philologist, told me that being at a friend's house one dry summer, when all the field flowers were nearly scorched up, he saw thousands of bees busy in a field of clover then in bloom.

"I wish my bees were here," said my friend.

"Probably they are," replied the gentleman.

"What, at forty miles distance?"

"Yes," said his friend. "On your return home dredge the backs of your bees with flour as they issue from the hives in the morning, and we shall see."

This was done, and his friend wrote him directly: "There are plenty of your white-jacket bees here in the clover!"

But whatever is the fact with bees, ants follow their noses much more than their eyes. In my garden I saw a train of ants ascending an apple tree; go up by one track, and descend by another. As in ascending they passed between two small shoots that sprung from the bole, I stopped their passage with a piece of bark. The ants did not see this obstruction with their eyes, but ran bump against it, and stood still, astonished. Soon a crowd of them had thus been suddenly stopped, and were anxiously searching about for a passage. By various successive starts forward, they eventually get around the obstruction and reached the track on the other side. The line of scent was renewed, and thenceforward, on arriving at the barricade they went without a moment's hesitation, by the circular track. I then took my penknife and pared away a piece of the outer bark on the open hole where the ants were descending. The effect was the same. The scent being taken away, the ants came to a dead stand, and there was the same confounded crowd, and the same spasmodic attempts to regain the road, which being effected in the same way, the scent was carried over the shaven part of the bark, and the train ran on as freely as before.—William Howitt, St. Nicholas for January.

A New Household Pest.

The Troy Times tells of the new carpet bug as follows:

A new pest has made its appearance in various localities of the State, doing great injury to carpets, in the shape of an insect heretofore unknown to this continent, and bearing the scientific name of *Anthrenus serophilariae*. It is not in the least allied to the well-known carpet worm, though the damage it inflicts is much greater, whole broadths of carpets being cut through as neatly as if done with a scissos. If discovered in their habitations un'er the borders of carpets, their rapidity of movement carries them out of reach beneath the base boards. The ordinary applications of camphor, pepper, tobacco and turpentine are powerless against it. The free use of benzine and kerosene has been recommended to be employed in the saturation of cotton with which to fill the joinings of the floors and crevices beneath the base boards, but this is objectionable from the fact that both of these substances give off an inflammable vapor at a point of temperature below that of some of our summer days, and consequently are liable to produce spontaneous combustion. Corrosive sublimate is said to have been used with success, but the only sure remedy will be found in the powder of *Perethrum roseum*, which is certain death to all invertebrates, while it has the surpassing merit over all other insect poisons of being perfectly harmless to the higher forms of life. The cost of this preparation should not exceed 75 cents per pound. The insect is described as resembling in form and size the beetle, with wing cases prettily marked in spots of white and black, and with a red line bordering the inner margins.

Circumventing the Turnip Beetle.

In conversation with a neighbor, a few days ago, I chanced to make a remark respecting coal tar to catch the grasshoppers in the Western States, when he told me that in the part of Yorkshire where he came from they resorted to that expedient to save their turnips from the ravages of the turnip beetle. A wide board, about ten or twelve feet long, was tarred on one side, and a rope fastened to either end, and a man holding the ropes over his shoulders so as to keep one end of the board off the ground, would draw it with the tarred side downward over the turnips. One edge of the board would, of course, rest on the ground and disturb the beetles, and in attempting to hop away they would stick in the tar and be caught. Still it would be as well to sow every third or fourth drill about three times as thick as the others, to serve as a decoy drill. Wherever the turnips come up thickest there the beetles congregate; if the weather is at all showery the other drills will soon be in the rough leaf, and perhaps enough will be left in the decoy drill to make a crop.

If every reader of THE FARMER would send us one subscriber, it would place us on a sound basis.

POULTRY.**Poultry and Egg Production.**

We have frequently urged upon farmers and others, the importance of greater attention and the devotion of more "time and space," so to speak, to the growing of poultry and the resulting production of eggs. As a matter of pleasure or profits arising from well stocked poultry yards, there can be no very plausible argument, urged on the negative side of the question. There is no one branch of "breeding" on the farm with so little care that will produce so good results, or that with greater care and attention, considering the capital required for a start, that can be made to yield such large profits as may be obtained from the poultry yard, by intelligent and judicious management. Nearly every farmer keeps a larger or smaller number of fowls, and in spite of poor management, or perhaps no management at all, many an article that enters into the economy of the household, is purchased from the products of straggling flocks of poultry. A few moments' thought, and very little argument ought to convince any person of ordinary intelligence, that their income might be largely increased and their pleasures much enhanced by making this branch a specialty, or if not a specialty, giving it a proportionate share of attention. Early chickens always find ready sale at high figures, and with eggs anywhere from fifteen to thirty cents per dozen the margin of profit is large.

As an article of food there is no more toothsome viand, than a properly cooked chicken; and as for eggs, how few there are who do not regard them as a luxury, from a semi-raw to a hard-boiled state, as the taste or fancy of the consumer may dictate.

Improve, then, your breeds and increase your stock of poultry, and our word for it, you will never have occasion to regret the care or expense requisite to the accomplishment of the object.

We shall have more to say on this subject hereafter.

Give the Fowls Pure Water.

The careless way in which fowls are ordinarily provided with drinking water on farms throughout the country is undoubtedly the cause of some of the diseases which have proved so destructive. How often do we find a flock of valuable birds, birds that their owner has expended considerable money in improving, obliged to drink the dirty, unwholesome water of drains and the pools standing in the barnyard, or the water of melted snow. There is nothing worse for them, yet how 'ew farmers appreciate the fact.

Again, while many provide drinking vessels in their henries, and fill them when they are emptied, they do not realize that after cold water has stood for several hours in the midst of the odors so prevalent in even the best managed coops, it absorbs the vile gases and becomes so polluted that it is unfit to drink.

Let any one turn out a vessel of water that has stood twenty-four hours in a henry, and while it is flowing take a sniff of it; if he can wonder why the hens refuse to drink it until they are very thirsty, indeed, his sense of smell is a weak one. The drinking vessels for fowls ought to be cleansed and filled at morning and early afternoon. We have often seen fowls stand about a newly replenished water vessel in the afternoon and drink copiously when they had five minutes previously refused water that had been standing.

Something for Poultry Men.

Poultry, it is stated, cannot be kept in large numbers in confined areas without detriment to their constitution. Colonel Taggart, of Northumberland, Pa., provides food and exercise for fowls at the same time. In his poultry yards are several beds about thirty feet square each, in which the colonel buries oats, several bushels to the bed. The grains begin, of course, at once to swell and germinate, and the fowls have free access, scratching and eating the tender sprouts to their hearts' content. While the fowls are thus busy on one bed a new one is prepared, which is in readiness for them by the time it is required. The idea is a good one.

Cabbages for Fowls.

At this season of the year when the natural supply of grass and other green food is cut off, fowls need a daily meal of some sort of green food. What it is does not appear to be of so much moment, provided they get something. We have tried mangolds and turnips and cabbages, all with good results, but of the three, cabbages decidedly are the most valuable. We cut them up into pretty fine pieces at about the rate of a cabbage to fifteen fowls, and in short time not a scrap is left. Hens thus fed pay by an increased supply of eggs much more than the extra cost of food.

Buckwheat.

Buckwheat is one of the staple articles of poultry food. It is very fattening, an excellent egg producer, and much relished by poultry. It is not, perhaps, used so extensively here as in Europe. In England, France, and especially in Germany, it forms not only

an important part of poultry food, but is much used for various culinary purposes. The great advantage it has over cereals is that it thrives luxuriantly even on the poorest land. Those who have not tested its value as a poultry food we advise to give it a trial.

Feeding Young Chicks on Rice.

In some localities it is difficult to get chicks through the first two weeks after they are hatched; for the little complaints of this early period are often more numerous and critical than at any other period of their lives. Feed is the first consideration, and pure water a great essential for them from first to last. Cornmeal is the one article of chicken diet which has been the main dependence for generations; but some experiments with rice, last year, convinced us that for young chicks it is equal to anything, if not superior to everything else. Broods fed upon rice alone all lived and grew finely on a single handful at a feed, for the hen and her brood. An inferior quality, known to the trade as broken rice, is just as good for feed, and it takes so little for a feed that the expense is no greater in the Northern States than cornmeal, while in the South it will be the cheapest feed known.

Coal Ashes for Fowls.

We have several times urged upon our readers the importance of keeping a liberal supply of coal ashes by their fowls. The birds delight to wallow in the dusty material, and a daily bath so taken is a grand specific against lice. Wood ashes are not so desirable as coal, in fact they cause sore feet if the birds wallow in them much.

The amount of pieces of coal and burnt limestone the fowls find to eat in the coal ashes is very great, and we have noticed that hens which have free access to an ash heap are always in good health and are great layers.

LITERARY AND PERSONAL.

Two valuable political and historical handbooks, which ought to be in possession of every person who is at all interested in the political and civil history of our country. The first is entitled "The Century of Independence," embracing a collection, from official sources, of most important documents and statistics connected with the political history of America; also, a chronological record of the principal events, from its discovery to the present time, with biographical and historical sketches. Royal 12 mo., pp. 545, with three fine full page engravings, and very substantially bound in muslin, and with beveled edges. The second is entitled "The Presidents and their Administrations," a hand-book of political parties, for every voter, by Lewis O. Thompson, A. M., formerly President of the Northwestern University, Watertown, Wis. A plain 12 mo. of 320 pages, with a colored map defining the original territories, out of which were formed the vast governmental domain now known as the United States of North America. Both of these volumes were published by S. L. Marron, Indianapolis, Ind. They contain—within their respective spheres—in a condensed form, a vast amount of that very information connected with the political history of the country which every citizen should possess, to enable him to exercise the franchises of a freeman with intelligence. These little volumes, compiled from authentic and reliable sources, contain the whole story of our government, from prior to the Revolution down to the present time, and who, from time to time, were contemporaries with its public and private events, as they stand recorded on the pages of history. Do we want to know who, at any particular period, was President of the United States, who was Vice President, who his cabinet and other officials, when and by what vote—both electoral and popular—elected; what was, at the time, the population and representation, what were the leading events of his administration, the financial state of the country, and an outline of concurrent events in foreign countries, we have it here in a "nutshell."

"MANUSCRIPT NOTES FROM MY JOURNAL, or an ENTOMOLOGICAL INDEX to names and other characteristics of insects in agricultural reports, with a list of vegetable and animal substances injured or destroyed by them." Written by TOWNSEND GLOVER, Entomologist-in-Chief of the National Agricultural Department at Washington, D. C. Transferred to and printed from stone by F. C. Entwistle; 106 pages quarto, 103 of which are blank. We are under special obligations to the author for a complimentary copy of this unique work, which will certainly be a great help to those who desire to refer to the volumes issued by the Department of Agriculture from 1854 down to the present time (to 1877.) The contents are mainly an alphabetical index to the agricultural reports of the department, and a list of the animal and vegetable substances which are destroyed by noxious insects. This work has been written, says the author, outside of office hours for his own use, and for societies having a complete set of the reports of the Agricultural Department. It is a pity Congress is unable to appreciate such a work, and to feel the necessity of putting it in Roman characters for the good of the country. Its sphere

of use is certainly as important as flooding the country with Buncomb speeches that never were delivered, most of which were not written by the reputed authors, and few of which are read by anybody. From a notice in the *Field and Forest*, some months ago, we learned that the same author has published a limited edition of his *PLATES AND NOTES ON ENTOMOLOGY* (if we understand rightly, in the same style as the present volume) which has been distributed among scientific associations and his friends. This evinces another blunder on the part of Congress, in compiling such a limited (50 copies) number to be issued, by withholding the necessary funds. We regret that we were so unfortunate as not to be included in his list of friends. Although we are grateful for what we have, yet we are "absolutely spoiling" for an opportunity to express additional gratitude for such a practical work.

PHRENOLOGY.—The public are being educated to a better knowledge of Phrenology by the efforts that are constantly being made by the publishers of the *Phrenological Journal*, that staunch old monthly which has been published now in New York for forty years, and during all this time has lost none of its vigor, and has attained a much wider circulation than its technical name would indicate. The publishers announce now a great reduction in price—from three dollars to two dollars a year—and in connection with this a *PHRENOLOGICAL BUST* as premium to each subscriber. This Bust is a model symbolic head, made nearly life-size, of plaster of Paris, so labeled as to show the exact location of all the Phrenological Organs. It is a handsome ornament, well adapted for the mantel-piece, center-table, library, or office. With the aid of this and the key which accompanies it, together with the series of articles commenced in the January No. of the *Phrenological Journal* on Practical Phrenology, each person may become quite familiar with the location of the different phrenological organs. It is sent by express, carefully packed, to every subscriber of the *Journal* who sends, in addition to two dollars, the subscription price, twenty-five cents extra for boxing and packing, or No. 2, a smaller size, will be sent by mail, post-paid, on the same terms. Readers who desire a more complete description, together with prospects of the *Phrenological Journal*, should send address on a postal card, or accept the publishers' offer, and send ten cents—half price for a sample number of the *Journal* to S. R. Wells & Co., Publishers, 737 Broadway, New York.

A HEALTH ALMANAC.—We have just received from the publishers the *Illustrated Annual of Phrenology and Health Almanac* for 1878, 64 pages, ten cents. This publication has now come to be a necessity in many well-regulated families, and well it may, for it is full of valuable reading matter relating to Phrenology, Physiognomy, Health, Hygiene, Diet, etc. This number, in addition to the usual astronomical notes, monthly calendars, etc., contains seasonable suggestions for the Care of the Health, Diet, etc., for each month of the year; Spectacles, and How to Use Them; Biographical Sketches and Portraits of R. T. Trall, M. D., John L. Motley, and President Hayes; Faces and their Influence; Wasting Capital; Do What You Can; Principles of Phrenology; Recipes and Hints for the Family, etc., and all for only ten cents. It is handsomely printed, with many illustrations, and should have a wide circulation; and we would say, send ten cents in postage stamps at once to the publishers, S. R. Wells & Co., 737 Broadway, New York.

Our literary table is groaning under the weighty influx of such capital journals, in quarto, as the *American Agriculturist*, the *Kansas Farmer*, the *Scientific Farmer*, the *Canada Farmer*, the *Farm Journal*, the *Pen and Plow*, the *National Stock Journal*, the *Western Agriculturist*, the *Nebraska Farmer*, &c., in octavo, *Harpers' Monthly*, the *Gardener's Monthly*, the *American Bee Journal*, the *Semi-Tropical*, the *Herald of Health*, the *American Farmer*, the *Journal of Forestry*, *Wallace's Monthly*, the *Laws of Life*, the *School Journal*, the *Stock Journal*, &c., &c., and in double folio, the *Prairie Farmer*, the *Farmer's Union*, *Coleman's Rural World*, the *Massachusetts Ploughman*, besides a number of other literary "odds and ends," enough to make us wish for the neck of a giraffe and the stomach of a camel, as well as abundance of time to enable us to properly appropriate and digest them all.

MOUNT HOPE NURSERIES, established in 1840. We have just received from the proprietors, MESSRS. ELLWANGER & BARRY, their descriptive catalogues, numbered 1, 2, 3, 4 and 5 for 1878, embracing ornamental trees, shrubs, roses, flowers, plants, &c., &c., Rochester, New York. These catalogues comprise 280 pages of closely printed, royal octavo, full of beautiful illustrations, copious indexes, and detailed price lists. No. 2 especially is equal to the best book on botany that can be placed in the hands of the amateur or professional, so far as it goes, and is highly embellished. The business must be large, indeed, that can afford such an excellent series of catalogues for a single season. The nomenclature is both scientific and popular, and the families and orders are correctly given, according to the most approved classification.

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The distinguished Meteorologist and Weather Prophet, Professor Tice, of St. Louis, has issued his Annual National Weather Almanac for 1878, in which he foretells the weather for every day in the year, explains the theory clearly on which his predictions are based, gives directions by which the unscientific can foretell the weather, and other valuable matter. The whole constitutes a work of great practical value to everyone, and is almost indispensable to farmers. For sample copy and terms of sale send 20 cents to Thompson, Tice & Co., St. Louis, Me.

VICK'S ILLUSTRATED MONTHLY MAGAZINE.—Each number contains thirty-two pages of reading, many fine wood cut illustrations, and one colored plate. A beautiful garden magazine, printed on elegant paper, and full of information. In English and German. Price, \$1.50 a year; five copies, \$5.00. *Vick's Flower and Vegetable Garden*, 50 cents in paper covers; in elegant cloth covers \$1.00. *Vick's Catalogue*—300 illustrations, only 2 cents. Address, James Vick, Rochester, N. Y.

RIDPATH'S HISTORY OF THE UNITED STATES, from the discovery of America down to the present time, is a magnificent royal octavo volume of 691 pages, and most elaborately illustrated with maps, charts, portraits and diagrams; bound with heavy board and beveled edges, in finely embossed muslin with turkey back and covers. Its letter press and literary contents are inimitable, and well adapted to the young, middle aged and old.

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A PAPER FOR YOUNG PEOPLE.—The *Young Folks' Monthly* employs some of the best talent in the country, and no other publication furnishes so much entertainment and instruction for the price. Only \$1.00 per year. Address the *Young Folks' Monthly*, Chicago, Ill.

The silverware delivered by the National Silver-Plating 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*.

ADDRESS, delivered at the sixteenth session of the "American Pomological Society," held in Baltimore, Md., September 1, 13, 14, 1877, by Marshall P. Wilder.

ON the cultivation and curing of FINE YELLOW TOBACCO, by Major Robert L. Ragland, Hyco, Halifax county, Va.

The Illustrated Annual of Phrenology, and Health Almanac for 1878. Price, 10 cents, S. R. Wells & Co., 737 Broadway, N. Y.

LANDRETH'S RURAL REGISTER AND ALMANAC for 1878, for gratuitous distribution, 237 and 239 Dock street, Philadelphia, Pa.

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HENRY LOOMIS' illustrated price list of *Diospyros Kaki*, or "Date Plum;" No. 419 and 421 Sansome street, San Francisco, Cal.

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"DO WE NEED A HISTORICAL SOCIETY?"—Address by Rev. Joseph Henry Dubbs, A. M., Lancaster, Pa.

E. MOODY & SON'S semi-annual wholesale trade lists, Niagara Nurseries, Lockport, N. Y.

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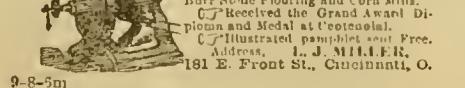
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THE LANCASTER FARMER.

PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WESTWARD.	Leave	Arrive
Pacific Express*.....	2:40 a. m.	Harrisburg. 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.	1:30 p. m.
Fast Line*.....	2:10 p. m.	3:25 p. m.
Frederick Accommodation.....	2:15 p. m.	Col. 2:45 p. m.
Harrisburg Accm.....	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.	12:45 a. m.

EASTWARD.	Leave	Arrive
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.	10:40 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 Accm.....	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.

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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor.

LANCASTER, PA., FEBRUARY, 1878.

Vol. X. No. 2.

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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.

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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 become manifest in future numbers. 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.

CORRECTION.

We would respectfully call the attention of our wheat-growing readers to a typographical error which crept into Mr. Gross' "Improvement in wheat culture," in our November number, 1877. On page 164, second column, and line twenty-four, from the bottom, the figures should be 61 bushels instead of "31," as there printed. This is important under the circumstances, and ought to be corrected.

DRIVING AWAY RATS.

Dr. T. C. Smith has made an important discovery—how to rid a building of rats. First, he caught a rodent alive. Next, he poured carbolic acid over him, and then sent him adrift. His relations and acquaintances didn't admire the fragrant odor, and concluded to leave the premises for more favorable quarters. Not a rat was afterwards seen about the place. "Try it on." We believe coal oil would have the same effect. The remedy is cheap and simple.

We would respectfully call the attention of our readers to the card of Messrs. GEORGE STINTON & Co., art publishers, Portland, Maine, in the advertising columns of this number of our journal. Also, to those of Messrs. True & Co. and Messrs. Hallett & Co., in the same column. These are all first-class publishing houses, and the agencies for their publications are the most lucrative and desirable of any in the Union; and as they employ none but honest and capable agents, the community can place the utmost confidence in them.

THE WEATHER.

Up to the end of January the season was unusually mild, although we cannot say that it was unparalleled in the previous history of the country, for we nevertheless had two or three pretty "cold snaps," during one of which the Conestoga and the Susquehanna were closed with ice, and afforded a short and brisk ice harvest. But in December mosquitoes were abundant, and in some places annoying; bees escaped from their hives and "swarmed," and snakes and salamanders were active and came forth from their winter quarters. In January the dandelions and the violets bloomed; the cabbage butterfly was abroad, and grasshoppers "leaped for joy." During November, December and January many beetles (*Aphodians*) were on the wing, and in some places the fruit buds seemed ready to burst open—but winter reigns now.

HOME EXPRESSIONS.

LANCASTER FARMER.—The January number is received. As it appears so it is, a neat, clean, solid journal, furnishing a great deal of practical information and interesting reading. It has of our best practical farmers among its contributors, and its editor, Prof. S. S. Rathvon, is scarcely excelled in the knowledge of plants and insects, and their habits. In the hands of such an editor, surrounded and as-

sisted by the farmers of the best cultivated country in the Union, THE FARMER is probably, the most practical agricultural journal in America. Let us, here at home, not be guilty of that crime which left a prophet not without honor, "save in his own country." Let every farmer in the county, and in surrounding counties, not only subscribe for THE FARMER and pay for it, but induce friends in other places to do so, and make its worth known. Remember we will furnish the *Herald* and THE FARMER one year for \$2.00, paid in advance.—*Mt. Joy Herald*.

THE LANCASTER FARMER has just entered upon its tenth volume, and asks for a more liberal support than it has received in the past. THE FARMER is one of the best, most practical, interesting and valuable agricultural journals that we know of, and we can heartily commend it to all who are interested in farming, horticulture, stock raising, and similar pursuits, and in particular do we think that every farmer, fruit-grower and stock raiser in this and adjoining counties should be a regular reader of THE FARMER, as a large portion of its contents have bearing upon the wants and interests of this section of country. Let our people resolve to encourage this valuable home journal, and thus help to make it still more valuable and interesting. Subscription price, \$1.00 a year to persons in the county, and \$1.25 to those outside of this county. Linnæus Rathvon, publisher, Lancaster, Pa.—*New Holland Clarion*.

[We doff our "beaver" to friends Hosser, and Ranek & Sandoe; may the good news be heralded throughout the land, with a *Clarion* sound, until every nook is reached by THE FARMER.]

FEBRUARY—KITCHEN—GARDEN CALENDAR.

In the Middle States, frost usually prevents out-door efforts in the way of gardening. Next month, however, will bring its labors, and we can now only prepare to forward them. It is presumed all persons in whose hands this number of our journal is likely to fall, are provided with that cheap and simple means of enjoyment, a *hot-bed*, for forwarding tender vegetables. We do not mean the more expensive structure under which delicacies are provided ready for the table, but a plain box, of suitable size and figure, with sash and shutter to fit, under which plants of *cabbage*, *tomato*, *egg-plant*, &c., may be raised in anticipation of spring, and on its arrival, to be transplanted to the open air. If there be one who has still a garden unfurnished with what we have just described, let him take our word for it he will, on trial, thank us for urging its immediate provision. No country family can half enjoy the comforts within reach who are unprovided with such a structure. A glance at one in use will give the necessary information as to the construction. Towards the close of this month (if the weather be very severe, it may be prudent to defer it awhile,) the seeds of the plants just named may be planted under glass; watch them lest they suffer by frost, or, as is not unfrequently the case, from want of sufficient air as the weather becomes milder, when they will need increased water. If the remarks under the head of January are referred to, perhaps something may be found which will apply with equal force to the present month. We can only speak in general terms of the work which may be advantageously done now, preparatory to the active season which is approaching. The thoughtful man will study out the subject for himself, and leave nothing undone which may expedite the varied and pressing labors of spring. If tools and implements are likely to be needed,

he will provide them in due season; repair the old ones, examine and reglaze, if need be, the sashes of his foreing-frames long before they are actually required, overhaul his stock of seeds, and make out a list of those which may be needed, to the end that they may be in hand before the time of sowing; thus not only his interest but his personal comfort will be advanced, and those little trifles which perplex the careless and improvident, may be made sources of enjoyment. With each duty discharged at the proper time, with "a place for everything, and everything in its place," many rough spots in life's journey may be made smoother.—*Landreth's Rur. Reg.*

LANCASTER COUNTY PUBLICATIONS.

It is said that when Benjamin Franklin solicited the hand of "Deborah" in marriage, she referred him to her mother; and that prudent matron, before she gave her consent, inquired what he proposed to do for a living. He replied that he was a printer, and that he proposed to start a new paper. "A new paper!" quoth the old lady. "A new paper; why, bless me, there are TWO ALREADY in Pennsylvania;" and therefore she could not see how he was going to make a living by starting a third one.

At the late Centennial Exposition, in Fairmount, there were over eight thousand American publications represented. What would Franklin and his mother-in-law have thought and said could they have witnessed this extraordinary spectacle? We copy from the *New Era* the following list and names of those published now in Lancaster county—thirty-two in number; and we know that the bosom of every intelligent reader will swell with pride when he contemplates the magnitude of the number at the present day, and he would not wish to have that number a single paper less.

A County Well Supplied with Home Reading Matter.

There are at present published in the county of Lancaster, three daily papers, the *New Era*, *Examiner* and *Express*, and the *Intelligencer*.

Twenty-two weeklies—The *New Era*, *Volksgenossen*, *Examiner* and *Express*, *Intelligencer*, *Inquirer*, *Owl*, *Laterna*, *Friends' Journal*, *The Friend*, *The Blade*, *Marietta Register*, *Marietta Times*, *Columbia Spy*, *Herald* and *Courant*, *Elizabethtown Chronicle*, *Monnt Joy Herald* and *Mount Joy Star*, *Manheim Sentinel*, *New Holland Clarion*, *Strasburg Free Press* and *Milton Grove News*.

And eight monthlies—*The School Journal*, THE LANCASTER FARMER, *Church Monthly*, *Sling and Stone*, *High School Journal*, *The Budget*, *The Sunbeam*, *The Wide Awake*, and we understand two additional monthlies will be started the present week.

QUERIES AND ANSWERS.

REAMSTOWN, Jan. 20th, 1878.

PROF. S. S. RATHVON—*Dear Sir:* Would you have the kindness to inform me on the following pomological subject: I desire to start a peach orchard, on a tract of sandstone soil, i. e., mountain soil, on the winter side of a hill. Do you think that they would thrive on such conditions of soil? Would you advise me to go on in this enterprise? Are tobacco ribs, when put near the roots, a preventive against the worms or borers? Would manuring and liming be advantageous to their growth on this kind of soil?

By answering the above you will greatly oblige,
Yours respectfully, HENRY BIXLER.

Any soil that will produce corn and potatoes will produce peaches, and some of the most intelligent and experienced peach-growers claim that the north, or winter side of a hill, five times out of six, is better than the southern or summer side, if it is not too much exposed to the intensely cold north winds; inasmuch as they bloom later and are therefore not so liable to injury from early spring frosts.

If tobacco ribs were wrapped closely around the bases of the trees, and a little earth heaped up around the outer edges, they would keep off the borers; but stiff paper, old rags, or even newspapers, would answer the same purpose; but, in any case, they should be applied

about the first of June and continued until the end of September.

If the land is new you don't want anything more than the virgin soil to start a peach orchard. Sandstone is generally a silicious soil and might want some lime from the beginning, but as to manuring heavily, it is not necessary until the trees are in bearing condition; too rich a soil for young trees makes too much immature wood, which is seldom ever good bearing wood. Even when you begin to manure and cultivate it will not require more of these elements than are necessary for the production of an average corn crop.

We would not like to specially advise as to the expediency of the enterprise, but we believe that if your location is near a railroad, and accessible to a good market, you would run no risk in planting a peach orchard of good varieties, no matter how abundant the crop may generally be. Good peaches always command a good price, whether the crop is large or small.

We are often astonished, during the peach season, to see so many poor peaches in the market. A smaller crop of good varieties will always pay better than a larger crop of poor varieties, and the labor of cultivating and handling the former will be correspondingly less than that of the latter.

We have preferred to answer your queries through the columns of THE FARMER, because others have asked the same questions, and our mission is to do as much good as we can in a general way; but apart from this your own experience, as you go forward, will suggest many things which we cannot anticipate, in detail, as to local contingencies.

THE PEACH BARK-LOUSE.

MR. E. B. ENGLE—*Dear Sir:* This is the brood and insect which I wrote you about in my letter of the 13th inst. The winged insect you will find in a small tin cylinder with a magnifying glass in one end. Look through the glass and you will see the insect magnified. As near as I could discover the brood hatches in the spring of the year and becomes a worm, which lives on the sap of the tree until autumn, when it is transformed into a flying insect, the same as the sample I sent you. The worm* emits a black dirt, which falls upon and covers the fruit, and leaves it as if covered with charcoal dust, and it can not be rubbed off. Yours respectfully,

W.M. YOUNG.

READING, January 14th, 1878.

The foregoing, and the following, extracted from another letter on the same subject, by the same writer, and about the same period, together with a box containing some of the insects alluded to, were sent to the meeting of the Pennsylvania Fruit-Growers' Society, held at Williamsport, on the 16th and 17th ult., but on account of the shortness of the session they were not reached, and were therefore referred to us for elucidation:

"Five years ago I had an opportunity to discover, on a few peach trees, in the central part of the city of Reading, a new insect, which, so far as my knowledge extends, has never been known here before. The first year I visited various sections of the city, to discover, if possible, whether it had spread any. I found none elsewhere, and I gave notice to the people then, that if it was not exterminated it would become a great evil to the peach-grower. This year I find all my bearing trees infested with them, as well as my neighbors', and I do believe it will become, in a short time, of great magnitude, and will give us no rest until it has destroyed the trees in general. Its increase in one season is enormous, as the insect which lays the eggs can fly, and I am at a loss for a remedy. I sent

*We would respectfully beg leave here to say that neither the larva of the bark-louse, nor that of the winged insect sent us ever occurs in the form of what is usually understood as a worm, and their excremental emissions are always in the liquid form. If any worms or maggots are found among them they must be those of parasites. The "black dirt" on the fruit or the branches is, no doubt, a species of fungus.

you a few branches of the infested peach, which are a fair sample of the condition of all the branches of all the bearing trees at the present time. I also sent you one of the insects that lays the brood. Several trees have been totally destroyed. Can you give me the nativity of the insect, its name, and when and where it was first noticed? Has any other member of the society any knowledge of it, and are there any other districts of the State infested by it? Are there any possible remedies by which it can be destroyed, and if so, can they be applied without destroying the bearing trees?" Yours truly,

W.M. YOUNG.

We insert these letters here not for the purpose of criticising the misapprehensions, and consequent misstatements of the writer, but to illustrate, from his own experience, and from his own practical observation, that he has a very formidable insect enemy to his peach trees to contend with; and to elicit the observations and experiences of others on the same subject, if there should be any within our State or elsewhere. But, first, we would most respectfully beg leave to correct a great error, which he seems to have fallen into, in regard to the winged insect which he alleges lays the eggs.

The delicately formed golden green insect with the beautiful lace wings, belongs to the order NEUROPTERA (nerve-winged insects) and the family HEMEROBUDÆ, and is one of the most industrious and unequivocal insect friends that belongs to the whole class INSECTA. The nimble little larva is spindle-shaped—oblong, thickest in the middle, and tapering towards both ends—has six feet, and a formidable pair of calliper-like jaws, and feeds mainly on aphids and bark-louse, before the latter have assumed the scale form. After the larva is mature, it spins itself up in a small spherical, whitish, silken cocoon, from which the perfect insect evolves in the late spring; and when the female becomes fertilized she deposits from ten to twenty eggs in a cluster, each one on the end of a delicate white foot-stalk, when they look like a minute bulb on the end of a thin, whitish bristle; and when the young are excluded from the eggs, they crawl down the foot-stalk and scatter themselves over the tree or plant, and go in search of any small living object they can find, especially plant or bark-louse. The specimen enclosed, still has the cocoon within its grasp, from which it emerged. This little insect can do no harm whatever, for in the winged state it partakes of no food at all—indeed, it could not if it would, for its mouth organs are obsolete, or merely rudimentary. It has no part whatever in producing the bark-louse that infests the branches of the peach or any other tree, and its presence there is solely for the purpose of feeding on them. We have watched them for many an hour among colonies of aphids, slaying them with the energy of a regular pork-butcher. Knowing them and their habits so well, we regret that their mission has been misapprehended, and hence, altogether misrepresented. This little subject seems to be *Chrysopa oculata*, but there are some twenty or thirty described species of them.

And now a word about the "bark-louse" of the peach tree. They belong to the order HOMOPTERA (like-winged insects) that is, in those among them that have wings at all, the wings are all nearly or quite alike in size, structure and form. But it is only the males that have wings, and these do not survive the winter. Those on the twigs of trees at this season of the year, are all females, and all will, next spring, deposit a number of eggs, (each from 50 to 150 or more,) and these will hatch about the 15th of June—earlier or later, according to the temperature of the weather. They are so very small when they come from the eggs that they cannot be discovered without the aid of a glass, but small as they are, they have organs of locomotion sufficient to transport them all over the tree, and wherever the wood is smoothest, newest and most succulent, there they will penetrate the bark with

their piercers, and permanently locate themselves, and begin to suck and thrive on the yielding sap. After they select a location and affix themselves to it, they never leave it alive. All the males do is to fertilize the females, after which they very soon die. When the female is located she divests herself of her feet, her antennæ and her caudal filaments, and becomes degraded into a "scale" or "scab," and hence they are called "scale-llice," or "scab-llice." No matter how cold or how wet the winter is, the weather has little or no injurious effect upon either the female or her eggs. There is but one brood in a season, but they are so prolific that in one or two years they overrun very large trees, and very large districts. They are supposed to be carried from tree to tree by the prevailing winds.

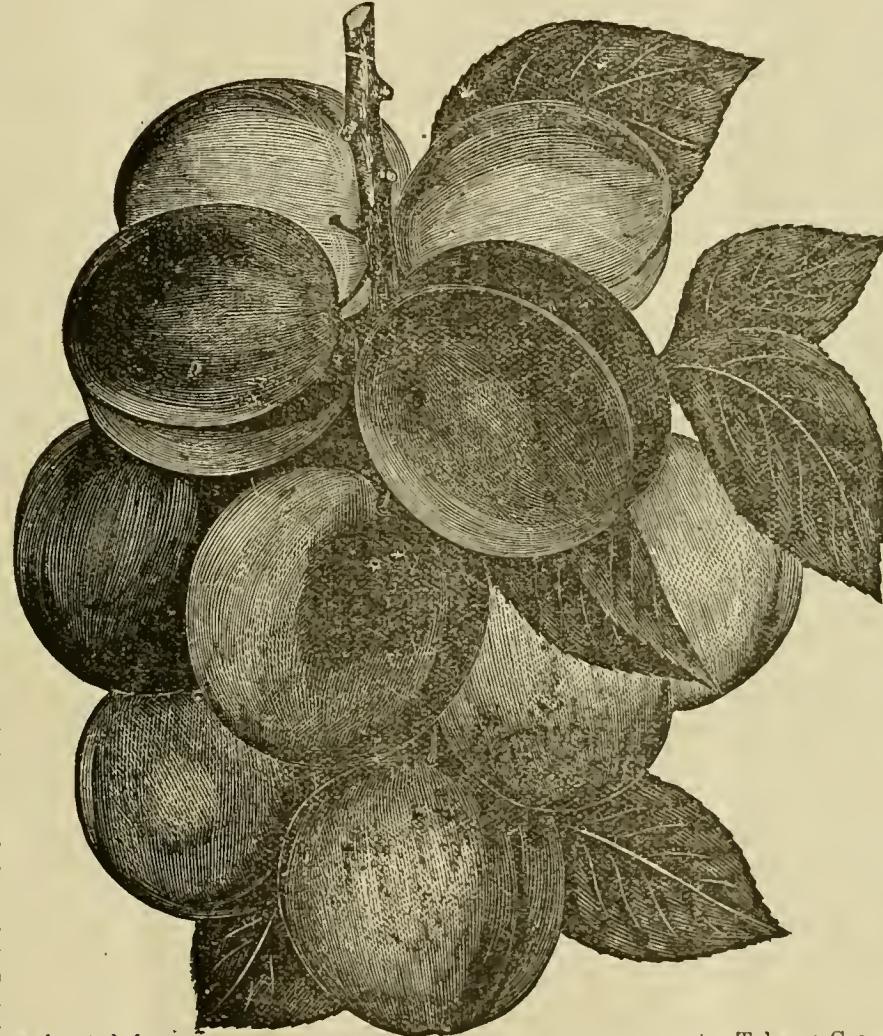
The "nativity" of this insect may be foreign; at all events it does not seem to be very well known in this region of the country. In 1860, whilst in attendance at one of the early meetings of the Pennsylvania Fruit-Growers' Society, held at West Chester, Pa., a gentleman in that town brought us a plum-branch infested similarly to your peach trees; but, it being early in the month of June, (the strawberries were just ripening,) of course, they were much larger than yours are now. Since that time we have not seen any that seemed a nearer resemblance to them than some sent to us on one occasion on a beech twig. They belong to the family COCCINIDÆ, and may be referred to the genus *Lecanium*. If not the same species that the pear and the plum are sometimes infested with, then they may receive the specific name of *persicum*. Whether any other member of the society has noticed them is more than we can say at this time. Nor can we answer whether many other district in the State is infested with them. As to the possible remedies for their destruction, in the condition they are now, scattered over the whole tree, even to the ends of the smallest branches, it would be difficult to apply it, even if it were known, and might do little good if applied. On the trunks or larger limbs they can be dislodged with a stiff brush and soap and water; or by whitewashing; or by an application of oil or other fatty matter. If, by close observation, the time could be discovered when the young come forth from the eggs, and before they have located themselves, (about the middle of June,) and then the trees were drenched with soap and water, or an infusion of tobacco, they might all be destroyed. In addition to this, encourage the "Lacewings," the "Lady-birds" and other insect friends, and to a limited extent these will greatly aid you in the work.

THE LUMBARD PLUM.

This plum is a very great grower, remarkable for its productiveness, and is sure to bear a large crop, where most other kinds fail from lightness of soil, unfavorable weather, or from the ravages of the *Curculio*. These important excellences give it a high rank. It is of good size and handsome appearance, although it is not claimed to be of first-rate flavor. It is called by its present name in compliment of Mr. Lumbard, of Springfield, Massachusetts, who first brought it into notice in that State, though it was first raised from the seed in Whitesborough,

New York, by Judge Platt. It has also been well known in that State under the name of "Bleeker's Scarlet." It will therefore also be perceived that it is not to be confounded with any of the foreign varieties of *Lombardy* plums.

The fruit is of medium size, roundish oval, skin delicate, violet red, paler in the shade, and dusted thinly with bloom; flesh deep yellow, juicy and pleasant, but not essentially rich; adhering to the stone. Ripens early in September, and continues nearly to the end of that month. Small trees of this variety can be had at almost any of the principal nurseries—Moody & Sons, Lockport; Ellwanger & Barry, Rochester, New York, as noted instances. It will be noticed, however, that it is catalogued "Lombard." In a heavy soil, or soils having a mixture of clay, the larger varieties of the plum are produced yet they will thrive in almost any soil. In sandy soil there is great effort, in the form of blossoms and settings, for an abundant crop, but the incursion of the curculio very frequently de-



stroys it; in heavy clay soil sand should be mixed, and in light, sandy soil, clay or muck should be introduced into the beds or border where the trees are planted."

THOROUGHBRED SHORT-HORNS.

MR. EDITOR—Sir: I have been through the West and have made great improvement in my herd of high-grade and thoroughbred Short-Horns, by judicious purchases from the leading breeders of Kentucky and Ohio, and therefore I can now flatter myself that I have the best herd of cattle in the county. My herd is open to the inspection of strangers on all week days. It was commenced in 1872 by the selection of such only as proved good, combining milking as well as fine beef qualities.—A. M. Rank, Bird-in-Hand, Jan. 22, 1878.

[We call the attention of our readers to Mr. R.'s card in the advertising columns of this number of THE FARMER.—ED.]

FOR THE LANCASTER FARMER.

REVU OF JANUARY NUMBER.

First and foremost, we bow to our editor's criticism on tallo. Please remember that our Fonetie is just in its infante, so that occasional errors ma crep in.

A glans at the Yamato and Mikado, maks us wish we wer in Japan, or that Japan wer in Pensylvania.

Only a Farmer.—Dont be alarnd, brother farmers, our cauling is luming up. The fop codfishery has mad its biggest haul.

The Great Horned Owl is not od in many uv its habits, for tha corespond xactly with thos of human bipeds in many cases, speciaiy in the disagrement of the sexes; also, the conduct of the males toward ther offspring and toward each other, and that tha prefer to be let alon.

About Bats.—Wel, it is simply astonishing. The ritter compares them to a swarm uv bes. Wonder whether tha eat grapes.

Japanese Persimmon.—The gloing description therof shud by al means caus som to be planted for trial. If that shud fail, it wud not be the first failure. Shud tha prov a succes, we wud lik to be in for som.

The adres of the President ov yur counte societe, is tu gud to be overluked.

It is a capital document.

Care of Domestic Animals has som gud hits for both sants and siners.

The Reliance Raspberry.—Wat progres in smal fruts! Hu wud not hav rasberis?

Italian Bees.—W. J. D. seems to hav pulverised the veteran J. B. G., but we think he wil agan ris out ov his ashes.

Chemical Fertilizers.—This article is both sensible and practical. Any farmer that reds it and dos not lern a lesson must hav mor punch than brain.

Specialties in Farming.—A. B. K. generally maks gud pints. The plausibility shud caus tobacco groers to reconiter a little.

Guinea Fowls.—We think ther shud be mor of them rased, if tha wud not com in competition with Italian organ grinders.

Our Local Organization.—The Ag. and Hort. Society is producing incresed interest, and som very gud papers and speeches ar brot out at the monthly metings, with the usual quantity of chaf ov cours. But we no that we get no weat without chaf.

Tobacco Growers' Association is stil in its glory, but we think if last yrs crop dos not soon sel faster the fraternete wil put its fether at haf mast.

The Linnean is moving along quietly without much ostentation, but is doing much mor and beter work than it gets credit for. We hop posterity wil appreciate its labors mor.

Agricultural Outlook.—Wel, our weat crop is enormous, but thirteen hundred bushels dos not luk lik a larg corn crop. We think sombody counted rong. If we nu just wat Urop wants we mite charg accordingly.

Pulverizing Manure.—This is a short but very sensibl artiel. Tu follo its techings wud pa farmers wel.

Improving Wheat.—This is one ov the grat questions ov the da. If this season's trial wil sho as wel as last, we ma se a stampede for nu gran drils.

Poultry.—The articls on poultry ar very gud. We wud lik to se eggs and spring chicks a little cheper somtims. Correspondents of

THE FARMER cannot afford to pay the highest prices.—*Von Humboldt.*

PRUNING AND TRAINING OUR GRAPE-VINES.*

There are various methods of pruning and training the grapevine, and each method has had its supporters. Good crops have also been produced by many of them, under skillful hands, and no doubt will continue to be. The fact is, the grapevine is so productive and fruits so freely, even with ordinary treatment, that bad indeed must be the case where it ceases to yield its luscious fruit; yet, while so submissive under ill-usage, and grateful, as it were, for a common existence, like other creatures of nature's highest organization, its expansive powers will become contracted and a tractable disposition rendered stubborn by long continued abuse, in which case the quality of the fruit is deteriorated. The bunches are small, or the flavor inferior, and as pruning has something to do with this, particularly the small bunches, it may be well to explain the different modes that are practiced and state the various results attained by them. Although it is best to allow the grapevine, like all other fruits, to judiciously and periodically extend the superficial surface of the leaves and branches, our arrangements and convenience do not always admit of this desirable consummation being carried out. Such being the case, it behoves us, under the circumstances, not to distort nature any more than we can avoid. In accordance with these views, first, is mentioned the plan we generally adopt. Supposing that we have got a cane of the first summer's growth, cut it back, in length according to thickness; if very strong, say six feet, or only middling so, two, five, or even four feet; next commence at the top, leave three eyes, the upper one for the future leader, and the remaining two for the top pair of branches; cut out the next two, leave the two beneath, and continue on so until within eighteen inches of the soil; below which remove all the bottom, as there is no use in having any fruit lower down. During the next summer the eyes will, if well attended to, form side spurs, which, in their turn, will have to be cut back to two, three, or even four buds, as they may be plump or well developed. Now, when these buds begin to grow we ought to have a shoot from each of them; and, as only one bunch ought to be allowed to remain on each base, the other shoots will appear so far to be superfluous. Retain the one at the base, or nearest to the main cane; and, likewise, that one above it which shows the best bunch; rub off the others and pinch out the fruit from the lower, and also all excepting the best formed bunches, on the upper. After the fruit is cut and the wood becomes ripe, say two or three weeks before the leaves fall, go over and cut clean away to the base, which leaves the spurs for fruiting the next year as near the main cane as if the close-cut method had been adopted, with the advantage of having spurs which have not been burdened with fruit, and also the probability of future finer bunches; for the most prominent and well-formed buds always brings the best shaped and largest clusters; and this action gives a better chance of obtaining such. There is no fear of not being able to get shoots from the base, if properly managed, for in most cases adventitious buds, and generally more than will be wanted, are developed and have to be rubbed off; when these side spurs have accumulated, and extend along the whole length to the top of the trellis, there will be a uniform strength over the whole vine. If the canes have previously been disbudded there is no danger of overcrowding, as the following year the bearing branch is brought down to the same position as that of last season, and the other trained more upright into the vacant space.

All trees have a natural tendency to push the strongest growth to the top and extreme ends, particularly while young and vigorous,

and if the side branches are very closely cut away, periodically, the sap is directed more strongly upwards, the lateral force is reduced in a corresponding ratio, and the side branches are rendered weak; this is often seen in the grapevine, and is as often a cause of complaint. Now, the above method very much counteracts this evil, as a greater quantity of leaves are encouraged from each individual base, and, of course, a greater draw of fluid is produced into the side branches, which, when once established, remain permanent, and so long as the same cause is in existence the flow is equalized, the side spurs correspondingly strong the buds become plump and the bunches large. To still further encourage this lateral action it is advisable to take out the overplus buds in the fall, at the same time that the cane is disbudded, for the simple reason that the plants are collecting food and filling up the seemingly latent parts through the winter, excepting when the ground is frozen and the channels of absorption thereby stopped; consequently all the buds receive a due share, although a portion of this stored-up nutrient is wasted; by allowing the useless buds to expand we gain the advantage of encouraging a greater flow into the side branches, until the time when the unfolding leaves are enabled to keep up the action. Another method of spur pruning, and the one most generally practiced, is to allow the cane to extend itself upward each season, as above described, until it reaches the top of the trellis, and retain the side spurs closer and alternately arranged along the cane, each year resting or not allowing to bear, every alternate bud or spur, and when pruning the cutting off all the spurs close down to one eye, or leaving those for fruiting the following season somewhat longer, and in the next fall cutting the same spurs close in to the cane, the object being to keep the side branches at home. Very good crops are often produced in this way, with otherwise good treatment, but in the first instance the bunches are generally small; and although in the latter this is for a few years obviated, still there is the disadvantage of having to go back to the main stem, and of trusting entirely to the buds which may thus be prompt to push forth. This close cutting weakens down the lateral force of the plant's energy; in a short time the spurs become weak, and the whole cane has eventually to be cut down, by which, to say the least of it, one year's crop is lost. We are aware that in thus speaking of this walking-stick mode of pruning we are going in the face of many good grape-growers, but the fact of things being generally fashionable is no criterion of its excellence; nature's actions in all of these matters ought to be our guide, and the more we adapt ourselves to her laws the more permanent will be our success. Sometimes the long-rod method is practiced; in this case the first summer the cane is trained up as in the former mode, only left somewhat longer when pruned, and this suffered to bear a full crop the next season, after which it is cut clean out to one eye from the bottom, another cane having been taken up during the same time from its base, to afterwards take the place of the one last fruited, and so on; by this plan fine fruit may be obtained, as the bunches emanate from strong buds, which, if they have been previously well ripened, throw off handsome and large clusters; but there is the evil of having to cut off, at one fell swoop, the half of the plant, having no perennial structural base excepting the very lowest stump; this wholesale and oft-repeated cutting keeps the plant in a continual state of excitement, which is sure to eventually show itself in permanent weakness. And here we have evidence to prove this above-mentioned assertion respecting the shortening of vitality, for a plantation trained on the single cane, short-cut plan, and every season subjected to this severe lopping, requires occasional renewing; such has been my own case that a fresh planting of vines has to be made every three or four years; now, as this can be prevented with so little expense or trouble, and as there is more than a counter-balancing advan-

tage arising from this system, it is well, in this particular instance, to follow what best answers the purpose in view.

The renewal method is adopted by some; the two-year old cane is cut back to about half the height of the trellis, and allowed to bear the next season while fruiting; the top growth is conducted perpendicularly, and, at the proper time, is pruned off at the top of the trellis; during the same summer another cane is taken up from the bottom, and on one side which is cut back one-half as the other one was the previous year; the next season this new cane is allowed to fruit, and also the upper part of the first one, the side spurs on the lower half having been cut out; thus there is a full crop, only each half is on two separate canes. The youngest one is now suffered to grow, and this, in its turn, cut off at the top; another brought up from the bottom, and the old one cut clean out; here we have the fruit always borne on young and vigorous wood, which, generally, produces the finest fruit; no spurring is required, and there is the advantage of a large bulk of leaves and branches, the former of which affords nourishment and promotes the maturity of the roots, but the top requires somewhat more side room, and the vines ought to be planted a little further apart than is necessary where spurring is resorted to. Where a vine is allotted only a certain space, this is one of the best methods of training; but it is unsightly, and if the same advantage can be gained otherwise, and at the same time beauty in appearance, it is certainly desirable to insure both. Now the first described mode accomplishes this object in the grapevines, and also retains a large amount of solid structure in the form of a strong, permanent stem, through which can flow an ample supply of sap to the leaves, and receive back the food elaborated by them down to the roots in a healthy way and without any undue excitement to the whole organization. But the best of all plans, and also the most natural, is to extend a head somewhat each season, so that finally one vine may cover a large surface. Nature works by certain fixed laws which man cannot alter, and any long-continued attempt to force her from her own course is sure to end in final failure and disappointment. It cannot be denied that much success is obtained by modes of cultivation which would appear to speak to the contrary; but observe the ultimate result patiently, with care and without prejudice, and all these abuses will tell their own woful story. One of the causes why a grape vine so soon wears out, as it is generally considered to do, is produced by such close pruning as we yearly subject it to; the volume of the plant is increased for three or four years at first, and afterwards only allowed the same extent of surface. There is no other fruit-bearing plant that would continue to prosper long with this treatment. Take, for example, a peach or an apple; allow either the one or the other to produce a long, straight stem of twelve or fifteen feet, and cut in the side branches to an eye; never suffer it any further extension but what is produced in the summer, again to be cut out, and it would, after a few years' constant excitement, dwindle down to a mere stump, and finally die out; if the grape vine does not show the same so readily, it is only because of its extremely tenacious constitutional powers, for the same law governs both, and both alike must, sooner or later, arrive at the same imbecile condition. As a vine, if extended over a great space, would only admit of a limited number being grown, it becomes necessary to explain how this may be accomplished. During the interval the usual crop may be secured. In planting, place in the centre of the intended row a vine of known good quality; at intervals of about twelve feet plant others of equal merit, and fill up the vacancies with sorts as fancy may dictate, so that each one may stand about three feet from the next one; during the first two seasons train all up as usual. So far we have elongated the surface upwards, and the canes will be near the top of the trellis. In pruning the second fall, as there are side spurs

*Read before the Lancaster County Agricultural and Horticultural Association, by D. Smeich.

on the lower half of the cane, or on the whole length of the vineyard, cut these into about three eyes; bear each other vine the next year as heavy as it is thought advisable, so as to secure the fruit ripening and coloring well; ease the other in like proportion, which will give vigor and assist them afterwards. When the fruit is cut on those vines which have borne the heaviest crops, take them out; and when pruning the other, leave the side branches about a foot long, which will fill up the vacant space; next year train these branches horizontally, and in the fall following, spur them as advised above with the upright cane, and at the same time leave another length on the end of each; as these side branches continue to be lengthened and fill up more space, bear those vines on each side of them somewhat heavier, and afterwards take them out.

By this system it will readily be seen that but few varieties can be grown in a limited space; but quality always gives the most permanent satisfaction, and where variety is required it may be had in the first instance, and quality secured afterwards, if care is taken in planting good sorts, in the right place, at the commencement. It may be thought by some persons that so few vines are not able to carry a full crop in a given space; never fear that, for if there is sufficient surface of well-ripened wood, the roots in good order, and the expansion judiciously accumulated, the quantity of food may be gradually increased, until two or three hundred weight may be taken from a single vine. Show me an instance where the same longevity and continued fruitfulness has been gained by the ordinary walking-stick, confining to one cane, or the short-cut method, and then I will believe that nature can alter her course, and that man's single ideas can control the wonderful action of his Creator's intelligence. That judicious shortening in at the right season and under proper circumstances is not beneficial has been clearly demonstrated; we know that it tends to give less vigor and healthy growth; both theory and practice tell us so; by it we gain a strong propelling power from the roots, without reducing their volume or enfeebling their energy; but to cut annually so free-growing a plant as the grapevine to a mere stump is, to say the least of it, a barbarous mutilation of God's providence, and is sure to end in premature weakness, sappy and papery leaves, spindly, ill-ripened wood, and barrenness. By this method, last described, the roots have ample space to luxuriate in, and one vine would eventually occupy and fill a whole border, which usually has to accommodate a great number; and, as the head has a corresponding expansion according to the requirements of the subject, a greater certainty of permanence and future vitality is gained; and, as a matter of profit, it is the most beneficial, for there is surely a more lasting gain where a trellis, or even a vineyard, will continue to yield a good crop for two or three generations, than when the planting, making fresh borders, has to be renewed every ten or, at most, fifteen years. In making these remarks we would not wish to be severe, for there are many persons so situated, by peculiar circumstances, as to prevent them from carrying out the most natural or best methods of culture, even though they may be aware of the errors of their present practice; yet there are others who have popular and practical prejudices to overcome before they will be enabled to see the desirableness of asking themselves a few physiological questions, or take the trouble to find the answer in nature's voluminous folios. May we hope that these set notions and dogmas may speedily vanish from this free country, at least where the natural and physical industry of man is unfeigned; and where we may become a pattern to the world, in good culture, if not in artificial grandeur. We cannot let the present part of the subject pass by without a few remarks on summer pruning: it has often been advised, and that, too, by some of the best cultivators, to stop the bearing shoots at an eye, or in some instances, two eyes above the bunch; and likewise do the same with the

young cane when it has elongated to the top of the trellis, or the upright support; also, to pinch out all laterals as they are produced, thereby making the operation into a rule. There is no doubt that many conscientiously believe such a system to be judicious, and, because their crops are satisfactory to themselves, they continue on in the same practice without further consideration; but this does not close up the avenue for free discussion; neither does it prove that it is the ultimatum of perfection. If we pursue the investigation of this matter in a physiological manner, we are led to understand that all summer pruning tends to lessen the vigor, and cripple the energy of all grape vines; and practical experience, combined with observation, proves the fact. Arguing from this point, we may be accused of advocating no summer pruning at all, to which we say, no summer pruning at all. If the greatest extension of branches and corresponding roots, or bulk of timber were the object, then the less pruning the better; but the present position is a consideration of circumstances and adaptability, independent, to a certain extent, of nature's action; the object being to coax her to accommodate herself to our conveniences, and as the grape vine is one of the most easily trained of her family, we have in this case a partial control. We ought, then, to consider what we are doing, and how far we are acting in unison with what are known to be established laws; and to infringe too far upon these is sure to produce evil; this or that man's dogmatical opinions must certainly fail, unless they be based upon this indisputable certainty. Where is the use of following this "should be," or that "ought to be," unless somewhat in accordance with these natural demands; yet we find a prolific and luxuriating plant, such as is the grape vine is stubbed, is cut close and sheared like a convict; we are nearly saying shaved, too; for the pinching back to one eye above the fruit, is nearly tantamount to the close operation. The reason given for this peculiar treatment is, that the fruit, and also the plant, is strengthened by it. How would it strengthen one's toes by cutting off a finger, supposing another would grow in its place? or, would an animal produce the finer offspring, if the body were to be mutilated? It is just possible that any amount of gangrene would be the consequence; but, as to the truly healthful action, it is possible that we should be none the gainer; perhaps this kind of analogy may be thought a very vulgar way of explaining what might be shown in more delicate words; but, of course, the true meaning is purposely explained, to show up the ridiculousness of curtailing nature, as stated above; the subject is a matter of circumstances; we have to do with a family of plants that would occupy a great volume of surface, yet we wish to have a large number, comparatively speaking, in a small space, and the best thing we can do is not to weaken down natural energy more than there is occasion for. Pruning, properly performed, and in the right season, is certainly a great service; we find it so, practically; its good effects are everywhere to be seen when it is adopted; but so far and no farther is it advisable; if proof be required of the injury that may be done by too close stopping, let anyone try the experiment of pinching in closely the side shoots of a part of his vines, and leaving the other several joints longer, and he will find at the end of the growing season that those which were left the longest are better ripened than the shorter ones, providing the light has had equal influence on both; if the vines are no further apart than three feet, the distance will allow a shoot on each side, of from fifteen to eighteen inches, upon which there may be from seven to eight leaves; and allowing the fruit to be on the second or third joint; there will still remain four or five leaves above it, each of which will do its duty in elaborating the crude juices and assimilating the carbonic acid absorbed, thereby adding to the bulk and solidity of the whole structure; and, if so, increasing the amount and greater

firmness of the roots; for, according to the amount and action of the foliage under favorable influences, so are the underground extremities encouraged. As stated elsewhere the grapevine is a plant of great longevity, notwithstanding which, with the practice of some vine-dressers, it is considered to be worn out in a few years, and fresh plantations have to be made periodically; this may, in vineyard culture, answer the purpose of the cultivator; and by the method of only allowing a few feet of bearing surface to each individual, a great amount of fruit and of suitable quality for this purpose may be obtained from a limited extent of land employed. Here is evidence that too much curtailing of the plant's natural disposition shortens life and weakens down the constitution to such an extent as to make it worthless, comparatively speaking, in a very short time. Considering that there is not a very great expense in replanting a vineyard, the means may be said to justify the end. It behooves us to think well how we may pay back a permanent interest on the capital invested; and if there be any method that will keep a trellis or vine in healthy bearing for a long time without the requirement of renewal, surely it must be wisdom to adopt it. If the grape vine is a long liver and allowed to extend, and soon worn out if kept in a small compass, is it not reasonable if we wish permanency, that all available space that we have in the superficial area of a trellis should be covered with healthy leaves, in order to better concentrate and store up the food for future development; and add each year a layer of well-organized albumen to the previous existing sound vascular tissues. If we take into account the glutted preparations that are often compounded for viney borders, and the consequently immense encouragement given to luxuriating growth, it really appears surprising that such close cutting as is generally practiced, does not either kill or cause disease in less time than is the case; and it is justifiable that the present ravages of mildew in this free country have been accelerated by this cause. Such are the writer's ideas upon the subject, and as the present object is to enlighten the learner, they are submitted to approval or censure, as each practical and successful cultivator may think fit, with the conscientious belief that such is more becoming the present age of progress, and if followed up will be the means of prolonging the healthfulness and fruitfulness of grape vines.—Respectfully submitted, Daniel Smech.

FOR THE LANCASTER FARMER.

THE DITANY.

A communication from Major Spera, of Ephrata, this county, gives a statement that he found the common Ditany, *Cunila Mariana*, in the latter part of November or beginning of December last, enveloped with thin plates or funnel-shaped icy formations around the dry stems of last year's growth.

About the Ice Around Ditany.

The communication published in the *New Era*, with respect to the common Ditany, *Cunila Mariana*, having been found by Major Spera, of Ephrata to have funnel-shaped ice or frost-work surrounding the remains of the last year's stem; by a pencil sketch he shows the frost-work to commence at the base of the stem, through the thawed opening of the soil surrounding the stem, building up and flaring out the frost-work, so as to have no contact with the stem at all.

This corresponds with my own observations, made the 6th of December, 1856, and published in the *Horticultural Journal of Philadelphia*, then edited by J. J. Smith, (new series, Vol. VII., p. 73), in which I also refer to Dr. Darlington's notice of this fact, prior to my observation, as I learned by consulting his *Flora Cestrica*, published in 1853, p. 199.

In an article published in the *Scientific American* for February 24th, 1877, (Vol. XXXVI., p. 116,) in answer to a certain

"FROST PLANT OF RUSSIA," said to have been introduced. This led to a reference to the frost-work around the *Cunila*. I quoted the opinion of Dr. Darlington, who says: "In the beginning of winter, after a rain, very curious ribbons of ice may be observed attached to the base of the stems, produced, I presume, by the moisture of the earth rising in the dead stems by capillary attraction and then being gradually forced out, horizontally, through a slit, by the process of freezing." In my article I said: "Had the doctor given a more extended investigation I fancy he would have agreed with me as to the cause; I found hundreds of diversified specimens. I am not aware that it was just after a rain. I took up a number of plants and always found a vigorous, scaly, root-bud undergoing development, at this early season, underground, to produce a new stem the following year. I came to the conclusion that, as the temperature was below freezing and snow was on the ground, (by no means necessary to produce the icy formation,) I conceived the vigorous bud, in close proximity to the surface, gave out sufficient heat or warmth to generate vapor from the moist soil. This vapor, rising around the stem of the plant and attracted by it, becomes congealed into a snow-like, pearly ice-work, taking various forms." I then quote Mr. Hunter and Lamarck, Hales and Duhamel, that experiments go to sustain such an opinion.

But my worthy friend, Prof. John LeConte, of the University of California, at Oakland, California, thought it proper to let me know, as well as the general public, that my article called attention with reference to the ice around the stems of *Cunila Mariana*. He then shows that, "As long ago as 1850 it was his privilege to call the attention of the scientific world to an identical class of phenomena in a paper entitled, 'Observations on a remarkable exudation of ice from the stems of vegetables, and on a singular protrusion of icy columns from certain kinds of earth during frosty weather.'" This paper was published in the "Proceedings of the American Association for the Advancement of Science," third meeting, Charleston, S. C., March, 1850, (pp. 20-34,) and likewise in the "London, Edinburgh and Dublin Philosophical Magazine" for May, 1850, (third series, Vol. XXXVI., pp. 329-442). He then informs us that Sir John F. W. Herschel published a short notice of a similar exudation of icy fringes occurring around thistle stalks and stumps of heliotropes, in the "London and Edinburgh Philosophical Magazine" for February 1833, (third series, Vol. II., p. 110,) besides the notices of Prof. S. P. Rigaud, March, 1833, and Prof. J. D. Dana, 1849. In my reading I have not met with any of those publications referred to, and it seems by no means new or rare; and we may thank Prof. John LeConte for calling our attention to his paper on this apparently important topic. He says: "In the paper referred to will be found a full discussion of the possible sources whence the large supply of water is derived, which, by freezing, forms the accumulations of icy fringes in the one case and the icy columns in the other." He continues: "Suffice it to state that I have then shown that, in both cases, the phenomena are purely *physical*, having in the case of plants no connection with the vitality of the stem; (the italics are mine, to note what he says and how he says it;) and that the appearances "are quite at variance with any idea of the deposition of these icy fringes from the store of aqueous vapor—in the general atmosphere, in the manner of hoar-frost."

Now, let us examine his illustration of the ice ribbons on the old, dry stems of *Pluchia*, the marsh flea-bane, he shows the sheets of ice far above the soil, and coming out on two sides of the stem. He says—"It is more common and conspicuous in the *Pluchia bifrons* than in *P. camphorata*." Both plants grow abundantly in wet soils, around ponds and along the roadside ditches, in the low country of Carolina and Georgia. We have his illustration and description of the *Pluchia*. I illustrate and draw conclusions from the facts

and appearance of the *Ditany*, a plant of the mint family, and found in dry soils and in shady, hilly woods in most parts of the United States. Thus the two plants are different; nor do the ice ribbons come out through a crack in the stem, so that Prof. Leconte's description of the "marsh flea-bane" and figure, differs from that witnessed in the *Ditany*. Not having met with the Professor's elaborated description which is to settle the matter as to cause, I can only argue from the figure he gives and the brief statement he makes. It may be that plants like the *pluchia* growing in water, by capillary attraction in the pith of the old, dry stem, may draw up the water, and when frozen, split the stem. But in this case it would be water, and formed into clear ice. There is quite a difference in the congelation of vapor entangled with air, which gives it the agglomerated appearance of snow crystals, forming deposit upon deposit into thin sheets of a beautiful pearly whiteness. Every one knows that the breath of man and beast causes these snowy crystals to be formed when the temperature is sufficiently low. The moist, warm air coming from our sewers or out-houses, show beautiful festoons of such frost-work, without involving the idea of "aqueous vapor in the general atmosphere," in the manner of hoar-frost, which the Professor flings out as if it had a bearing on the question; I also believe the phenomena purely physical. And as all agree that the ice around the stems of the *Ditany* arises from its very base and does not touch the stem, no matter how dry or how old, or how hollow, I deny that the ribbons come from the water in the stems of the *Cunila*, as shown by Leconte to arise from opposite sides of the stem, some distance above the soil in his illustration of the *Pluchia*, so that his theory may answer the case witnessed by him; and as Dr. Darlington was no doubt acquainted with the Professor's explanation, did not stop to see that the fact did not apply to the *Ditany*. The Doctor says clearly, "the very curious ribbons of ice may often be observed attached to the base of the stem;" he must suppose that the slit is in the very junction of the stem with the root, if any slit at all in the stem. Prof. Leconte closes his notice by saying in reference to my article, "The explanation given by Dr. Darlington, in his *Flora Cestrica*, in 1853" (as quoted by your correspondent) that means myself, "is more in accordance with known facts." Why not add—as I have demonstrated in the *Pluchia*, the marsh *Flea-bane*, where it was forced out through the stem growing in wet ground, as and so forth? How will such a theory account for a similar phenomenon in dry soil, and not from slits in the old stem above the soil, but from the soil itself around the base of the stem?

It seems to me the Professor should have considered this difference. He nor any one else has yet shown that any one claims a "connection with the vitality of the stem," nor that the ribbons come from cracks in the stems of *cunila*, and hence his strictures fall a dead letter in the case of the latter. He does not deny—of which any one can satisfy himself—that a vigorous underground bud is found on the perennial root-stock of the preceding year; that heat is developed in germination, that heat and moisture form vapor; that it would of necessity find escape directly around the base of the stem, the cold atmosphere would condense this vapor, entangled with the air at the base of the stem, and so continue to add particles until it builds up a funnel-like or egg-shell-like icy ribbon, free from the stem, as those were seen by myself, Major Spera and Dr. Darlington, according to his statement.

I shall be happy to read Professor John Le Conte's article whenever so fortunate as to meet with it. I have written to several of my friends for a copy, but failed to get an answer. As the matter now stands, neither his explanation or illustration, as given in the *Scientific American*, has any weight to change my view as to the cause; nor will it require a learned professor to form an opinion for him-

self on comparing facts as they exist.—J. Stauffer.

FOR THE LANCASTER FARMER.

HALF-WAY PLOWING.

More than a year ago I was at a meeting of the Agricultural Society in Lancaster. The members were speaking about plowing for corn. One of the members arose and said, if we would only turn the sod edgways, we would get more corn than we will if we turn it down flat in the furrow. He stated that he once had a hillside, and he plowed it in lands along the side of the hill. That which he throwed against the hill the plow did not turn over, just set it up edgways, and there he had the best corn. It could be seen on every land. That part which was throwed down the hill, was never as good as that which was throwed against the hill. I sat and listened, but said nothing.

Last summer I had an opportunity to experiment in it myself. I had a steep hillside, and I plowed it in lands along the side of the hill. It was a clover field, and nothing else but clover. When I throwed the furrow down hill, every head of clover was covered, but when I attempted to throw the furrow up against the hill, some was turned over, some stood edgways, and some rolled back into the furrow from which it had been turned.

As every farmer well knows, who has ever plowed a hillside, all that was thrown against the hill looked green, and all the cultivation before corn-planting did not kill the clover, or any other kind of weeds. Some one might say I have no good cultivator. I wish he would show me a better one than I have, to kill clover or weeds in general. I planted the corn, and after it was out I cultivated it thoroughly, but the clover remained, and that was not the worst of it. Some other grasses and weeds were hidden under these clover stalks, after all the cultivation; and after harvest I went through the field to pull up the remaining grass and weeds by hand, which I generally do. Where it was plowed down hill I had not much trouble, but where it was thrown up against the hill the labor was immense, and the result was contrary to what the gentleman represented at the aforesaid meeting. Good plowing is the foundation of agricultural success; if the foundation is not good the whole building will be worthless. It is as plain as A B C that good plowing and well-turned-under sod or soil, is, by all odds, the best. Just look back to our forefathers. How did they plow? Just as the gentleman above stated that we should plow. And what was the result of their plowing? By the time the corn was up for the cultivator, the fields were blue with "blue grass" and weeds. And what kind of corn crops did they get? Were they better than those realized at the present day? Every one knows.

[Our correspondent's suggestions seem reasonable and practicable. Without intending to participate in the discussion, so far as it relates to the cultivation of corn, the system which he denominates "half-way plowing" is the very one which will facilitate the escape of cut-worms and moths in the spring, which are so injurious to the young corn. It has been repeatedly recommended by the best authorities, that the best—and perhaps the only—way to destroy the Hessian flies, while they are in the pupa or "flaxseed" state, is to plow them deeply down, and turning well the furrow—"upside down," as it were—and this would also be beneficial in the case of cut-worms, or at least with those that had pupated, as the moth could not penetrate the deep soil.—ED.]

Harrowing Wheat.

I often hear about harrowing wheat fields, and also read the same in agricultural papers; and in THE LANCASTER FARMER a writer says he harrowed a part of his wheat field in the spring, and that part of the field soon was ahead and higher than the part which was not harrowed, and when harvest came he got more wheat from the harrowed part than

from the other. Last spring I made an experiment for myself. On the 5th of April I harrowed a strip in a very nice wheat field in which the soil was nice and dry. I made marks on the fence so that I could be always sure of finding the place I had harrowed. Had I not done that I might have made a mistake as to the right place. After a few falls of rain and the season had advanced I found no difference could be observed in the condition of the grain from that time until harvest, and the wheat on the harrowed part was no better than that on the other part, but I had a very good crop all over the field. I also had a patch of poor wheat that I had sowed very late, and of this I also harrowed a strip, and with the same result as in the former case. I also tried the same experiment on rye, but it seemed to make no difference. Now, I confess I don't know where the secret lies, that I did not reap the same reward that others allege they have by harrowing. Is it in the soil or in the harrow? My soil is a limestone soil, and my harrow a common spike-harrow. Probably the writer above alluded to had Thompson's harrow. If it lies in the harrow it, no doubt, would pay well to get a Thompson harrow.

[Cause and effect; action and reaction; recompense and retribution, are conditions characteristic of the whole world of matter, as well as the world of mind. If we propel a ball against an unyielding surface it will rebound in a line and with a force corresponding with the line and force of the propulsion, unless some inequality of the rebounding surface should cause a deviation; and if an object should be interposed the rebound would be turned in a direction very different from the angle of propulsion, and this principle seems to act upon and modify many effects resulting from prior causes.]

Effects of Neglect.

The snowstorm on the last of January tore down a part of my barn roof—about sixteen feet of the one side was demolished. Several of the rafters were not pinned together at the upper ends, and I think that was the chief cause. It is an old saying, "For the want of a nail the shoe was lost, and for the want of a shoe the horse was lost;" and so, for the want of a few pins my barn roof was blown off. Had I known it I might have easily prevented it, and thus saved the roof. The barn was built in 1849. It was a culpable neglect of the builder, for the holes were bored but no pins in them. The other rafters were pinned. Perhaps the pins were exhausted in raising the barn, and then no new ones made to complete the job. I would advise farmers, and all others that put up and own buildings, to watch the carpenters, examine their work, and see that everything is substantial.—J. G., Manheim twp., Jan., 1878.

FOR THE LANCASTER FARMER.

AROUND THE FARM. No. 5.

VonHumboldt can't understand the "fowl" air in my last. I did not spell it quite the way the printer did, but I think I can tell him what would make "fowl" air! Suppose a farmer keeps poultry and does not provide suitable quarters for the chickens to sleep in, they often roost in the stables, on the stalls and racks, and as almost everybody knows the nature of chickens, they will agree that this will produce "fowl" air!

Thank you for the correction. We like to be criticised. It does us good; but we admire the ingenuity of Humboldt in putting his "revu" in phonetic, as criticism is thus well nigh impossible! This leads me to

Poultry-Keeping.

There are very few farmers who do not keep poultry, but very few have poultry houses. These need not necessarily be expensive. Convenience should be the first object. However simple the house otherwise, it should have a tight floor under the roosting poles, in order to facilitate the gathering of the manure, which is the most concentrated fertilizer we can produce on the farm.

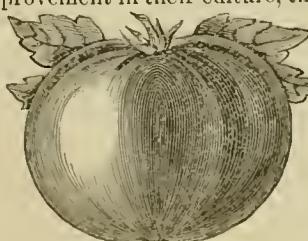
The whole interior, including poles, should be whitewashed frequently, to destroy vermin, and dry earth should be scattered on the floor occasionally to absorb the gases, and, above all, the manure should be removed frequently. I don't think it is advisable to have the hens confined all the time. They do better if not confined so closely. But there are so many nights when a fowl house would be good that it would pay to build in a few years.

Tobacco Plant Beds.

My method of sowing tobacco seed is as follows: The bed is dug in the fall or early spring and covered thickly with well-rotted manure; this is left on until as early in March as the weather will permit, usually about the 17th, when it is raked off and the bed covered with straw, chips, corn-fodder, brush or anything that will burn. Fire is then applied, which will loosen the soil and dry it so as to facilitate covering the seed. The weed seeds will also be destroyed, which is alone worth the trouble of burning. The soil is then raked, after it is cooled off, until it is thoroughly pulverized and then three teaspoonsful of seed are mixed in a basketful of wood ashes and then sown evenly. This quantity of seed, if it is good, is enough for a bed sixteen feet square; we then take a board and press the loose soil on top, and then it is ready for the covering. Last year I tried both bristles and muslin, and my experiment proved the superiority of muslin as a covering. I seeded a bed 16x32, covering one-half with bristles immediately after seeding; the other half remained exposed nine days, when a sheet of muslin was stretched over it about eight inches from the ground, and the plants under the muslin were up first and were fit to plant from eight to ten days earlier than those under the bristles. We made a box around the bed with boards about eight inches wide, nailing them at the corners, and tacked the muslin on this. When the plants were nearly fit to plant, we rolled back the muslin during the day in order to get them used to the sun.—*Ruralist, Creswell, Feb. 5th, 1878.*

THE COMING TOMATO—"ECHOFF."

There have been many improvements made in the varieties and qualities of this popular esculent, on the gnarled and watery things they were twenty or thirty years ago; but we think that experience may demonstrate that to Mr. Amos B. Echoff, an old and experienced gardener, of Coatesville, Chester county, Pa., belongs the merit of originating "the last and the best." The tomato has become a domestic necessity, as absolute almost as bread and butter—indeed we think that it would be better to do without the latter than without tomatoes—and therefore any improvement in their culture, their quantity and quality, must be recorded on the roll of human benefactions. Mr. Echoff claims for his new variety some qualities which stamp it with rare excel-



lence in a tomato. Among these qualities are great solidity, smoothness of skin, symmetrical form, beautiful color, destitute of a core, and ripening fully to the stem; and the additional rare quality of bearing shipment well, which is an essential point to those who cultivate for market. The seeds, we understand, are all in the hands of Mr. E., and as he is an old cultivator, and knows exactly what is extant in this line of vegetables, he would not sully his reputation by representing it for what time might demonstrate it is not. Our illustration represents the form and general appearance of this tomato, greatly diminished in size.

WE would ask every reader of THE FARMER to try and procure us a new subscriber.

FOR THE LANCASTER FARMER. PLANTING TREES FOR TIMBER AND FUEL.

There was a time in the history of our country when the object was to destroy trees and not preserve them as is now the case; then trees were many and the demand for timber and fuel restricted; and as the part of the country first settled was nearly all covered with heavy growth the destruction of the forests was a matter of necessity and not of choice, for it involved much hard labor. Unfortunately the destruction did not cease with the necessity that called it forth, and we have now come to such a pass, in many parts of the country, that timber for buildings and fences must be brought from a considerable distance, and the distance is becoming greater year by year.

We have, indeed, now come face to face with a disagreeable fact—we cannot do without timber and to get it from distant parts is becoming more and more expensive, and we will have to submit to such increasing expense or try and escape it to some extent by commencing to plant the various kinds of trees suitable for the different purposes of building, fencing, manufactures and fuel.

The planting of forest trees is engaging the attention of many of our most prominent men, and the Legislatures of some of our States have enacted laws favorable to such culture. Among the most prominent is the example of the State Agricultural Society of Massachusetts, which gives prizes for planting; in the west, Illinois has framed "herd laws," by which it is forbidden to leave cattle range at large, and thus favors the planting of all kinds of trees without the necessity of fencing them in until so large as not to be destroyed by cattle.

Where to plant is a question that must be well considered, as it must not only be determined as to whether the trees will grow at such a place, but may not their shade or their roots do you more injury than the profit derived therefrom will amount to; or may they not injure your neighbor, when no consideration of self should lead you to plant. On the latter account no one should plant trees on the northern or western boundary of his land where that boundary is only a fence. In both cases the sun would be kept from his neighbor's land to the injury of the crops. Planting on the eastern boundary would, of course, injure his neighbor some, but not to the same extent as in the other situations, for it is nearly universally true that vegetation receiving the morning sun up to noon is not near as much injured as when it receives the sun only from noon to evening.

Trees planted along the roadside should be such as do not grow very tall, and, for reasons stated before, should not be planted on the northern or western boundary of the road, but in this case, if any injury would result, it would fall on the planter, and as he is master of the side of the road next his own land he must determine for himself as to doing so or not. Many trees could be planted along our wide roads that would bring in a handsome profit in the course of years.

Along streams, particularly on the eastern and southern shores, and in many cases on both shores, willow and other trees loving moisture, might be planted that would bring in returns for the labor and means invested that would, literally, throw into the shade any farm crop that could be mentioned.

But it is on land that is too rough for farming or grazing that trees should be planted, and it is here that we have been losing in our manner of cutting down the woods. On some rough land there was, perhaps, a good growth of hickory, birch or oak, and when they were cut down the land was left to take care of itself; if young trees commenced growing up in the course of a few years, it was well; if not, it was only what was expected. Had the owner planted chestnuts, hickory-nuts, acorns, or the seeds of whatever trees he thought best suited, the same season the old growth was cut down, he would have had a surety of the

land growing into value again from the very start. Even land that is good enough for grazing can be planted with trees if the cattle are kept off until the young trees are too large to be destroyed by them. Any kind of grass that loves shade can be sown in such places, and make nearly if not quite as much pasture as if it had the benefit of full sunshine. The trees should, of course, not be planted quite as close as when it is not intended to be pastured.

But shall we plant the tree-seeds where we want the trees, or shall we plant young trees out of the nursery rows? If we do plant the seeds where the trees are to grow, at what time shall we plant?

In any place where cattle cannot get, and where they will not be injured through other causes, plant the seed on the land the trees are intended to occupy and plant thick, for then there will be enough strong seedlings that will take care of themselves, and besides some seeds may be imperfect, or the young seedlings may be destroyed through sun-scalds, insects or other causes.

As to the time of planting the seed, observe when they fall. That is nature's own time to plant, and you will not go far wrong in following her. If you cannot plant at this time, walnuts and other hard nuts should be buried in the ground a few inches below the surface until spring opens, so that they will have the advantage of alternate freezing and thawing; chestnuts and other seeds that have a soft shell may be preserved in moist sand. The growing of seedlings can best be made known in an article by Mr. Hiller, or some other nurseryman, as to get them to transplant well requires a manipulation that I am not competent to describe in all its detail.

When planted with the object of growing timber for building purposes, a man must look a long time ahead for the full reward of his labor and outlay, as even the fastest growing trees require almost a lifetime before they are in a fit condition to cut into boards, planks and joists. But this need deter no one from planting such trees, for the land on which they grow becomes more valuable every year, and if put up at public sale, after a lapse of years, would show an increase in prices over land not so planted that would fully satisfy any person who has been in the habit of receiving only legal interest.

At the head of all timber trees for building purposes stands the white pine, and second to it only, and often more valuable, is the yellow pine. The latter is the species now so extensively planted in parts of Virginia, where land being so cheap the original outlay is very light, indeed, towards what it would be should land of the same quality be purchased for this purpose in the Middle or Eastern States.

In all cases it must be borne in mind, that such trees only as are suited to the climate should be planted. For this reason the yellow pine is the favorite in Virginia and south of that, while in Massachusetts the larch seems to be the choice, it being a tree essentially suited to its colder climate. The hemlock is a northern tree, of pretty rapid growth, but is very little planted for timber, as far as I can learn, probably on account of the poor quality of the timber it furnishes and the low price at which the lumber sells.

For machinery, implements and fancy and ornamental work, there are many trees suitable for planting, and the timber of these sells at much higher prices than those used mostly for building purposes only. Wild-cherry, walnut, maple and cedar are in good demand from cabinet and furniture makers, and such as make fancy or household machines. For machinery and implements, hickory, white oak, ash and tulip-tree (called poplar in many parts,) are wanted, and bring very good prices at a medium size. The osier willow is oftentimes very profitably planted on the margins of streams running through meadows, where it would not be advisable to plant trees of larger growth, because they would throw too much shade. There is usually a good demand for the osiers from local basket makers, or they can be readily sold in any town.

For fencing we need hardly mention more than two species, the chestnut and the locust, both being fast growers and durable, particularly the latter. Sassafras and cedar are also durable, but their slow growth forbids their being planted to any extent. I think there is no tree which brings in greater returns in a short time than the locust, for it always brings a high price and is always salable. Chestnut probably would bring more money in fifteen or twenty years than locust, providing the former sprouted up from the stumps of trees just cut down, but when both grown from seed the latter will make a dollar's worth of posts sooner than the former will rails to that amount.

Fuel, though not the object, will be abundantly provided by any of the trees already mentioned, in the way of thinnings, dead trees and osfall. If planted especially for fuel, I do not know of any trees that furnish it in a shorter time than the white willow in moist places, and the pitch pine in dryer situations. The wood does not make as good fuel as many others, it not throwing as much heat, nor for as long a time; but when more heat is needed we have a ready source in our coal mines, where good fuel can be dug cheaper than it is in our power to grow of the same quality. Coal is much better, cheaper and handier for heating purposes and regular cooking; but there is many a time, particularly in the summer, when for a short time only a little fire is wanted, and that quickly, that light, free-burning wood answers better in every way.

Our people are generally known as one who take up a new idea very quickly, and the more so providing there is money in it; but when the idea is so very radical as to require them to plant timber trees where they have been used to cutting down, as did also their fathers and forefathers, then it may be that the idea would better be quickened into active life by awarding prizes, not for the largest number planted, as is in some cases done, but according to the number planted. This awarding of prizes should not be left to be borne by agricultural societies, but should be done by the State, as it is ultimately for the good of the whole country. It may be claimed that the State has no right to engage in such matters as the giving of prizes to individuals. As far as making new offices for this purpose is concerned, we do not believe that it would be policy for the State to have anything to do with it, nor, perhaps, even the paying of the prizes themselves, but laws could be enacted requiring our supervisors of roads to pay them, and thus each section of country would be liable for all improvements of this kind. A law was passed, a few years ago, requiring supervisors to pay a certain sum yearly, for each water-trough put up and kept in repair along the public roads, and I do not see that it has been interfering with their other duties, neither would that of paying for trees do so.

The preservation of the forests is a subject which has received the attention of the lawmakers of many European countries, notably that of France and Germany, where a man may not cut down a tree on his own land without a warrant from the forest master, and the latter uses his judgment without fear or favor as to the advisability of cutting, not with regard to its being profitable to the owner, but as to being the best for the country at large. There are certain rules and regulations made governing the master, by which he must abide, and he has very little chance of annoyng those with whom he has dealings, as long as they conform to the law; as civil service, without the reform, is the law of the land, each officer finds it his interest to conform strictly with the law.

No Legislature in the United States, would yet dare to pass a forest law that would prevent a man from cutting down any tree he pleased, standing on his own land, as it would be regarded as infringing on individual rights, but I have no doubt that laws with regard to this and many more matters, curtailing the action of individuals, will be made and thought only as a matter of course. Califor-

nia has passed a law forbidding the cutting down of the famous "pines," but as they are on land still belonging to the State the Legislature had a perfect right to pass such laws as it saw fit.

Besides planting for timber and fuel there are other reasons for such a course, both in a useful and an ornamental sense, but as it would make the article too long another time must answer for a further consideration.—*A. B. K.*

HOEING WHEAT.

OXFORD, Oakland Co., Michigan, }
Feb. 6, 1878. }

PROF. S. S. RATHVON—*Dear Sir:* I take a fancy to your paper and inclose you a dollar; send me the paper as long as you can afford for the money.

I have a word to say in regard to hoeing wheat, which I think will be a benefit to farmers in general. I believe that this matter of giving our wheat ground a good loosening in the spring is a matter of the greatest importance. As we harrow the wheat, with an ordinary harrow, it simply stirs the very surface of the ground in a very imperfect manner, without penetrating to a depth sufficient to give the roots of the plant any benefit whatever, and packed as solid as the most of our ground is left by the freezing and thawing of the winter, it seems almost a miracle that the plant can make any headway at all, and I believe that if we are going to try to increase the yield of our wheat crop, one of the most important things is to be able to thoroughly stir the ground in the spring. And the nicest thing I know of for this purpose is the machine manufactured and patented by *A. B. Travis*, Brandon, Oakland county, Michigan, on which he received a prize medal and diploma at the Centennial Exposition at Philadelphia, in 1876. Several of the largest and most influential farmers in the county tried the Travis hoe last spring, and all agreed that it improved the crop at least 25 per cent., judging from the appearance of the heads at harvest. They were longer and broader, and the kernels standing out much more prominent, on account of their size and plumpness.

We had a trial of the Travis hoe in our neighborhood last spring on the farms of one of our best men, and was witnessed by several of our largest farmers; among them were those that had 200 and 240 acres of wheat on the ground, and it was pronounced a complete success. By this trial I have learned that wheat can be hoed with horses as readily as corn, and looks as much improved as a cornfield when well cultivated. The machine is very simple and adjustable; one man can handle it with great nicety and drive the team. With it wheat can be hoed as fast as it can be put into the ground with a drill, as it is the same width and number of hoes and space of drill. I think it would be an advantage to farmers to drill their wheat farther apart in order that a large tooth may be used. Some of our farmers that have narrow drills left out every other tooth, calculating to use a large tooth in hoeing, and give a thorough cultivation.

Hoeing wheat is a new idea, and there is a great deal to be learned. I would like to hear through your columns the best methods and results. I shall take particular pains to give wheat hoeing a fair trial on my own farm, and will give you the results by measure.—*Yours, etc., P. K. Banta.*

[We refer our correspondent to an article on the same subject in the November No. of THE FARMER, 1877, a copy of which we have mailed him.]

THE PAST, PRESENT AND FUTURE OF DAIRYING.

The annual convention of the American Dairymen's Association, of which ex-Governor Seymour is the President, was held at Cleveland, Ohio, Jan. 8, 9 and 10. The following is from the address of Mr. J. H. Reall, of Philadelphia, who has for many years taken a

prominent part in the discussion of dairy questions, having spoken before the leading association of Great Britain as well as before the most important ones in this country. We give only the principal points of his speech on the "Past, Present and Future of Dairying?"

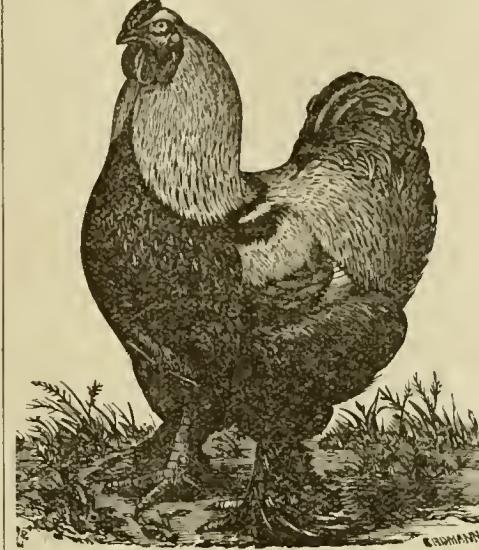
Mr. Reall began by contrasting the prosperity of the dairy industry with other branches of farming, business and manufacturing which had outrivaled all. Cheese and butter were now bringing relatively higher prices than ever before. The exports last year to Great Britain, our chief customer, had amounted to 110,000,000 pounds, worth over \$10,000,000, a large increase over the past, and susceptible of still greater enlargement. Butter had also been exported to the amount of 14,000,000 pounds. It was a known fact that the home consumption is not commensurate with the foreign demand for cheese, but it is because the best grades were sent abroad and the poorest quality forced upon our people. If the American consumers were given a fine, full cream cheese, instead of an article skimmed to death, it would become popular as a wholesome and nutritious food. It was the skinned cheese which naturally lies like a grindstone upon the stomach, and gave our people the opinion that cheese was indigestible. A mild, rich kind is demanded by the home trade, and would be appreciated as highly here as in England. In reference to butter, a stale article, however fine, was no longer wanted. The public taste had become so well cultivated that fresh flavored butter was demanded at all seasons of the year. To meet this demand the system of winter dairying, so successfully practiced in Illinois, where the finest stock is made at all seasons of the year, must be extended. Creameries or the associated plan of butter making must take the place of private dairies because a much higher price is realized for the product, and much waste and labor is saved the dairyman. Besides all classes should have the opportunity to enjoy fine butter, at reasonable prices, as well as all other articles of food.

Concerning some of the evils that have crept into the manufacture of cheese and butter, the speaker said: "Whilst the pennies are important, some dairymen value them too highly; often to the loss of dollars. I know that the profits of any branch of farming are light, and that it is only by unceasing labor and untiring watchfulness that the husbandman is enabled to live and accumulate something for himself and his loved ones. I know that the farmer is compelled to labor from early morning until the sun has sunk in the west, and to practice the severest self-denial in order to make both ends meet. I know that if he accumulates something for the future, it is only by years of unremitting labor. He has but few of life's comforts, much less of luxuries. The pleasures of the city folks and their social advantages are unknown to him. The rapid accumulation of wealth by the fortunate merchant, manufacturer and professional man is beyond his power, even the thousand comforts enjoyed by those in moderate means in the city come not to the average farmer, though all classes are primarily dependent upon the toiling husbandman for all they have. I know the hardships of the pioneers who turned a wilderness into a paradise, and God bless them for their noble endurance and self-sacrifice. They have done more for the advancement of our country than all others besides. Their toil, their suffering and their life's service have given us a land unsurpassed by none. I realize by how small items the farmer obtains the compensation for his labor; but because all these things are true he should not depreciate the quality of his product in the hope of large results from his toil. On the contrary, he should strive for excellence in all his products. The best yields most and brings the largest price. This is a universal law."

Dairying gives its followers both physical and intellectual food. No class think more, experiment more, nor discuss more. This was attested by their conventions, which should continue to be encouraged. They had been of

vast benefit not only to their members but to the entire dairy community.

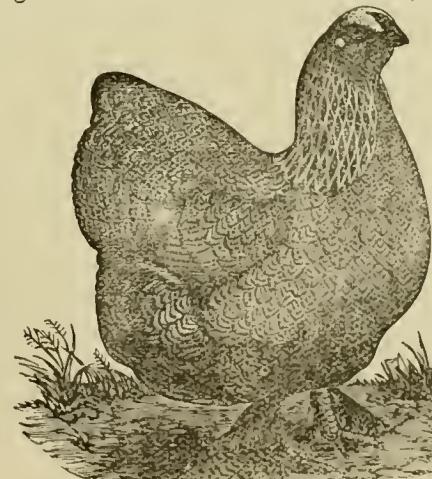
An important feature of the dairy industry has been the successful establishment of two distinctive dairy fairs the past year. One at Meadville, Pa., and the other at Chicago, the results of which would be of lasting benefit. Dairy fairs were of long establishment in



England, where two had also been held within the year. In that country the leading men of the nation took a pride in participation in meetings of dairymen. At the fairs, dukes, and lords and members of Parliament officiated. The Prince of Wales prides himself on having the finest dairy in England. The representative men of America would, sooner or later, be glad to follow the example of the great citizen who, for many years, has presided over this organization and served its interests so largely.

DARK BRAHMA FOWLS.

Because of the alleged unmotherly and unfatherly characteristics of the Dark Brahmans, they have not attained to the popularity, among many people, which attaches to the Light Brahmans and the Cochins; but, notwithstanding this seeming untowardness, their rare quality as layers has maintained their status in the poultry world, and is renewing a partiality in their favor. Our illustrations represent a "married pair" of these subjects of the "feathered realm," looking as unsophisticated as a pair of "Marblehead squashes" that seem to have been specially created to be converted into stews and pies. Our pictures will give a better idea of the form and general appearance of these birds than any description of ours, however detailed and lengthy it might be. The predominating colors of the cock are black and white, and of the hen white and steel-gray, beautifully penciled—indeed in this respect, as well as in form, the latter is a much prettier bird than her burly male partner. The Dark Brahmans are desirable stock to cross with our common fowls, and to



increase their size and table qualities. If the same care and perseverance were bestowed upon them that have been elicited by other varieties, no doubt the results would have been more satisfactory than they seem to have generally been. We cannot attempt to trace these birds to their origin, whether that has been in the jungles of Java or in the mountains of the moon. They are here amongst us now, and we must take them for what they are, rather than for what they were or may be hereafter.

*HOW FRUIT GROWING MAY BE MADE A SOURCE OF PROFIT BY FARMERS.

It is evident that farmers, in general, pay too little attention to the growing of fruit. Comparatively few of them extend their efforts in this direction beyond the care of an apple orchard, and the planting and subsequent neglect of a few peach and cherry trees. Many are led into this course by their want of appreciation of good fruit; and others, no doubt, by the belief that they cannot make fruit-growing a source of profit.

Entertaining, as I do, the belief that many more farmers than are now engaged in fruit-growing could do so profitably, I will mention some points, attention to which will serve to make the undertaking a success:

I. If Possible, Select Your Location Near the Best Markets.

Most fruits are easily injured by transportation; and, as with all other commodities, distance from market increases the cost of the consumer and diminishes the number of purchases. Then, other things being equal, it is evident that he may hope for the largest receipts whose farm is nearest to that market where is found the greatest number of consumers of fruit.

We have illustrations of this in the advantages possessed by farmers in New Jersey, whose lands are near to Philadelphia or New York, and those in Delaware and on the eastern shore of Maryland, who by means of water and railroad communication have almost hourly access to those great cities.

But the extension of our lines of railway and the perfection of methods of carrying fruit speedily and safely, have done much to give even the remote farmer a satisfactory nearness to markets. Thus even those who live on the Pacific slope now include among their customers, as to certain varieties of their fruits, consumers who live on the shores of the Atlantic.

II. Select Such Fruits, and Such Varieties of Them, as are Adapted to Your Market.

The tastes of people differ greatly, and their tastes must be considered and gratified if one would make money by selling to them. That the Delaware grape is sweeter and more refined than the Concord will hardly be questioned, and yet "the Concord is the grape for the million," and the shrewd grape-grower makes a note of the fact. Some grape eaters have not yet advanced beyond a fondness for the Isabella and the Clinton. Much as we pity them, it is evident that if we sell grapes to them in paying quantities the varieties which we offer them must not be first-rate in quality.

Still much can and should be done to introduce to popular favor kinds of fruit which are beneficial to health and pleasant to the palate. The taste of the people can be educated and refined indefinitely, and farmers can be helpers in the good work.

III. Select Such Fruits and Such Varieties of Them as are Adapted to Your Climate and Soil.

Experience has shown that climate and soil have much to do with the determination of the question of successful fruit-growing. Varieties which will flourish on one kind of soil will fail on another, and those which produce at one elevation or in a certain exposure will be unprofitable under other circumstances. Catawba grape roots and mildews so badly that

*An address delivered before the State Board of Agriculture, at its recent meeting, by President James Calder, of the State Agricultural College.

it is hardly known on our lands in Central Pennsylvania, and yet it flourishes on the shores of Lake Erie and on the south side of the South Mountain. A better and more productive peach than the Susquehanna or Griffith, when grown in its native locality, the house-yards of Harrisburg, cannot be found; but if planted in the field or orchard, even if within five miles of this city, it is a very shy and unsatisfactory bearer. The Agriculturist strawberry rejoices in the sands of New Jersey, but is worthless on our strong Pennsylvania soil; while the Triomphe Grand will do nothing there, but responds heartily to the influences which meet here.

IV. If Possible, Have a Variety.

The difficulties arising from unfavorable seasons, ravages of insects and competition from other producers, combine to teach the farmer that his loss of profit cannot be built upon the cultivation of any one kind of fruit, much less upon any one variety of that kind. We run an unnecessary risk when we aim to make money by growing, for instance, apples alone; and much more when we confine our efforts to one variety, even though it be so good a one as as a Belle Flower or the Rambo. While we plant most largely of the kind which suits our soil, climate and market best, we should remember the old adage, and "not put all our eggs into one basket."

Many kinds of fruit can be grown together. Thus among our apple and pear trees, which come into bearing comparatively slowly, we can set our peach trees, which come to maturity soon, and will probably finish their course before the apples and pears get large enough to require all the ground. While the trees are small we can profitably plant among them raspberries, strawberries, and other low growing varieties of fruits, which will induce us to stir the soil, to the advantage of the young trees, and will bring in receipts more than equal to the annual outlay on the young orchard.

All the ground devoted to fruit should be occupied by fruit. Do not many of us find our orchards to be failures because we bear grudge the ground they occupy, and seek to make them at the same time fields for wheat or hay? We do not so treat the lands which we devote to the growing of hay or wheat.

Further, under this head, we would call attention to the fact that certain kinds of fruit could be profitably grown to a much greater extent than they are at present. Thus quinces will flourish almost anywhere in Pennsylvania, and they always meet a ready sale, at good prices. But how few farmers have them; and those who own them have but few, and neglect even them.

New kinds of fruit, such as have not been known in our section or even in our land before, should be experimented with, and such as may be found adapted to our circumstances should be planted, and in due time offered to our customers. In this connection I venture the opinion that the Chinese persimmon will do well in our State, and that it can be profitably introduced here. From that which I found it to be in China, I believe our people would soon come to regard it as a great acquisition, both delicious and healthful, quite the opposite of our almost worthless native variety.

V. Plant Other Crops Among Your Young Fruit Until the Latter Shall Need all the Ground.

If the circumstances are such that you do not desire to put berries, for instance, among your young fruit trees, you can fill up the rows and intervals with garden vegetables. This, particularly in the case of apple trees, may be continued with advantage for a number of years; and thus the growth of the orchard be promoted while almost as much will be made from the ground as if the trees were not there. Our thrifty German immigrant teaches us a lesson on this point which even worldly wise Americans may profitably consider. He puts into the spaces between his favorite cabbages, beets or onions, and then further crowds out the weeds and fills his

pockets by setting everywhere else in the rows and along side of them, plants of head lettuce.

VI. Carry on Fruit-Growing Systematically and Vigorously as You Can.

If experience has taught you that you can hope to raise but few kinds profitably, as apples or grapes or peaches, pay chief attention to those. Plant only the best; and plant enough of them. See to it that your stock is not only true to name, but also healthy, free from worms, and not too old at transplanting. Having set the plants out properly, care for them thoroughly, mulching them, cultivating them in the proper season, training and pruning them as they make growth, and guarding them from the ravages of worms, insects, mice, etc.

VII. Market Your Fruit in the Best Condition.

Some men fail to make money even from good fruit, because they are careless or slovenly or dishonest in their method of presenting it to purchasers. Except in rare cases and for peculiar uses, all fruit should be ripe when offered in market. If it is not ripe it should not find sale. It should be sound also. If the quantity on hand is large enough to justify, it should be carefully assorted; the best specimens put by themselves, even though they be few in number, and the least valuable placed by themselves. This will enable consumers to choose according to their purposes or means, and will most likely secure buyers for all the grades. To so arrange one's fruit in the boxes or crates as to have the finest specimens on the top, while below are mere odds and ends, is to act dishonestly as well as most foolishly. Fair dealing as to quality, quantity and price will always pay best in the long run.

Much attention should be given to the baskets, crates or boxes in which the fruit is marketed. They should be neat, convenient in size and attractive in appearance. Labels setting forth the name of the fruit and of the grower of his locality will greatly add to the attractiveness of the stock and the satisfaction of the purchasers. We would make more money if we were more mindful of the fact that buyers are largely influenced by their eyes, and that the sight often dictates peremptorily to the appetite.

VIII. Preserve in a Fresh State, or as Nearly so as Possible, the Fruit for Which a Market Cannot be Found Immediately.

It is a disastrous error to suppose that fruit which cannot be sold as soon as it is ripe must be suffered to rot or be fed to the swine, or, what is worse, must be turned into wine or brandy. It is entirely practicable and is not too laborious to so dry or can or otherwise preserve fruits as to do a great deal of good with them and receive a handsome pecuniary return in addition.

Farmers who live at a great distance from market will find that while their location deprives them of some of the opportunities of securing profit from fruit-growing it cannot deprive them of all, but that by the course here indicated they too can swell their gross receipts.

IX. Transportation Companies Can Do Much Toward Securing the Object of Which We Are Speaking.

By arranging convenient places for receiving fruit of a neighborhood, affording quick transit without reshipment, returning the empty packages to the owners, and meeting the schedule of charges as low as their own interests will justify, they will enlarge the income of distant producers and certainly pay better dividends to their stockholders.

X. There are Related Departments of Labor Which may be Made to Swell One's Receipts.

He who grows fruit extensively may, without inconvenience, establish a small nursery, from which he can not only supply trees and plants for his own grounds, but also sell stock for the use of others. This is especially true as to berries and grape vines. In the ordinary course of student instruction in our college vineyards, we laid down within the last year several hundred vines, which made most satis-

factory growth and were worth a handsome price.

To a slight extent horticulture could be pleasantly, appropriately and profitably carried on with fruit-growing. We need ornamental plants and shrubs for our grounds, and such as we can spare can generally be readily sold under the circumstances in which we find a market for our fruit.

So the keeping of bees, facilitated by the culture of fruit, may be advantageously connected therewith. If any one objects that bees will injure the fruit and render it unsalable, I would reply that I have never had proof of their doing so. As far as my observation extends their attention is all drawn to such specimens as have been injured or are too ripe to be marketed.

And now, in conclusion, I would say that we cannot safely affirm that all farmers, everywhere, can make extensive fruit-growing to be profitable to themselves. The points before stated forbid such an inference. Location, soil, climate, and other material facts must be consulted before the question can be determined.

But much can be done by the diligent and enterprising farmer to overcome existing difficulties. By the careful selection of varieties and the judicious marketing of his products, he can develop and educate the public taste, and make for himself an additional branch of industry which will bring him more nearly into the line of labor which the Creator first assigned to man, and which all experience proves, like charity, blesses both him who gives and him who receives.

OUR PARIS LETTER.

PARIS, January 3d, 1878.

Veterinary surgeons, cattle dealers and agriculturists are not one respecting the treatment of farm stock affected with the plague. Excepting, perhaps, Bavaria and Hungary, the cattle disease has disappeared on the continent. France, having organized its sanitary police for the frontier, is now about doing the same for the interior of the country; inspectors will be armed with almost arbitrary powers for dealing with live stock brought to Paris and markets. If excessive precaution be attended with inconvenience it does not last long; German drovers complained that France was over-precautious in the case of prohibiting the entry of sheep, as the latter do not necessarily communicate endemic typhus. M. Villeroy affirms that, during the late war, his out-offices were occupied by German oxen, that communicated the plague to his black cattle; he had some of the latter killed in order to study the malady; he discovered nothing, and the poor, to whom he presented the carcasses, eat the flesh with impunity. In the course of a week the plague admitted no longer of any doubt; he had the remainder of the stock slaughtered; later he purchased some sheep to consume the crops; the animals were penned in the place where the cattle had been killed, and was stained with their blood and excrements, yet the sheep never contracted the disease. It is avowed that sheep and goats are refractory towards the contagion. Veterinary surgeon Zundell attests that these animals can be affected without, however, falling ill; but it is not to be concluded they escape. When inoculated the mortality has ranged as high as 70 per cent. Epizootic fever is not rare among Russian sheep, and in 1863 and 1864 it committed great ravages in Naples. In 1865 one of the Zoological Gardens of Paris was attacked by the cattle plague, that was communicated by gazelles imported from London, and deers, goats, &c., contracted the malady; the like calamity was observed in 1866 in the Rotterdam Zoological Gardens. In Egypt the same virus has afflicted camels.

Many plans have been tried to prevent sows from devouring their young; the mother's voracity is due to the pain the young inflict on her when first commencing to suckle, for they are littered with milk teeth, and the latter, often not being sufficiently distant from one another, the teat is thus bitten. In France the milk teeth, at the extremity of the jaw, are extracted, so the mother, not being wounded, does not become furious. Another plan is to rub the young with gin, as also the mother's snout; the odor will ward off her attacks; or pour into her ear, at the moment of littering, some drops of a mixture composed of two parts of tincture of opium and 15 of camphored alcohol; this will cause sleep, and when she awakens the young will have taken possession each of its teat, and the first "nips" will be forgotten.

In some parts of France the value of commercial manures is regulated according to the prices paid for the manure from city or cavalry stables; on an average, fr. 10 per ton is the accepted value of farm-yard manure; this is the estimate of Ville, the

champion of mineral manures, adopts. Many agriculturists, when making their annual inventories, do not credit the accounts with the farm-yard manure, regarding it merely as a restitution due to the soil. It is in the same end—that of avoiding fictitious estimates—that produce is valued according to the standard of the price of hay; thus, if the latter be fr. 3 per ewt., beet, being three times less nutritive, will be rated something under fr. 1 per ewt. The grazing farmer estimates the value of his pasture by the profit realized, general expenses deducted, between the price of the stock purchased when lean and when sold fat.

Mention is being directed to the importance of torrefied animal refuse, such as bones, horn, leather clippings, hair, woolen rags, blood, &c. By special contrivances these matters are so scorched as to retain their organic richness, though reduced to a state of powder. This powder ferments, or in other terms dissolves easily and gradually; the phosphates are assimilated with facility, and the humus in the soil economized. This torrefied refuse peculiarly favors a large return per acre of beet, in addition to the juice being markedly rich in sugar, because less alkaline salts or nitrogenous matters are present. Beet thus raised has been sold as high as fr. 24 the ton, or fr. 6 more than usual rates. It is admitted that the manure ensures the uniform germination of the seeds in a remarkable manner, and keeps off insects, owing to the offensive odor of the compound. It is most efficacious when employed in moist weather—autumn or spring.

Dr. Holdefleis has published some very important conclusions on the transformation that the phosphoric acid of the natural phosphorites, undergoes in the soil. Humus, whether as in peat or stable manures, exercises but little effect, still less the carbonic, or other organic acids. But the inorganic nitric and ammoniacal salts possess the power of setting free the phosphoric acid to a great degree. Clay soils, if watered with liquid manure, will give off ammonia; but turf soils will retain this gas, by immediately transforming it into nitric combinations. M. Boehm, an Austrian physiologist, has conducted some experiments with kidney beans; they could not develop in distilled water, but in ordinary water they did, owing to the presence of salts of lime, which transport the elements of the seed to the young stem. M. Peligot has shown that if beans be watered with a solution of common salt, when growing in an ordinary soil, the plant will reject the sodium and take, instead, potassium; while if grown in the same solution exclusively they will absorb sodium. Messrs. Deherain and Maquenne conclude, from all these facts, that salts in solution are absolutely necessary to favor the migration of the principles of the seed to the infant stems.

Some cavalry horses, at Vernon, were affected with an excessive salivation; the veterinary surgeon traced the cause to the musty oats. Change of dietary arrested the excessive secretion; wild thyme, when present in large quantities in fodder, has, in the neighborhood of Chartres, produced a similar affection; and aftermath clover, having spots on the leaves, recalling those of the potato disease—a mushroom affection, caused, according to M. Thierry, horses to secrete as much as five quarts of saliva per hour. No medicament could check the malady, which disappeared, however, when the diet was altered.

Complaints are general, especially in Belgium, that brewers' mash is yearly becoming less valuable for the feeding of milch cows, and that the old proverb, "no grains no milk," will soon become a joke. The fact is, that owing to the improvements in machinery, brewers extract more matter from the malt than formerly; hence, why some farmers prepare their own mash, or "Flemish soup," as it is called, by preparing steeps of crushed barley, bran, or meal driuks. In cities dairymen cannot dispense with the brewers' grains, which are often preserved in trenches, when sprinkled with salt; the German plan is better, that of drying them when they leave the vat.

M. de Lubasky demands, why is Russia behind other countries in agriculture, despite a rich soil and several distinguished farming societies? M. Lonay attributes the cause, in the region of Volhynia at least, an essentially agricultural portion of the empire, to the total absence of popular instruction; since 17 years the peasants have been emancipated, and they do not yet understand their new destiny, owing to the want of guides. There are no markets held in Volhynia, which is "a continuous village;" whoever desires produce must go to the farms to obtain it, hence a class of brokers exists between consumer and producer, objectionable for both parties. The social condition of the peasantry is pitiable; they have only vegetable soup and bread for uniform diet; salt is both a luxury and a necessity, and often bread and salt is all they have to eat. They make their own cloth also.

The unsatisfactory result of this year's beet harvest, both for the farmer and the manufacturer, has led to the plan of a fusion of interests; the experiment will be tried the ensuing season; the factory and farm will become co-operative, and thus set at rest quarrels about prices and stipulations as to manures. The wheat crop has fallen short by one-twelfth for last year, and the flour is inferior; about

one-seventh of the total of the wheat grown is required for seed.

M. Pagnone, one of the highest authorities in the country on the cultivation of beet, would leave farmers free to cultivate the root as they please, and the sugar refiners to purchase according to value; he counsels farmers not to cease employing nitrates, but to avoid their abuse, as also every other kind of nitrogenous manure; to cultivate the plants at narrow distances, and to patronize varieties where the cellular dominates the fibrous tissue.

M. Genay, residing near Nancy, sows his clover in March or April, among the winter wheat or rye, at the rate of 10 lbs. per acre, and 1½ of ray grass; a brush of the harrow follows the sowing machine, and then the roller. After the harvest he top-dresses the clover with ten tons of farm-yard manure per acre; he thus secures vigorous crops, free from parasites and worms. The phylloxera continues its ravages; better reports come in as to the value of sulphur for destroying the bugs.

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 Monday afternoon, January 4, in the Athenaeum rooms.

The meeting was called to order by the President, Calvin Cooper, esq.

The following members and visitors were present: Calvin Cooper, President, Johnson Miller, Henry M. Engle, Martin D. Kendig, Henry Kurtz, J. M. Johnston, Clare Carpenter, Prof. S. S. Ratcliff, Daniel Smeyeh, Henry Shiffner, W. L. Hershey, Aaron Summy, Mr. Witmer, Peter S. Reist, S. P. Eby, Jacob M. Meyer, Christian Coble, Henry Erb, Simon Hostetter, B. Frank Landis, William McCloskey, Jonas Buekwalter, Henry Erb, Joseph Witmer, Isaac Bushong, Joseph C. Linville, Levi S. Reist, W. L. Hershey and Frank R. Difenderfer.

On motion, the reading of the minutes of last meeting was dispensed with.

Election of Members.

On motion, Calvin Carter, of Sadsbury, was duly elected a member of the society.

Reports of Special Committees.

The committee appointed to attend the State Fruit Growers' Association at Williamsport not being ready to report, were temporarily excused.

Condition of the Crops.

JOHNSON MILLER, of Warwick, said quite a number of wheat fields looked bad prior to the late snow fall; the Hessian fly had injured them. The early sowing had not been beneficial.

HENRY KURTZ, of Mount Joy, reported many fields as looking very yellow; some are less, some more so. He believed it to be the fly, and caused indirectly by early sowing, especially in low, wet grounds. But little tobacco has been sold; 5—15 and 5—18 cents were paid.

H. M. ENGLE reported the January rainfall at 4½ inches.

Reading of Essays.

DANIEL SMEYCH had an essay, which he had written, read by the Secretary. See page 20.

H. M. ENGLE said the article was not too long, but yet too much so to be discussed here. He liked the essay; it was a most excellent production. There is a wide difference of opinion as to the various methods employed. He thought the essayist favored the long pruning system too much. He believed in close pruning. We get more and better fruit in this way. He once thought otherwise, but experience taught him his mistake. There is a good deal of ignorance prevalent as to pruning vines. A little attention will soon teach every man how to prune his own vines.

On motion, a vote of thanks was tendered to Mr. Smeych for his valuable essay.

Questions for Discussion.

"How shall the farm be conducted to produce the best pecuniary results?"

HENRY KURTZ said this was an important matter. Our lands have cost from two to two hundred and fifty dollars per acre, and it won't do to raise wheat, corn or oats. We must raise vegetables, and particularly tobacco. We have the best soil in the country for this. But to do this we must have a tobacco inspector, who must tell people just what we have to sell.

Here the chairman called Mr. Kurtz to order, as he was altogether off the question and getting away still farther.

JOHNSON MILLER said he did not believe with Mr. Kurtz that we must devote all our attention to tobacco farming. A stable full of good cows will produce \$500 or \$600 a year, and a fine lot of chickens, a few hundred more. There are other ways to make money besides raising tobacco.

H. M. ENGLE agreed with Mr. Miller. He said the tobacco hurry may run out. We should not build on this alone. Cotton ruined the South be-

cause everything else gave way to it. We ought to grow a variety of products. Some crops fall and some succeed, so we always get something; if we go on one article all the time, we make a mistake. Many farmers have grown rich without ever having planted a single stalk of tobacco. Improve your farming; raise 50 bushels of wheat instead of 20; grow 100 bushels of corn instead of 50, and then you are on the road to prosperity.

HENRY KURTZ came to the defense of his peculiar theory, but disclaimed being considered as advocating the planting of nothing but tobacco. He raised \$1,700 worth of tobacco on four acres of land; that paid.

MR. WITMER agreed partly with both these parties. He thought money could be made out of wheat as well as out of tobacco, and we can improve our farms at the same time. Good cultivation is what we need. We can make money without growing a particle of tobacco.

H. M. ENGLE said the question was a broad one, presenting many views; we cannot go over them all now. We should subdivide it to discuss it intelligently.

On motion of Johnson Miller, the question was continued until next meeting.

On motion, the rules were temporarily suspended to bring up some special business.

AARON SUMMY stated that he had with him a bill reported by Mr. Etta, relative to the appointment of a tobacco inspector. Although properly belonging to the Tobacco Growers' Association, on motion, the bill was allowed to be read, as it was admitted to be a matter nearly concerning the agricultural interests of the county.

PETER S. REIST advocated the discussion of the question here and now.

AARON SUMMY thought it was not out of order to consider the question here. There is no necessity for such an inspector. It is a big job for some one.

HENRY SHIFFNER said if we have an inspector we will be taxed excessively. It will still further stagnate business. It ought to be voted down.

On motion, the question was allowed to be discussed here.

HENRY M. ENGLE thought a meeting of the Tobacco Growers' Association should be called and the question be discussed there. That would be the proper course. Some of us are not at all interested in the question.

HENRY KURTZ said the men who speak against this inspector are interested parties. He advocated the appointment of an inspector, and denounced those who did not.

DANIEL SMEYCH moved that the question be indefinitely postponed, carried.

Referred Questions.

"What produces abortion in cows?" was answered by Johnson Miller, as follows:

MR. PRESIDENT: The question, "What produces abortion in cows?" referred to me at the last meeting of this society, should have been referred, in my opinion, to a doctor, if we have one in the society. If not, then to some older member who may have more knowledge or experience than I on a question of this kind. However, my answer is the opinion of one of our most prominent horse doctors and partly my own experience. Slinking or slipping the calf is a misfortune to which some cows are particularly subject in the earliest period of gestation, and therefore some cows are more subject to an abortion than others. This may be brought about by accidents which may happen to the animal. In my own experience, two years ago there was considerable ice in the barnyard, over which my cattle had to pass to get to the water. They would sometimes slip and fall, the result of which was several abortions that season. It may also be brought about by cows jumping over fences or bars half open. The farmer should warn all boys or hired men never to make cows jump over bars half open. Take out rails at both ends, or, better still, have gates to your fields, thereby preventing any accident to cows in this way.

Another cause of abortion in cows may be that they are run from the field home as fast as they can go, as is sometimes the case. It is late in the evening, the farmer comes home from the fields, the women want the cows to milk, and order the boy or hired man to fetch them in double-quick. He obeys the order, and the cows are on a run for a quarter to a half mile, thereby injuring their milking properties, and often this may be the cause of an abortion. There are so many ways by which cattle, or more particularly cows, are abused by our farmers and their hired men that I am free to say that nine out of every ten cases of abortion are caused by such treatment as I have above referred to. There may be other causes, and if there are I would like to hear them. My advice would be, treat your cows kindly, and there will be fewer cases of abortion in cows.

H. M. ENGLE had no doubt the essay covered most of the cases of abortion, but not all. Sometimes whole stables are afflicted; the true cause is not yet known.

LEVI S. REIST knew of a case where nearly all the cows in a neighborhood were affected by this disease. He was unable to account for it; it appeared as an epidemic.

MR. WITMER saw, a few days ago, the opinion of an eminent authority, which says it arises from eating mildewed hay or grass, or ergot of rye. He knew of a farmer who lost quite a number of calves from this cause.

HENRY KURTZ had a case of the kind; he could not account for it. Running cows hard will often bring about this evil. Colts often run cows and injure them.

JOHN C. LINVILLE said such were accidental cases, but there are instances of wholesale abortion in large herds. It is an epidemic, ruining the dairy business in some places in Chester county. One writer attributed it to pasturing in run down pastures, but this has been contradicted. Veterinary surgeons are in the dark about it.

W. L. HERSHEY had heard that if a male animal is tethered near the female, abortion will be produced. The trouble may also be caused by the male.

MR. WITMER did not think so. He had some faith in the theory of pasturing on old meadows where the grass was run down. Excessive feeding may also induce abortion.

H. M. ENGLE hardly thought we could solve the question. Eminent veterinary surgeons have been unable to explain the cause. We must acknowledge we know very little about it.

New Business.

The President read a letter from the Agricultural Department, requesting the co-operation of this society in making an exhibit of American horticultural productions at the French Exposition; the specimens to be either in their natural condition, wax, plaster of Paris, or preserved in alcohol; a series of the fruits of this State was requested.

H. M. ENGLE did not think we could do more than to tell persons, who had anything to sell, how their matters could be forwarded.

H. M. ENGLE offered the following preamble and resolution:

WHEREAS, THE LANCASTER FARMER, having been established under the auspices of the Agricultural and Horticultural Society as its organ to disseminate the proceedings and sentiments of said society,

Resolved, Therefore, that all essays, communications and documents presented at the monthly meetings, are considered belonging to the society, and shall be at its disposal, unless otherwise directed by the authors of said documents.

J. M. JOHNSTON wished to know whether the object of this resolution was to disallow reporters from procuring essays that are read here. To report the ordinary proceedings and not the essays would be like the play of Hamlet with that character left out. When essays are delayed in their publication too long they lose their value. To report a debate on an essay without giving the latter would be a silly business.

H. M. ENGLE explained that the reporters' privileges were not intended to be curtailed by the resolution. But THE FARMER was the organ of the association, and therefore entitled to some consideration.

PROF. RATHVON said he was under the impression that THE FARMER was to have the essays read before this society for publication—have entire control of them. Essays are often incorrectly reported, and therefore have not justice done them. By publication in THE FARMER all this is avoided.

S. P. EBY remarked that he read the proceedings of the society in the papers, but he would like to see them in THE FARMER also. He can there preserve them.

On motion the resolution was carried.

M. D. KENDIG reported an order of business for the present year, drawn up by various members of the society, which, if they are all adopted, will necessitate semi-monthly meetings.

It was announced that John I. Carter, of the State Model Farm, would deliver an address before the next meeting of the society.

On motion, the President was instructed to appoint a committee to report on the best fruits suitable to this section of country. The committee are H. M. Engle, M. D. Kendig and Levi S. Reist.

PROF. RATHVON exhibited and distributed specimens of Japanese persimmon, preserved in sugar, that were really excellent. The professor declared it to be "the coming persimmon."

PROF. RATHVON exhibited an insect found on peach trees and enquired whether any members had noticed them. They have been very destructive in Reading and are spreading rapidly.

H. M. ENGLE recommended the growing of the above Japanese fig in cities where they are partially sheltered. They may not be entirely hardy and not so well suited to the exposed country.

PROF. RATHVON also requested that some member procure him a female opossum before the March meeting.

On motion the society adjourned until the first Monday in March.

President Kendig in the chair, and over fifty tobacco growers being present. Following is a nearly full list of the members and visitors in attendance:

Martin D. Kendig, President, Manor; W. L. Hershey, Secretary, West Hempfield; Henry Kurtz, Mt. Joy; I. L. Landis, Manheim; S. W. Kennedy, Salisbury; A. H. Yeager, East Lampeter; Henry Shiffner, Upper Leacock; Washington L. Hershey, Rapo; John Brady, Millersville; J. M. Frantz, Lancaster twp.; W. S. Kennedy, Salisbury; P. S. Reist, Manheim; A. H. Sunny, Manheim; Eph. H. Hoover, Manheim; Adam R. Baer, Lancaster; Levi S. Reist, Oregon; Adam Bard, city; John M. Stehman, East Hempfield; A. J. Groff, Paradise; J. M. Johnston, city; W. P. Brinton, Christiana; Stephen Grissinger, Rapo; A. F. Frantz, Manor; J. W. Simmers, Oregon; Eli Engle, Mt. Joy; Christian S. Hershey, Landisville; Jesse Bouchter, Manheim; Simeon Hostetter, Oregon; Jacob L. Henry, East Hempfield; John H. Beiler, East Lampeter; E. Root, East Hempfield; Alex. Lane, Neffsville; Jonas Buckwalter, East Lampeter; Amos Minich, East Lampeter; J. R. Missimer, Milton Grove; Frank R. Diffenderfer, city; Adam Shreiner, West Hempfield; J. Hartman Hershey, East Hempfield; David Greybill, Jacob Forceman, David Burkholder, Fred. Nordseat, J. W. Urban, Clare Carpenter, Silas Eshleman, S. S. Rathvon and Benjamin Sides.

The Crop Reports.

The committee appointed at a former meeting to visit prominent tobacco growers in different sections of the county, and report to the society the condition of the crop, the several ways of growing and curing it, and other matters of interest, reported progress and asked to be continued, promising to make a full report at next meeting. On motion the committee was continued.

HENRY KURTZ, of Mt. Joy, reported the tobacco in his section as being nearly all stripped and in good condition. None of it has been damaged by sweating or by any other cause. A few buyers have been around inquiring for old tobacco, and he had heard of one lot of new being sold for 18, 8 and 5. Another lot was sold for 20 and 5, but the purchaser afterwards backed out. The worst feature of the trade is that dealers bring into the county inferior tobacco from other States and sell it for Lancaster tobacco, thus injuring the reputation of our home product. He had heard of one dealer who had made \$1,200 by this nefarious practice, and he was glad to hear that one of our assemblymen, Mr. Etta, had prepared a bill, to be presented to the Legislature, providing for an inspector of tobacco. If the bill passed it would prevent the evil complained of.

W. L. HERSEY reported that in Lower Rapo all the tobacco is stripped and looks well. Some sales have been made at 22 and 5, and 18 and 5.

ISRAEL L. LANDIS, of Manheim, reported very favorably of the crop in that township. He regarded it as the largest and best ever grown.

SYLVESTER KENNEDY, of Salisbury, said the tobacco in his section was nearly all stripped. A few more damp days would finish up the business. He has heard of no sales, but the tobacco is in good condition and ready for buyers as soon as they come along.

HENRY SHIFFNER said that Leacock was still ahead of other parts of the county. The crop is in excellent condition, of fine quality and beautiful color. Some sales had been made at prices ranging from 23 to 30 cents.

A. J. GROFF, of Paradise, said the stripping was mostly finished, but he had heard of no sales. He would ask the gentleman who had reported the above sales whether the prices mentioned were paid for very superior leaf or for average lots. The prices seemed high, and if they were obtained only for small lots of fine leaf, they were calculated to mislead growers as to the true value of the crop.

MESSRS. LANDIS, KURTZ and SHIFFNER said the sales reported were of very superior leaf; and Mr. Shiffner added that if growers could get from 13 to 15 cents for good average wrappers he would advise them to sell.

HENRY KURTZ said he thought it was out of order for any member of the society to attempt to fix the price for the farmers, who should try and get all they can for their labor and not place themselves at the mercy of the dealers, who would rob them if they could.

HENRY SHIFFNER said he hoped the farmers would get 30 cents round for their tobacco, but if they averaged 15 it would be more than they ever got before.

A. H. YEAGER, East Lampeter, reported sales of wrappers at prices ranging from 13 to 18 cents. Most of the crop is stripped and looks well.

A German from the northeast section of the country was understood to say that John Beiler had been offered 20 cents for his crop, but he held it at 25 cents. Mr. Beiler was very careful in stripping, sorting and sizing his tobacco.

FREDERICK HOFFMAN, of West Cocalico, said that until last year very little tobacco had been raised in his neighborhood, perhaps not more than two tons. Last year from seven to nine tons had been grown, and nearly all of it is stripped. No buyers have been around as yet, and he has heard of

no sales; but since he came into town he had been offered 15 cents for his best, but he refused the offer.

SIMEON MINNICH reported a good crop; that which was striped before the holidays has partially sweated and lost weight, to the advantage of the buyer. He would like to hear Mr. Shiffner's reasons for saying that the grower would not get more than 14 or 15 cents for good leaf.

MR. SHIFFNER said the warehouses are full of old tobacco that dealers have not yet disposed of; the new crop is unusually large, and times are hard. All these causes have a depressing effect; and at the best the average heretofore has never reached 15 cents.

HENRY KURTZ did not like to hear anything said here that tended to undervalue the price of tobacco, and thus give an advantage to the sharks who are trying to get it for little or nothing. He would buy all the tobacco he could for 14 cents and make money by it.

JOHN BRADY, of Millersville, wanted the growers to get all they could, but if they averaged 15 cents it will be more than they ever got before. Many growers don't know what to ask for their tobacco. They hear of a neighbor who has received a high price and they think they ought to get the same price, though perhaps their crop is not worth as much. He had heard of a few sales in his section at 20 and 5; 20, 10 and 5; and 15 and 5.

Application of Lime to Land.

MR. C. L. HUNSECKER read the following essay: What is lime? It is an earthy substance of a white color, moderately hard, but which is easily reduced to powder, either by sprinkling it with water or by trituration. There are few parts of the world in which lime does not exist. It is found pure in limestone, marble and chalk. None of these substances is, however, strictly speaking, lime; but they are all easily converted into it by a well known process by placing them in kilns or furnaces constructed for the purpose and keeping them for some time in a white heat.

The use of lime as a manure is comparatively modern, but as mortar for building it goes back to antiquity.

The lime we have to do with in applying to land is the lime ordinarily found in the form of common limestone or carbonate of lime, a combination of lime with carbonic acid. Every 100 pounds of limestone contains about 44 pounds of carbonic acid gas. This may be driven off by a high heat as in the lime kilns. The lime then remains in what is called the caustic state, or quicklime.

Lime is applied to the land as quicklime, hydrate or slack lime, so called because it has lost its caustic qualities. It is better for the land in all of these states than it was before burning, because the burning has reduced it to an extremely fine powder, more fitted to be dissolved in the soil and to be taken up by the plants. Lime is an essential ingredient in the soil, being constantly needed by plants in all their parts.

Lime is a heavy manure, and should be applied fresh slackened in a fine condition upon the plowed ground, and mixed with the soil by harrowing in. When the proportion of vegetable matter is so great in a soil that the crops of grain go mostly to straw, a liberal supply of lime will rectify the evil and improve both the quantity and the quality of the grain. The amount of lime to be applied to the acre depends greatly upon the quality of the land. On dry or peaty soils it may be used in large quantities with good effect. There are numerous kinds of limestone, differing very much in purity, found in various quarters of the globe. In the vicinity of Lancaster we find an abundance of deep blue limestone. State Geologist H. D. Rogers, states that Lancaster city is situated upon a tract of blue limestone. The lime from these stone is extensively used for building, and is an excellent manure for land.

Suppose the farmer to have a soil which requires, as almost all soils do, the application of manure to render it more fertile; but as some kinds of grain and grass grow to very great perfection upon comparatively poor soil, and others only upon a very rich one, this teaches us the importance of manuring and rotation of crops. By pursuing a rotation of crops, and manuring with the different kinds of animal and mineral substances, the ingredients draw from the soil for the full growth and perfection of the various plants cultivated by the farmer, have sustenance enough from the earth and the air to flourish and arrive to a state of maturity and perfection.

In applying lime to the barnyard or stable manure it should be air slackened. Caustic lime has a tendency to draw out the ammonia, and should never be applied on the dung pile. What is a soil? It is the uppermost stratum of the earth's surface. Soils have been classified according to their brief ingredients as loamy, clayey, gravelly, chalky, peaty and mossy, the latter consisting mostly of vegetable or mould, which is very retentive of moisture. Of these varieties loam is considered the best, but the others can be improved by adding the ingredients in which they are deficient, as sand and lime to the clayey soil, and clay to a gravelly one.

Most soils are improved by the application of suitable manure, but the kind required varies with the

TOBACCO GROWERS' ASSOCIATION.

A stated meeting of the Lancaster County Tobacco Growers' Association was held on Monday afternoon, January 21st, in the Athenaeum rooms, this city.

nature of the soil. Lime is a good manure for clayey soils and gypsum for sandy ones, because the former retains and the latter attracts moisture. Certain plants require a particular nourishment—wheat for example will not grow to a full kernel in a soil wholly destitute of lime.

The liberal application of lime to land produces a soil which decomposes the organic and inorganic compounds of the earth, as well as furnish food for plants.

On motion, the thanks of the association were tendered Mr. Hunsecker for his able essay.

The subject of the essay was further discussed by John Brady and Henry Kurtz, who gave several illustrations of the advantages derived from lime, not only when applied to tobacco, but also to other crops.

A. H. SUMMY thought it was not disputed that lime is beneficial to the soil, but some well-informed tobacco connoisseurs hold that it injuriously affects the quality of the tobacco. He had with him some cigars, some of which were made of tobacco that had been liberally limed, and some of tobacco grown without lime. He would take pleasure in handing around the cigars to those who were judges in the matter. He thought the society should not attempt to bull or bear the market, but to learn how to grow the weed.

The matter was further discussed by Messrs. Kennedy, Kurtz, Brady, Kendig, Hunsecker and Eshleman.

The Manure Question.

JACOB M. FRANTZ, to whom had been referred for answer the question whether manure made from cattle to which grain had been fed was more valuable than that made from cattle fed without grain, answered that it was, and that he had never heard the fact questioned. If any one thought differently he would be pleased to hear him.

SYLVESTER KENNEDY said that he had proposed the question, but had not worded it very well. What he wanted to know was whether it was true economy in the farmer to feed grain to his stock, for the purpose of making manure. He maintained that it was not; that equally valuable manure could be made by feeding hay, straw and corn-fodder, if gypsum or other suitable articles were added to the compost, and this might be done at a much less cost than the price of the grain. He maintained that the manorial value of hay and straw was diminished and not increased by passing through the steer, who took from it a part of its strength to sustain his own life.

EPHRAIM HOOVER took an entirely different view. He believed that twice as much could be raised from land enriched by feeding cattle as by any other system of cultivation. If you want to see a thriving farm look for one owned by a cattle feeder.

On motion of A. J. Groff the further discussion of the question was deferred until next meeting, and Mr. Kennedy was requested to reduce his views to writing and lay them before the society in the form of an essay—which Mr. Kennedy consented to do.

The question, "What variety of tobacco should be cultivated?" was also deferred until next meeting.

Election of Officers.

PRESIDENT KENDIG read the following valedictory address:

GENTLEMEN: In accordance with the common custom, on retiring from the official capacity of chairman of a deliberative body, in making an address, I have prepared a short paper containing a few facts and suggestions which presented themselves to my mind. In the first place allow me to acknowledge the uniform kindness, patience and courtesy extended toward me during the past year, while acting as chairman of this association, and for which accept my most hearty thanks. We have now entered upon our second year, and, taking a retrospect, we certainly may congratulate ourselves in having attained a reasonable degree of progress and success. Starting, as we did, under adverse and unfavorable circumstances, the influence of public opinion to a very great degree against us—the association being at one time regarded with much disfavor by a large portion of the masses, while others again charged us with being oppressive to the poor laboring man, in not giving him land to cultivate tobacco for the shares as was customary. We were even cried down as a political organization, a ring of tricksters to serve certain base purposes; but as an association we have most gloriously outlived all these ridiculous charges or misstatements, and have proven to be, to a great extent, what was at first contemplated in the organization—an influence in raising the standard of our Lancaster county tobacco. The benefits derived, in many respects, are quite perceptible to the most casual observer. We have most certainly made advanced progress since the organization of the association, in the culture of the product, and to-day stand without a rival as a tobacco-growing district. Our commodity is sought far and wide. Dealers in leaf tobacco have but recently recognized the fact that our tobacco competes favorably with any in the world for size and quality; but this was not the case a few years ago, when our product was to a certain extent condemned as a very ordinary article. Now we do not claim that this society deserves the credit of having accomplished these ends; but it certainly

cannot be gainsaid that it was a great auxiliary in attaining these desirable results. Let us, therefore, be encouraged to continue our efforts in this line of duty—compare notes of experience and observation, and discuss the various subjects that come up from time to time; sift out the useful and true, and thus attain still higher ends.

During the year no doubt many interesting questions will come before us for consideration, among the rest, perhaps, the question, how shall we dispose of our present crop to the best advantage, and how to prevent or deter the overstocking of the market, which, from present indications, will no doubt occur sooner or later? But I do not propose to discuss these points, but merely bring them to your notice. Another matter presents itself, which I think demands our attention—parties bringing into our market an inferior foreign article and palming it off on dealers as a Lancaster county production, and thereby injuring the standard and market value of our own. This matter was some time ago very ably and pointedly discussed in an editorial of one of our Lancaster papers, and we hope the press will continue to ferret out and denounce this injustice and fraud. The society should also be no less vigilant in disclosing and denouncing all such fraudulent transactions.

I will here reiterate what I have, at various times, stated before—that we should not be too avaricious by growing too large an acreage in the future, and thus overstock the market.

In conclusion, allow me again to thank you for your uniform kindness and courtesy toward me during the year, and congratulate you on the prosperity of the Lancaster County Tobacco Growers' Association.

JACOB M. FRANTZ moved that Mr. Kendig be re-elected by acclamation, which, notwithstanding the declination of the president, was carried with loud applause. The other officers of the association were also re-elected by acclamation, as follows:

President—Martin D. Kendig.

Vice President—Jacob M. Frantz.

Secretary—Webster L. Hershey.

Treasurer—A. Lane.

The chair appointed Jacob M. Frantz, A. H. Summy and A. J. Groff a committee to audit the treasurer's account and report at next meeting.

I. L. LANDIS, of Manheim, said the reason Lancaster county tobacco brought tip-top prices is because it is the best grown anywhere. Manufacturers and dealers in California and other distant States would not come thousands of miles for our tobacco unless they had some substantial reasons for doing so. The speaker had made an effort to show our tobacco at the Centennial exhibition, and the display attracted some attention, but it was not the one-tenth what it ought to have been. Mr. Landis had been in correspondence with the United States department of agriculture, in reference to making a display of Lancaster tobacco at the Paris Exposition. He read the following letter as expressing his views:

Lancaster County Tobacco Growers' Association:

In view of the great and growing importance of the tobacco interests of Lancaster county, I would call the attention of this association to a communication sent to me from the United States agricultural department, asking me to send to that department, at my earliest convenience, "specimens of our peculiar manufactures of tobacco and of the leaf entering into them, with memoranda, if possible, of where it was grown and of the process of curing," etc. With a view to forward the same to the world's exposition at Paris this summer, I deem it proper to ask this association to co-operate with me in making the collection and taking such measures to bring the effort to a successful issue; as it may be the means of bringing our Lancaster county tobacco, pure and unmixed, before the European consumers, and add to the already high reputation, it bears for its peculiar and good qualities. Hoping that my efforts in this matter may meet the approbation and support of this association and others concerned better than they did at our own Centennial, where they, imperfect as they were, attracted a due share of attention, I submit my communications for your consideration.

Respectfully yours,

ISRAEL L. LANDIS.

The matter was discussed at some length by Harry Mayer, Henry Shiffner, John Brady, W. L. Hershey, J. M. Stehman, Jacob M. Frantz and others.

A. H. SUMMY moved that a committee of seven be appointed by the chair to make the necessary arrangements for having the society properly represented at the Paris Exposition. Agreed to.

The chair appointed the following committee: Israel L. Landis, Harry Mayer, Jacob M. Frantz, Henry Shiffner, Wash. L. Hershey, A. J. Groff, Aaron Summy.

Fine Tobacco.

HENRY SHIFFNER exhibited to the society several hands of very fine tobacco, of the Connecticut and Florida varieties, grown in Upper Leacock. The leaves were large, of fine dark brown color, free from veins, and of remarkably fine texture.

EPHRAIM HOOVER, of Maphein, exhibited three hands of the Kentucky variety, very fine in color and quality.

SYLVESTER KENNEDY exhibited some beautiful specimens from his farm in Sallisbury.

J. M. JOHNSTON showed a few leaves grown by Henry Kurtz, of Mt. Joy. They were of immense size—nearly four feet in length.

The following business was selected for next meeting:

"Can manure be made equally as good without feeding grain to cattle as by feeding it to them?" Essay by Sylvester Kennedy.

"How many pounds of moisture will tobacco take in per hundred, taking dry tobacco for a basis?" Referred to A. J. Groff.

"What per cent. will tobacco lose during the year after being cured?" Referred to Henry Shiffner.

"What distance should the tobacco rows be apart, and at what distance should plants be set apart to produce the best results?" Referred to Henry Kurtz.

Adjourned.

THE LINNÆAN SOCIETY.

A stated meeting of the Linnaean Society was held on Saturday, January, 26th ult., Rev. Prof. J. S. Stahr in the chair; nine members were present. After the preliminary opening, the donations to the museum were found to consist of four mounted specimens of birds. One was that of a large specimen of the "Great Horned Owl" (*Bubo Virginianus*). This bird was sent alive to Prof. Rathvon by Mr. Thomas C. Edwards, of Quarryville, this county. It was afterwards mounted by Mr. Geo. Flick, of this city. It is a male, in full feather. Mr. Wilson, in his *American Ornithology*, vol. vi. p. 52, gives a graphic account of the Great Horned Owl, under the old name of "*Strix Virginiana*," coming around his camp-fire uttering a loud and sudden "Waugh O! Waugh O!" sufficient to have alarmed a whole garrison. It is known as the bird that "makes the night hideous" to the solitary traveler. No. 2 is one of those introduced sparrows (*Passer domesticus*), now becoming quite numerous in this city. Mr. George Flick donated No. 3, a speckled or Spanish bantam, having a dense tuft of feathers on its head, giving it a bold, pugnacious appearance, (the *Gallus bankivae*.) said to have had its origin in the jungles of the island of Java. Mr. Flick also donated No. 4, a remarkable bird, of peculiar color, which was mounted for some one who never called for it. It is evidently one of the extensive tribe of the *Fringillidae*. Specimens of a fine quality of umber found in Perry county, Pa., donated by Mr. H. Bechtold, this city. A fragment of large fossil —? A twig of a pine tree having a large excrecence of a globular form, beset with the narrow leaves of the pine, appearing like a large chestnut bur in its dry form. No doubt an abnormal growth of the twig into a mass with its leaves in fascicles radiating from the circumference, rather than at the regular nodes, as ordinarily on the elongation of the twig. This may have been caused by the sting of an insect. It was sent to Professor Stahr, by Mr. Hosterman, Centre county, Pa.

Historical Collection.

Rev. Mr. Dubbs added three "school lottery tickets," dated Lancaster, 1761; also, three envelopes containing eighteen clippings of historical facts, per S. S. Rathvon.

Library.

Nos. 1 and 2, Bureau of Education, and on Medical Education and Medical Institutions. THE LANCASTER FARMER for January, 1875; book catalogue and circulars.

Paper Read.

No. 490, by S. S. Rathvon, on the specimens deposited, and also noticing a remarkable "Albino," or white-footed and white-billed and feathered species of the crow black-bird (*Quiscalus versicolor*) in the possession of Mr. Henry Fondersmith, of this city; a "white black-bird."

New Business.

On motion, a vote of thanks was passed to Mr. Geo. Flick for his donations, Nos. 3 and 4. A bill for sundry locks and keys, furnished by the Treasurer, \$3.50, and cash paid for mounting Nos. 1 and 2, \$4. The amount of \$7.50 was ordered to be paid by the society. Rev. Jas. Y. Mitchell signed the Constitution and took his certificate of stock and became an active member of this society.

In view of certain propositions made in reference to a third-story room in the premises fitting up for the Y. M. C. A. on South Queen street, it was, on due consideration,

Resolved, That S. S. Rathvon, C. A. Heinlitz and the President, Prof. J. S. Stahr, be appointed a committee to confer with the Young Men's Christian Association in relation to the removal of the museum and place of meeting of this society, and the nature of the plan, conditions, etc., and to report at a special or next stated meeting of the Linnaean Society for final action.

Under scientific gossip, some of the wonders of the telephone and telegraph were discussed. No further business offering, on motion, adjourned to Saturday, February 23.

AGRICULTURAL.

The Value of Hen Manure.

By what we see on the most of farms we are led to believe that but little value is placed on the hen manure, which is left to accumulate wherever it is dropped, until around some farmers' premises it might be gathered up by the wagon load. Now this, when properly applied to corn or other crops at plaiting time, has given the best of satisfaction, and the experience of those who have used it is that it is far ahead of any fertilizer that can be bought in the market at \$40 per ton. Among farmers there is a difference in the manner in which this home-made fertilizer shall be mixed and applied. But the present opinion of those that have tried it for some time, is that equal parts of hen manure and plaster be well mixed up together and applied on the hill, as soon after planting as it can be conveniently done. Some have tried mixing ashes with the hen manure, but after a trial are well convinced that this is wrong, the ashes doing more hurt than good; they weaken the mixture by letting much of its valuable properties escape in the atmosphere. Again, others have applied a mixture of plaster, hen manure and salt, a small handful in the hill and the corn dropped on it. But when this is done care must be used or it will prove too strong for the corn. It may be placed so close to the corn as to injure the germ so that the seed may not sprout. I once saw a neighbor apply about a quart of hen manure, as an experiment, to some cabbage plants that he was setting out, which his brother said would surely kill them, but it did not; on the contrary, it made them grow very finely, and he had a very fine lot of cabbage, while some of his neighbors had "nary" a one, although their gardens were in other respects equally as good as his. Let us here say to all that keep fowls, see that they roost in a place where their droppings can be saved, and they will prove one of the best manures that can be obtained.—*Practical Farmer.*

Raising Cloverseed.

J. C. Birdsell, of "Clover Huller" fame, says in the *Clover Leaf*: "My observation in regard to clover and cloverseed raising has been greater than that of many, on account of having followed threshing from my youth, prior to my invention, and many seasons have run four machines. I have always noticed that whenever we found a job where there was a large yield, that it was where the seed had been sown one bushel to five or six acres, mown the last days of June, and plastered after the first crop had been taken off. I have seen a field where one-half had been mown and got off before July 1, and the balance of the field not till two weeks later, and the seed that was started first yielded three and a half bushels per acre, the difference three bushels. This, you see, was quite a loss to the raiser, and the hay first mown equally as good as that which was mown last. I have raised seed myself that went four and a half to the acre. I have also taken clover from the field in three different conditions, and laid away in the dry, for the purpose of knowing when was the best time to cut seed clover. The first state was then dead ripe; second, when handsomely brown; and third, still greener, and, when thoroughly dry, rubbed out the seed and put the three piles on a plate, and could see no difference. That which was cut the greenest was just as plump seed as that which was dead ripe. This shows that the head receives enough sustenance from the stalk after it is cut to fully mature the seed, and, when cut a little greener, you can save almost every seed. Always turn when the seed is on, so that the bolls will not rattle off."

What a Big County We Live In.

The *Iron Age* publishes the following to show that in agriculture the pre-eminence is not to be given to the West, where it would usually be sought for. In the list of counties producing the largest aggregate value each in its own State, we find that Pennsylvania is at the head, while others follow in the following order:

SQ. MILES.	PRODUCE.
Lancaster county, Pa.....	950 \$11,815,008
St. Lawrence county, N. Y.....	2,900 9,505,071
Worcester county, Mass.....	1,500 6,351,411
Hartford county, Conn.....	807 5,220,911
La Salle county, Ill.....	1,050 5,502,501
Oakland county, Mich.....	900 5,154,241
Burlington county, N. J.....	609 4,905,839

Lancaster county leads the Union.

Agricultural Notes.

In applying lime to the barnyard or stable manure it should be air slackened. Caustic lime has a tendency to draw out the ammonia, and should never be applied on the dung pile.

Coal ashes scattered on the stable floor will absorb the liquid manure, prevent the cattle from slipping and falling, afford an excellent addition to the pickings of poultry around the place, and can afterward be spread on the soil.

Most soils are improved by the application of suitable manure, but the kind required varies with the nature of the soil. Lime is a good manure for clayey soils and gypsum for sandy ones, because the former retains and the latter attracts moisture.

HORTICULTURAL.

Pruning During Winter.

Our winters kill trees by drying them to death. Pruning must be so managed as not to increase this risk. In mild weather there is no fear of the stem or branches of a healthy tree drying up, because the roots are continually sending up an oozing of crude, watery sap, through the innumerable cells of the wood. The writer trimmed up some branchy young trees in his garden, December 31, at the close of a three-weeks' term of singularly mild weather. Next day frost returned in earnest, and on taking a bottle of shellac to coat the larger stem-wounds, it was found that it could not then be applied on the north side of the stems, because each wound was covered with a large bead or button of ice (exuded sap frozen). On the south side the sunshine had evaporated all the exudation. If moderate weather could continue with certainty there would be no need of using a varnish to prevent the stem-wood drying. But when frost penetrates the soil and renders the roots torpid, the supply from them is cut off, and the stem and branches, which are exposed to the parching winds, begin to lose their plumpness, unless they are everywhere coated with well-ripened and unbroken bark. Trees adapted to exist in severely cold regions have a resinous (waterproof) varnish on the exterior of the bark. So if we prune early in the winter, close to a stem, we risk serious injury unless we coat the wound with a waterproof covering. If we prune some time before winter sets in nature covers the wound with a protective film, and no harm follows, unless the tree is too weak to furnish this. If we prune as soon as severe and protracted freezing is over we are safe. But if we defer the pruning until the warmth of April have gorged the stems, and no leaves have yet opened to give it exit, we run the risk of opening a continuous flow of bleeding, which will not only prevent the wound from healing, but may greatly injure the bark down which it oozes.—*Country Gentleman.*

Pruning Fruit Trees.

This is work that may be done any time during the winter, and thus not interfere with spring work. When very large limbs are to be cut off it is best done in summer; but most pruning can be done at any time. Generally, too little attention is given to fruit trees, as any one may see who will notice the orchards. Though generally producing good crops, trees are allowed to run almost wild, limbs are so close together, as to rub against each other and keep the fruit shaded. The first object in pruning is to thin out the branches so that sunlight may reach the fruit. Leave the tops of trees as open as possible, without cutting off too much wood. Apples and pears will bear considerable pruning; but peaches, apricots and cherries should be cut as little as possible. Always remove broken or diseased branches, but with the last-named kinds cut as little around the trunks as possible. Trees should be pruned every year, and then it will seldom be necessary to cut off very large limbs. The vigorous shoots—often growing five or ten feet in a season—on apple and pear trees, should be removed every year. If not taken off they get most of the sap from the tree, depriving the fruit buds of their proper supply. Bear in mind that apples are borne on wood two years old; peaches, apricots and cherries on wood one year old. Where limbs of any size are cut off in winter, the wound should be covered with a thin paste, made by dissolving gum arabic in alcohol. This will protect the wood from being soaked by water, which might produce decay.

Forcing Asparagus.

A correspondent of the *Garden* gives his experience in forcing asparagus. He says: "Asparagus may be obtained a month before it is ready out-of-doors, as follows: About the middle of February place some movable wooden frames over a permanent bed of it, and with a few barrow loads of warm manure and leaves make up a lining all around the bed, and cover its surface with dry hay. Then put on the lights and keep them closed for three weeks, when the heads will begin to appear. The hay should be cleared off, and little air given on every favorable opportunity. Under this treatment I have cut my first asparagus on March 20, and since that date I have cut several hundreds of beautiful heads, and still they promise to be sufficiently abundant to keep up a good supply until the outdoor crop is ready. By this plan the bed, which does not experience any disturbance, will last a great number of years, provided its produce is not cut too late. Cutting should cease and the glass be removed directly the out-door crop is ready."

More Large Trees.

The biggest tree in California is not in the Yosemite Valley. King's-river Valley, in Fresno county, is 5,000 feet above the sea, and its walls, which are about 3,000 feet high, are very precipitous. In this valley a new grove of colossal redwood trees has been discovered. One of them eclipses all that have been discovered on the Pacific coast. Its circumference, as high as a man can reach and pass a tape-line around, is a few inches less than 150 feet.

DOMESTIC ECONOMY.

Oatmeal as an Article of Diet.

It is surprising how enormously the consumption of oatmeal has increased in our cities within the past few years; but we suspect that its merits as a cheap and highly nutritious food are not so generally appreciated in the country. Every one knows how generally it is eaten in Scotland, and in some parts of England it is equally popular as an article of diet. A correspondent of an English paper says:

"In West Cumberland, Westmoreland, and North Lancashire, especially in the rural parts, it forms the staple of our food, not only amongst the laboring classes, but also in the families of tradesmen and the well-to-do; the children of most of them have porridge at least once a day. For the past forty years I have made my breakfast of a pint of oatmeal porridge, with very rare exceptions, and nothing else, fasting for four hours afterwards. If, however, I take any other form of breakfast I find myself very hungry before the next meal, which is never the case when I have had my porridge. I feel assured that if the laborers of the southern countries, with their children, would but take a basin of oatmeal and milk porridge night and morning, with such other food as they can procure in the interval, we should have a much stronger and healthier race of men and women than now exist. A few years ago I had a Devonshire girl living with me as a servant. The girl was willing enough to work, but had not the stamina to perform it. This I found, on questioning her, arose from the deficient and ill-advised diet on which she had been reared. She shortly began to take her porridge night and morning, and, this, with a daily mid-day meal of meat, enable her to perform her duty with ease."

Airing Beds.

No housekeeper has any valid claim to neatness, cleanliness and tidiness, who makes her beds as soon as they are vacated; or, if she has such a claim, it is based on the condition of ignorance. To demonstrate this, let it be remembered that of all food and drink taken, about three-fifths pass out of the system through the outlets of the skin—the pores, about seven millions in number. This waste and effete putrid matter is dead and poisonous, passing off more rapidly by night, and becoming more or less entangled in the bedding and on the surface of the body. Hence the necessity for bathing and brushing, with still greater necessity for airing and purifying the bedding. This is done most effectually by exposure in the light of the sun and in morning air. Indeed, the sun is the great purifier, and "nothing is hid from the heat thereof." And here it may be remembered that the bedding of the sick, so soon saturated by the filth of acute disease, by being changed once in at least six hours, and exposed to the free sunlight for the same time, will be safe with half the washing otherwise absolutely needed. Such clothes cannot be kept too clean, while there is no danger of too much care in these respects, as one of the means of controlling such acute disease as fevers and inflammations.

The Dutch method of placing all of the movable clothes of the bed on two chairs near the window, allowing them to remain till afternoon, might well be copied by Yankee housekeepers.—*Watchman.*

Keep Borax in the House.

Having long used borax for various domestic and hygienic purposes I have come to regard it as a necessity. Housekeepers who do not use it have something yet to learn concerning a convenient and useful article. In the laundry it is economical, as it saves both labor and soap, and is really cheaper than the latter. For blankets and other large articles it is especially valuable, and in all cases the use of a little borax will save half the labor when the articles are much soiled. It is perfectly effectual in driving away red ants, cockroaches, etc., if sprinkled around on pantry shelves, or put in small quantities on paper and placed in the runways of the insects.

Borax is also of great value for toilet uses. For removing dandruff and cleansing the hair it is unequalled. It is also a good remedy for rough faces and chapped hands. Its application to wounds, sores, bruises, sprains, etc., proves very salutary, and is often the only remedy required even in severe cases. Indeed, borax is one of the best remedies for many ailments in our whole hygiene, and for that reason alone should be kept ready for use when wanted. There are many other uses for borax which I need not specify, but those that I have mentioned are alone enough to satisfy any family of the value of the article, and to all such, as well as those who do not understand its properties, I repeat, "keep borax in the house.—*A Housekeeper in N. Y. Advocate.*

Household Recipes.

INDIAN MUFFINS.—One quart of Indian meal, scalded, one quart of wheat flour, stirred in the meal when cool, one dessertspoonful of melted butter, four tablespoonsfuls of condensed eggs, and one-half cake compressed yeast, or two cents' worth

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 cupfuls 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 white separately and add last: line the pan with buttered paper, and bake in a pretty quick oven three-quarters of an hour.

RUNAWAY CAKE.—One-half cup of sugar, one cup of milk, two eggs, one spoonful of butter, one teaspoonful of soda and two of cream of tartar, flour to make a stiff batter. This is a good tea-cake, plain or with berries stirred in for the summer season or with currants for winter. Being plain, it is only good when freshly baked.

HICKORY-NUT CAKE.—One pound of sugar, one-half pound of butter, four eggs, one cup of milk, one teaspoonful of soda and two of cream of tartar, the meats of two quarts of hickory nuts, flour to make as stiff as pound cake. Cocoa-nut cake is made in the same way, allowing one large or two small nuts to this amount of butter.

DANDY PUDDING.—One quart of milk, two large spoonfuls of flour, the yolks of four eggs well-beaten and mixed with milk; beat the whites of the eggs separately, mix with four teaspoonsfuls of sugar and drop on the top and bake.

POTATO PIE.—Boil or wash common or sweet potatoes and strain through a fine sieve, to each pint add one and a half pints of milk, a little melted butter, two eggs, salt, nutmeg to the taste; bake in one crust, like custard pie.

IN ENGLAND THE WOMEN ALWAYS PURCHASE THE GROCERIA AND PROVISIONS FOR THE FAMILY; if a man should attempt such a thing some housewife would pin a cloth-dish to his coat-tail.

MOLASSES COOKIES.—One cup molasses, one-half cup sugar, one-half cup melted butter, one-half cup hot water, one and one-half teaspoonsfuls soda, one teaspoonful ginger. Mix soft and bake in a hot oven.

WHITE CAKE.—The whites of three eggs, one-half cup butter, one cup sugar, two cups flour, one-half cup milk, three teaspoonsful baking powder. Mix butter and sugar with the hand to make a fine-grained cake. This is a delicious thing if a thin frosting is made, using orange extract as a flavor.

A LADY correspondent writes to the *Western Rural* of what an "English woman of rank" discovered while journeying among the mountains of Switzerland, in the way of a sleeping protection against cold. This was a quilt made of hay. "It is nothing but a large square cotton bag with a few handfuls of hay shaken in it. It is as warm as three blankets," etc. Well, this is cheap enough and handy enough to afford warmth to every hitherto shivering sleeper.

HOT CROSS BUNS.—To one quart flour add one teaspoonful salt, two tablespoonsful powdered sugar, one tablespoonful baking powder, and sift altogether; rub through the flour two tablespoonsfuls of butter; moisten with milk into a very soft dough. Roll out in a sheet a little less than half an inch thick; cut in small square buns; in the center of each cut a deep cross. Bake in a quick oven, and while hot wash over the top with milk, using a paste brush.

WATER-PROOF BLACKING.—The following recipe for making a water-proof blacking comes to us highly recommended: Dissolve one ounce of borax in water, and in this dissolve gum shellae, until it is the consistency of thin paste; add lampblack to color. This makes a cheap and excellent blacking for boots, giving them the polish of new leather. The shellac makes the boots or shoes almost entirely water-proof. Camphor dissolved in alcohol, added to the blacking, makes the leather more pliable, and keeps it from cracking. This is sold at fifty cents for a small bottle. By making it yourself, one dollar will buy materials for a gallon.

APPLE JOHNNY CAKE.—Scald one quart of fine or medium cornmeal with one quart of boiling water, and add one pint of sweet apples, pared, cored and chopped. Mix evenly, spread one inch thick on a tin, and bake forty minutes in a quick oven, or until the apples are tender. Serve warm.

INSECTS.—The tax we pay to insects is greater than that we annually pay for schools, for roads, and for management of government affairs. Insects in all parts of the world are becoming more than ever a terror to the husbandman. The Western farmers, with their experiences of grasshoppers and potato bugs, can sympathize very acutely with the wine-growers of the Gironde. Great as are the achievements of science in Europe and America, its claims to boasting are made almost ridiculous by the impudent aggressions of these little insects.

LIVE STOCK.

Controlling Horn Growth.

A correspondent of the *Country Gentleman*, upon the subject of controlling horn growth, says: Some thirty years ago when a boy on my father's farm, I had a pair of calves given to me of which I was very proud, as all boys usually are of their steers. When they were two years old, a horn on one of them became badly lopped, caused by an injury. As they were perfect while younger, I was very anxious to straighten it, as they were twins and very fine, and my method was, and is, as follows: Scrape, or shave the horn on the same side you wish to turn it, nearly or quite to the quick. I remember in that instance I started the blood. Repeat the operation some two or three times if necessary, to be governed by the severity of the case, and scrape the horn on the opposite side just enough to give it a healthy growth. The philosophy of it is that by weakening the side in the direction you wish to move the horn, and by facilitating growth on the opposite side, the result, from natural causes, will be sure—that the strong will overcome the weak. The horn in question was raised a little higher than the original, but not enough to be noticeable. I believe this mode of operating to be correct, and the remedy infallible, as I have had occasion to see demonstrated many times since.

Good Stock.

Experience has taught me never to raise a calf, no matter how good the dame, unless sired by a thoroughbred. Here is the whole secret of successful breeding in a nutshell. A calf sired by a bull of good milking stock, but no particular blood, whose pedigree cannot be traced to sires who have transmitted their good qualities through several generations, may and often does make a good cow; but if sired by a thoroughbred bull of good milking stock, the chances of failure are reduced to a very low rate, and can only be further reduced by using a thoroughbred cow of the same stock. Thoroughbred stock seldom, if ever, fail to perpetuate their own qualities, and common stock often do it; but in the latter case it is only chance work, and yet we know there are those who still continue to raise calves of common stock, when at an increased expense of less than five dollars per animal they might have had good milking ancestors on at least one side. The dairyman who expects to build up a first-class dairy by raising the cows can hardly make a better investment than in a male from a noted milking stock; the expense, when it is divided among the product, makes a very small amount to each one, but the aggregate result is large.

Give Us a Breed of Walking Horses.

What use are fast horses to farmers? Can they put them to work in the plow, harrow, cultivator, roller, reaping-machine, cart or wagon? No. A storm might arise and the whole crop of hay be ruined, if they had to depend on 240 horses to haul it in. There is but one use that we can see that a farmer might put them to—sendng for a doctor; but as farmers have very little occasion for this professional gentleman, and never get very sick, a slower and surer horse will answer better. Why then parade these horses at the head of the lists at agricultural fairs, and give them the biggest premiums? No wonder our practical farmers complain of this, while there is no premium at all for walking horses, which are a thousand times more useful—we mean to the farmer and for general agricultural and industrial purposes. Thoroughbred horses have their uses, and we do not desire to utter a word against them, but many good words in their favor. They, however, must fill their own places and work-horses theirs; and neither should be advocated to the exclusion of the other. Both should be recognized according to their value.

A Horse's Petition to His Master.

Going up hill, whip me not.
Going down hill, hurry me not.
On level road, spare me not.
Loose in stable, forget me not.
Of hay and corn, rob me not.
Of clean water, stint me not.
Of soft dry bed, deprive me not.
Tired or hot, wash me not.
If sick or cold, chill me not.
With sponge and brush, neglect me not.
With bit and rein, Oh! jerk me not.
And when you are angry, strike me not.

THE Vermont Wool Growers' Association has purchased from the flocks of Messrs. S. G. Holyoke and Sanford, and Edward Bringham of St. Albans, two fine specimens of Vermont sheep, to be presented to the Wool Growers' Association, at New South Wales, through their representatives then attendant at the Centennial.

COLIN CAMERON, manager of the Elizabeth Stock Farms, owned by G. Dawson Coleman, Brickerlyville, Lancaster county, Pa., shipped, on Wednesday, February 6th, to J. B. Bingham, Millersburg, Ohio, a young heifer and her calf; also a young heifer, about six months old, of the celebrated Jersey stock.

POULTRY.

In-Breeding of Poultry.

Breeders are prone to advance ultra views on the subject of in-breeding of poultry, based on mere prejudice or constrained opinion of the term. All of our strains of pure bred poultry, with but few exceptions, have been produced by a systematic course of in-breeding judiciously carried out. Bakewell, of Leicester sheep fame, intensified and improved his sheep by an intelligent in-breeding of such animals as possessed, in an eminent degree, the qualities he wished to intensify and perpetuate. In horse breeding this is carried on by old breeders, with most excellent results.

Knowing the above, it behoves us to know just when to bring the dividing lines together so as to combine those qualities in the offspring from the animals or birds coupled which we desire to secure a permanency for. We hold to the opinion that with fowls more care is necessary to prevent the intensification of bad qualities in adopting any system of in-breeding than with most of the animals which require more than a year to give them age enough to properly bear offspring. We believe that an infusion of new blood to be a good thing to do every second year—perhaps every year—though we would advise fanciers to select male birds from the same strain, so as to make breeding for particular points far more certain than it would be if a male bird was selected from any, or no particular strain, merely because he was fine individually.—*American Poultry Record*.

Fowl Feeding in Cold Weather.

At this season of the year, when your fowls are mostly confined within their houses—or when, at the best, they are not able to obtain much nourishment upon the open ground, if at liberty—it must be borne in mind that they need an extra quantity of ordinary food, to keep them in good heart. And if the quality be improved as well, during the sharp cold weather, it will be better still.

We counsel the distributing of good, sound grain and corn, at all times, to domestic poultry, as the best method of feeding. But if, at any season, they need this sort of provision, it is in the keenly cold weather of January and February, when it counts most towards their welfare and thrift.

Let your adult fowls and the growing stock both be supplied then at this season with all they will eat up clean, twice a day—that is, at noon and evening—of whole wheat, cracked corn, and oats or barley. A little buckwheat, and a little admixture of sunflower seeds, are excellent also. The first meal (in the morning) should be fed warm, of scalded cornmeal mixed with boiled vegetables. This, with the grain at noon and at night, and an occasional feed of ground scraps and green stuff, as cabbages cut up, or onions and turnips chopped fine, will, as a rule, keep your birds in first-rate condition, continuously.—*American Poultry Yard*.

How to Manage.

The *Butter, Cheese and Egg Reporter* tells of a Mr. Benton who keeps eleven different kinds of fowls, and is very successful in their management. Mr. Benton found weak lye and wood ashes an effectual remedy for the canker. The doctors recommend chlorate of potash. Ashes are also excellent for the hens to swallow in, and he keeps a box in each coop for that purpose. This effectually keeps off lice. The flour of sulphur sprinkled in the nest of setting hens is excellent. Mr. Benton's principal feed is Indian corn, which is kept constantly in reach of his hens by means of boxes in the partitions, one serving for two coops. Water in a dish set under a nail keg, with a hole cut in the side, serves for watering. The nests are in a long box along the ends of the coops; the hens enter through holes, and are then in comparative darkness. Lids on the outside give access to the nests. Mr. Benton thinks Indian corn the best grain for hens, because of its heating nature. In addition, he feeds scraps from the table, butcher's refuse, and green stuff. Corn and fat will at once set hens to laying.

Sore Eyes in Poultry.

If the soreness is not occasioned by the carelessness or excessive use of sulphur upon the hen and chicks, to destroy lice, (which is a common mistake made by those who do not use powdered sulphur judiciously,) then the disease proceeds from colds or rousy affections.

We should recommend the free use of the German Roup Pills for their ailment, which has been very prevalent in some quarters. And in severe cases a wash, composed of one part each of glycerine, olive oil and alcohol, thoroughly mixed before applying, will soften, heal and remove the inflamed soreness in a few days.

Prevention of the recurrence of this trouble in the poultry yard may be most beneficial; and the German Roup Pills will be found an excellent thing to give the chickens (according to directions accompanying each box), for the avoidance of this malady. If chicks cannot see to eat they quickly fall away and die.—*Poultry World*.

LITERARY AND PERSONAL.

HARPER'S MAGAZINE for March offers even stronger attractions in its reading matter than in its many beautiful illustrations. In the field of fiction this periodical stands easily first with serial stories from two such novelists as William Black and Thos. Hardy. Miss Constance F. Woolson contributes a very humorous short story entitled "Morganatic Matches." The scene is laid in Ohio at the time of Morgan's raid, and two situations in the story are the motives of some remarkably fine illustrations by Reinhardt. Another short story, "Squire Paine's Conversion," is one of Rose Terry Cooke's sharpest delineations of New England life.

The number opens with an attractive illustrated paper by Martha J. Lamb, which, under the title of "State and Society in Washington," gives a great deal of novel information about the State Department, and furnishes a picturesque review of social life in the National Capital. It would be difficult to say which is the most interesting—the curiosities among the national archives or the piquant details of Washington life and manners. Among the illustrations is an excellent portrait of George Bancroft, the historian; also, there is a portrait of the oldest office-holder in Washington.

Turning from society to nature, we have in Mr. Edward Abbott's "Grand Manan and Quoddy Bay" a striking descriptive paper, with some very effective pictures by Bricher.

An important series of illustrated papers on old Flemish masters is begun in this number—the first paper being about Quentin Matsys, the famous "blacksmith" painter of Antwerp.

Household Art is represented by an interesting paper on "Fret-sawing and Wood-carving," by Julius Wilcox, with seventeen exquisite engravings.

A picturesque feature peculiar to our American educational institutions is treated in C. F. Thwing's paper on "Summer Schools," with eleven illustrations.

R. H. Stoddard contributes a very dramatic poem, "In Alsatia," the scene being laid in a quarter of London known by that name. The poem is illustrated by Fredericks.

A remarkable and exceedingly interesting paper is contributed by B. Phillips, based upon a collection of thirty-three unpublished letters of Washington. Some of these letters are of historical importance, and they all throw a new light upon the most prominent figure in American history.

"A Glimpse at Some of our Charities" is concluded in this number, with a review of the associated efforts that are being made for the employment, education, and protection of women.

Anna C. Brackett, in a brief paper, entitled "A Triad of Superstitions," vigorously attacks some veteran maxims about early rising, Satanic work for idle hands, and the value of memory.

Charlotte Adams, the author of "Christmas in Venice," in the January number, contributes an equally picturesque article on "Venetian Tapestries."

The Editorial Departments are full of timely and valuable information, including a capital *Editor's Drawer*.

THE MOST COMPLETE NURSERIES IN THE WORLD.—We think that we are speaking within bounds when we say that the Mount Hope Nurseries, Rochester, N. Y., founded and perfected by Messrs. Ellwanger & Barry, are the most complete nurseries on the American continent. There are others, doubtless, that cover more acres, devoted to two or three specialties, as apples, pears, &c., but no other in which the various species of fruits and ornamental trees, shrubs, vines and plants are so fully and so well represented.

The professional horticulturist, florist and landscape gardener can find a better opportunity of examining specimens and studying their peculiar merits here than elsewhere, and the amateur who wishes to ornament his grounds with the choicest that will grow in our climate will be more certain to find them here than in any other nursery in our land.

The products of this grand nursery have been scattered all over the United States, and have been sent far beyond our borders. Scarcely a city, town or hamlet in this country but that has been made more beautiful and enjoyable by its contributions. It must afford the honorable proprietors in this, the afternoon of their lives, a great deal of pleasure, when they reflect how much they have contributed to the physical comfort, the refinement and the moral elevation of their countrymen by a vocation which, while it has conferred such blessings upon our people, has brought a generous return to themselves.—*American Rural Home*.

THE COUNTRY is flooded with counterfeit money, more now than ever before, and storekeepers had better avoid all risks, and subscribe for the only reliable and official counterfeit detector issued, and then loss from receiving counterfeit money need never be incurred. All handling bank notes have only to keep at hand for consultation *Peterson's Counterfeit Detector*, a semi-monthly publication containing descriptions of all counterfeit notes as soon as they appear, also a complete list of broken, closed, failed and fraudulent banks. Every number of the *Detector* contains likewise lists of all the National

and State banks in the country, financial news and items, price current, reviews of the money and stock markets, &c., and is, in short, a very valuable publication, and no business man in the country should be without it. The rate of subscription for the monthly issue is only \$1.50 a year; semi-monthly, \$3.00 a year. Subscriptions may commence with any month, and are payable in advance. A canvasser could get up a list of subscribers in this neighborhood. Address T. B. Peterson & Brothers, Philadelphia, Pa., for specimen copy.

As there is a great furor now about old coins, we would advise all to get a copy of Peterson's Coin Book, containing perfect fac-simile impressions of the coins of the world. It will be sent by mail, postage paid, on receipt of \$1—by T. B. Peterson & Brothers, Philadelphia, Pa.

THE TOBACCO NEWS AND PRICES CURRENT, Alexander Harthill, editor, and published every Saturday by the Tobacco News Company, of Louisville, Ky., at \$2.50 a year. This is a remarkably well executed demy-folio journal of sixteen pages, and is devoted exclusively to the tobacco interests of the Union. No journal that has yet reached our table, devoted to that interest, can at all compare with the *News*, and its columns are crowded from beginning to end with important facts and statistics relating to the tobacco trade; and as it includes the foreign as well as the home trade, it must prove a most desirable medium through which tobacco growers and tobacco dealers may have an opportunity of communicating with the tobacco world; and judging from the number before us, they are liberally availing themselves of the advantages it affords in this respect. They publish the proceedings of our local society for January in full, and otherwise notice Lancaster county in a manner most flattering to our local production. We think our tobacco growers could not do anything better than to patronize the *News*.

BABYLAND for January, 1878, is a fine double number, full of tiny Christmas stories and lovely Christmas pictures, all in big print, on thick paper, just the magazine to teach babies to read. It is only fifty cents a year. D. Lothrop & Co., publishers, Boston, Mass. How infinitely superior this publication is to the *Mother Hubbard and Goose*, the *Jacks Giant Killer* and *Bean-Stalks* and a multitude of other senseless and impossible baby literature with which the nursery has been flooded for a century. The illustrations are remarkably well executed, natural and significant. Could anything be more expressive than the two scenes of the little cooper attempting to hoop his mother's tub, and knocking it all into pie? We think it cannot fail to "do a world of good."

THE PHRENOLOGICAL JOURNAL AND SCIENCE OF HEALTH for February, 1878, is on our table, full of useful and instructive matter on subjects that are, unfortunately, too little regarded by the world in general. There is not a doubt we would be more healthful, harmonious and happy in our social, hygienic and domestic relations than we are, if we cultivated a closer acquaintance with the principles of phrenology and physiology, and carried them out in the daily and hourly concerns of practical life. The character and stability of this publication may be inferred from the fact that it is now in its 83d volume. S. R. Wells & Co., No. 737 Broadway, New York.

OLEOMARGARINE.—If American dairymen would resist the encroachments of oleomargarine they must one and all do what they can to improve dairy butter. The average consumer would rather have handsome, yellow, 'patent butter' than white, lardy looking dairy butter. Repeated trials have demonstrated that no addition to butter will do as much to improve both its quality and looks as a good color. In this connection we would call attention to the advertisement of Wells, Richardson & Co., Burlington, Vt., of their Perfected Butter Color. It is highly spoken of by all who use it. We advise our readers to send to them.

PARK'S FLORAL MAGAZINE.—A neat little double-column octavo of 16 pages, at \$1.50 per year. Edited and published by George W. Park, Mount Vernon, Ohio. Beautifully illustrated with floral gems. Park is the well-known seedsman and florist of the Buckeye State, and therefore his magazine is filled with rare and practical matter relating to his vegetable specialties, and cannot but fill an important niche in the great column of floral literature. Send for his catalogue for 1878. Woodward Block, Mt. Vernon, Ohio.

VICK'S ILLUSTRATED PRICED CATALOGUE.—Seventy-five pages—300 illustrations, with descriptions of thousands of the best flowers and vegetables in the world, and the way to grow them—all for a two cent postage stamp. Printed in German and English. *Vick's Flower and Vegetable Garden*, 50 cents in paper covers; in elegant cloth covers, \$1.00. *Vick's Illustrated Monthly Magazine*—32 pages, fine illustrations, and colored plate in every number. Price, \$1.25 a year; five copies for \$5.00. Address, James Vick, Rochester, N. Y.

MONTHLY REPORTS of the "Kansas State Board of Agriculture" for November and December, 1877. By Alfred Gray, Secretary, Topeka, Kansas. This

is an octavo of 65 pages, and contains more tabulated and statistical matter than any of the monthly reports issued from the Agricultural Department at Washington. It also contains a monumental chart or diagram, showing the assessed and real value of the personal property of each separate county in Kansas.

WE CALL the special attention of our patrons and readers to the card of Hull & Scottney, in the advertising columns of this number of our paper, from which it will be seen that this enterprising firm has changed and enlarged its business facilities, and will hence also conduct a branch in the City of New York. Being extensive buyers and shippers of produce, they also do a general commission business. Fruits, vegetables, butter and poultry consigned to them will receive prompt attention.

THE STOCKBRIDGE MANURES, manufactured and for sale by W. H. Bowker & Co., 43 State street, Boston; No. 3 Park Place, New York. A 12mo. pamphlet of 30 pages of valuable matters in reference to fertilizers, which we regret came to hand too late, or we should have been pleased to quote it in our February number; in the meantime we believe it would be to the advantage of those interested to send for the pamphlet and inform themselves on a most important subject.

THE DETROIT FREE PRESS says: In addition to 300,000 Universal Almanacs just published by the extensive seed house of D. M. Ferry & Co., of our city, the firm are now publishing for gratuitous distribution an edition of 100,000 Seed Annuals. Their former publications have been unsurpassed, but the present ones promises to excel all others in utility and general excellence. It will be mailed free to all applicants.

GREGORY'S SEED CATALOGUE.—Our readers will find the catalogue of J. J. H. Gregory's well known seed house advertised in our columns. To handle seed with such conscientious care as to dare to warrant their freshness and purity, is of that class of bold, brave acts which the public appreciate. Though the warranting is of necessity limited to refunding the value of the seed purchased, still, under it, Mr. Gregory must sell good seed or make a dead loss.

THE SUNBEAM.—A journal of literature, education and general intelligence. Lititz, Pa. Published monthly, and edited by John G. Zook & E. Z. Ernst. \$1.00 a year in advance. A very neat 16 page quarto, faultlessly executed, and teeming with choice literary matter. We feel proud of our literary cotemporary and wish it success, for we feel it will honor Lancaster county.

THE WESTERN INVENTOR.—A journal of practical science and the useful arts. Published monthly in the interest of inventors, patentees and manufacturers. Peck & Hosea, No. 9 Pike's Opera House, Cincinnati, Ohio. A neat illustrated 4to of eight pages, neatly printed, and a new candidate for public favor; 50 cents a year. Monthly.

BENSON, BURPEE & CO.'s illustrated and descriptive catalogue of garden, field and flower seeds. Embracing select lists of the choicest and most valuable varieties in cultivation, both home grown and imported, all of the highest quality, always fresh and reliable. Office and seed store, 223 Church street, Philadelphia.

Good, healthy food makes the body strong. Well selected reading (especially for the young) strengthens the mind and prepares it for future usefulness. *The Young Folks' Monthly*, of Chicago, furnishes both entertaining and instructive reading, and should be taken by young people everywhere. Price only \$1.00 per year.

PROFESSOR TICE'S NATIONAL ALMANAC for the year 1878, giving forecasts of the weather for every day in the year, based upon astronomical occurrences, is a work particularly useful to farmers. 32 pp. octavo, price twenty cents. Published by Thompson Tice & Co., No. 309 North Third street, St. Louis, Mo.

OUR progressive agricultural readers will be specially interested in the card of MR. A. B. TRAVIS in our advertising columns, and also in the communication of MR. BANTA on the 24th page of this number of *THE FARMER*.

JAMES J. II. GREGORY'S annual circular and retail catalogue of warranted vegetable and flower seeds; a demi-quarto of 56 pages, profusely illustrated. Marblehead, Mass. Free to all.

BLOOMINGTON NURSERY plant catalogue, including plant novelties, green-house and bedding plants, roses, bulbs, &c. Also, quarterly wholesale price list for the spring of 1878. W. F. Baird, Trustee, Bloomington, Illinois.

E. P. Roe's new raspberry, "Pride of the Hudson," and First Premium Strawberries. Cornwall-on-the-Hudson, Orange county, New York. Sixteen pages octavo.

DESCRIPTIVE PRICE CURRENT of the "Mapes Formula" and "Peruvian Guano Company," 153 Front street, N. Y.

JOHN S. COLLINS' wholesale price list of small fruits, plants, &c., for spring, 1878. "Pleasant Valley Small Fruit Nursery," Moorestown, New Jersey. Illustrated in colors.

ANNUAL ADDRESS of the "Petroleum Producers' Protective Union." 1878. Titusville, Pa.

THE LANCASTER FARMER.

E. F. Kunkel's Bitter Wine of Iron.

This truly valuable tonic has been so thoroughly tested by all classes of the community that it is now deemed indispensable as a Tonic medicine. It costs but little, purifies the blood and gives tone to the stomach, renovates the system and prolongs life. Everybody should have it. For the cure of weak stomachs, General Debility, Indigestion, Diseases of the Stomach, and for all cases requiring a tonic. This wine includes the most agreeable and efficient Salt of Iron we possess—Citrate of Magnetic Oxide, combined with the most energetic of vegetable tonics—Yellow Peruvian Bark.

Do you want something to strengthen you?
Do you want a good appetite?
Do you want to get rid of nervousness?
Do you want energy?
Do you want to sleep well?
Do you want to build up your constitution?
Do you want to feel well?
Do you want a brisk and vigorous feeling?
If you do try KUNKEL'S BITTER WINE OF IRON.
I only ask a trial of this valuable tonic.

Beware of counterfeits, as Kunkel's Bitter Wine of Iron is the only sure and efficient remedy in the known world for the permanent cure of Dyspepsia and Debility, and as there are a number of imitations offered to the public, I would caution the community to purchase none but the genuine article, manufactured by E. F. Kunkel, and having his stamp on the cork of every bottle. The very fact that others are attempting to imitate this valuable remedy proves its worth and speaks volumes in its favor. Sold only in \$1 bottles or six bottles for \$5. Try this valuable medicine and be convinced of its merits. Sold by druggists and dealers everywhere.

Tapeworm Removed Alive,

Head and all complete, in two hours. No fee till head passes. Seat, Pin and Stomach Worms removed by Dr. Kunkel, 259 North Ninth Street, Philadelphia, Pa. Send for a circular with a treatise on all kinds of worms, advice free. Ask your druggist for a bottle of Kunkel's Worm Syrup, which will do the work. Price \$1.00. It never fails to remove all kinds, from children or grown persons. Directions with it.

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\$77 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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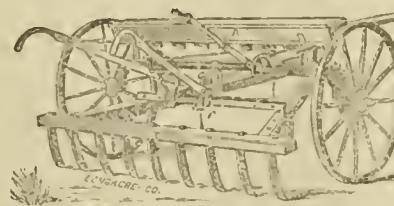
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Prize Medal and Diploma awarded at the Centennial, and Diploma from the Franklin Institute. Premiums from every State and county where exhibited. Hoes Wheat, Peas, Beans and Corn, and Corn when drilled in for Dairy purposes. Will hoe one acre of wheat per hour, and every acre hoed will add 5 to 10 bushels per acre more for being hoed, and thereby fully double the net profits, as has been proven by the best practical and model farmers. Has been lately improved for strength and convenience. Teeth all adjustable to any space, drill or belts desired, and frame of hoe being pivoted to the draft-pole, and lateral motion can be held by the use of the lever handles to any desired place with great nicety by the attendant. Can be attached to any two-wheeled vehicle, or drill, by removing hoes and pivoting to the draft-pole. Price on board track for attachment, \$30; do., No. 2, much better, \$35. No. 1, perfect, with wheels, \$60. Liberal discount to the trade. Everything warranted sound, and one day's trial in the field, and if not satisfactory, can be returned. Agents wanted. Send stamp for descriptive circulars, containing practical trial and results. Send orders early, that they may be made and reach destination in time for spring use.
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Bridgeport, Connecticut.

THE NOVEL UNGCONSUMING CIGAR PIPE

The merits of this invention are at once appreciated by every Smoker; as by using this article (which is as light and portable as a cigar) all smokers can use the best tobacco at less than one-tenth the expense of a poor cigar, dispenseing entirely with the cumbersome and unsightly pipe.

DIRECTIONS FOR USE.

Remove the mouth piece and piston, fill the tube half ful of smoking tobacco, insert the piston and mouth piece, and light as you would an ordinary cigar. Sample by mail, 30 cents.

By Mail \$1.50 Per Doz. By Express \$12.00 Per Gross.

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10-2-4m



My Annual Catalogue of Vegetable and Flower Seed for 1878, rich in engravings, will be 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 seeds warranted to be fresh and true to name; so far, that should it prove otherwise I will refill the order gratis. New Vegetables a specialty. As the original introducer of the Hubbard Squash, Phinney's Melon, Marblehead Cabbages, Mexican Corn, I offer several new vegetables this season, and invite the patronage of all who are anxious to have their seed directly from the grower, fresh, true, and of the very best strain. 9-12-4m] JAMES J. H. GREGORY, Marblehead, Mass.

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ALICE HAWTHORNE.

Author of "Listen to the Mocking Bird," "I'll sail the seas over," "What is Home without a Mother," etc., etc.

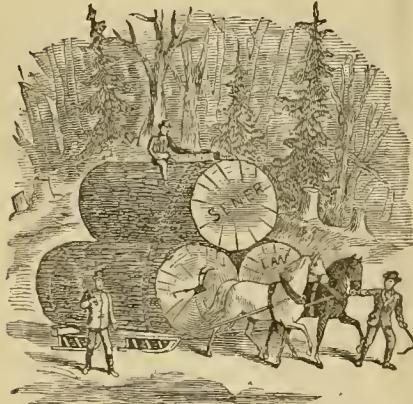
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Thus making both the Set of Tea-spoons and the Butter-knife a valuable and useful New-Year's Gift to every subscriber of this paper, and a Gift that all should accept at once.

We have made arrangements with the old established and reliable EAGLE GOLD AND SILVER PLATING CO., Cincinnati, O., to supply every subscriber of this paper with this valuable Silver Tableware as a New-Year's Gift.

This elegant Set of Tea-spoons and Butter-knife are of the latest style pattern, and each article is to be engraved with name or initial of subscriber, thus making the most useful and beautiful Gift ever presented. Don't neglect to send your initial or name with orders to be engraved.

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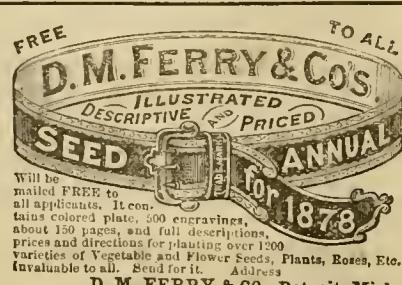
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Linnean Society Jan 73
RATHVON'S STORE



Prof. S. S. RATHVON, Editor.

LANCASTER MARCH 15 1878.

LINNEUS RATHVON, Publisher.

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THE NOVEL UNCONSUMING CIGAR PIPE

The merits of this invention are at once appreciated by
every Smoker; as by using this article (which is as light
and portable as a cigar) all smokers can use the best tobacco
at less than one-tenth the expense of a poor cigar, dispense-
ing entirely with the cumbersome and unsightly pipes.

DIRECTIONS FOR USE.

Remove the mouth piece and piston, fill the tube half full
of smoking tobacco, insert the piston and mouth piece, and
light as you would an ordinary cigar. Sample by mail, 30
cents.

By Mail \$1.50 Per Doz. By Express \$12.00 Per Gross.

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Clean the Interior Parts with a damp Rag
when they become foul.

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Buy trees grown in this county, and suited to this soil
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WESTWARD.	Leave	Arrive
Pacific Express*.....	2:40 a. m.	Harrisburg. 4:05 a. m.
Way Passengert	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.	1:30 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.
Cincinnati Express*.....	11:30 p. m.	12:45 a. m.

EASTWARD.	Leave	Arrive
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.	12:30 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.

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†Run daily, except Monday.

TO AGENTS.

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LANCASTER, PA., MARCH, 1878.

Vol. X. No. 3.

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The first column indicates the regular prices of the two journals respectively, and the second column the club rates, if the two are ordered together.

HARD TIMES.

Our whole country, and perhaps the whole world, is now, and has been for many months, experiencing those social, financial and economical reverses, which are popularly denominated "hard times," and perhaps there never existed a greater diversity of opinion as to what really constitutes hard times, the original causes of them, and the means which ought to be instituted in order to abate, or radically cure them. The only class not seriously affected by hard times—or the class least affected by them—is that which includes the legitimately constituted farming class of the country; those who are farmers *de facto* as well as *de jure*; the economical laboring farmers, and not the merely speculative or profligate among those who assume that honorable name and function. It really furnishes one of the most striking physiognomical illustrations that could be desired, only to look into the faces of those two extremes of the farming class. The one enveloped in sober garments, bland visage, satisfied smiles and solid contentedness; the other in gay adornments, hungry look, careworn visage, and unsatisfied expectations. The latter *may* experience much that savors of hard times; but the former, if he is not also hankering after the "forbidden fruit," is only very partially, or is not at all disturbed, or disconcerted by them. But even admitting that the prevailing times *are* hard—an assumption which we by no means desire to gainsay—they might unquestionably be much harder—and they have been almost infinitely harder in former periods of our country's history. Although we have followed a mechanical occupation for more than half a century, and although during all that long period we cannot recall a more depressing period than the present—not even in 1837 or 1857 or any other cycles of the sevens, yet we still entertain a faint impression of harder times, resulting from the crash in 1817, and a few subsequent years. Of course, we cannot recall any of the details with sufficient vividness to give a true idea of their effects upon the minds and domestic condition of the people, but it seemed to us that the very air we breathed had a depressing effect, and boy as we were, we felt that there was something wrong; and to illustrate this point, we will conclude by quoting the following extract from *Benton's Thirty Years' Recollections*, and those who passed through that ordeal with sufficient age, intelligence and experience to comprehend its scope, will best know how near Benton's description is a true reflex of that historical period.

"The years of 1819 and 1820 were a period of gloom and agony. No money, either gold or silver, no paper convertible into specie; no measure or standard of value were left remaining. The local banks, all but those of New England, after a brief resumption of

specie payments, again sank into a state of suspension. The bank of the United States, created as a remedy for all these evils, now at the head of the evil, prostrate and helpless, with no power left but that of suing their debtors and selling their property, and purchasing for itself at its own nominal price. No price for property or produce; no sales but those of the sheriff and the marshal; no purchasers at the execution sales but the creditor, or some hoarder of money; no employment for industry; no demand for labor; no sale for the product of the farm; no sound of the hammer, but that of the auctioneer, knocking down property. Stop laws, property laws, replevin laws, stay laws, loan office laws, the intervention of the Legislature between debtor and creditor—this was the business of the Legislature in three-fourths of the States of the Union—of all south and west of New England. No medium of exchange but depreciated paper; no change, even, but little bits of foul paper, marked so many cents, and signed by some tradesman, barber or innkeeper; exchanges deranged to the extent of fifty or one hundred per cent. Distress the universal cry of the people; relieve the universal demand; thundered at the door of all Legislatures, State and Federal.

There is nothing, says the Cincinnati *Gazette*, in the existing condition of affairs, or in the immediate prospect, that can rival what the historian has pictured above. Everything is not right; many things may be very far from right, but has there been any period since the innocent days of Eden when they were?

Dull times are hard enough, but a general prostration of business is not so much to be feared as prosperity with a prevailing epidemic, or with its more common accompaniment, reckless extravagance and decaying morals. The men of 1820 groaned under their trials, as they had reason enough to do. Some sank under the weight of their burden. It was about that year that Horace Greeley's father lost his farm because he could not raise \$100 to lift an encumbrance on it. The majority of the people, however, got safely through with their difficulties, and lived to enjoy happier days. If the croakers of our own generation will devote half as much time to contending with the embarrassments which oppose themselves, as they give to exaggerating them, the commercial world is not likely to encounter troubles which it cannot overcome. Courage and common sense are the qualities most needed just now."

ODOR vs. COLOR.

"Exception has been taken to the opinion of Sir John Lubbock that it is not the odor but the color of flowers that regulates the visits of insects to them. His critic cites the fact from personal observation that a bee sitting on a scarlet geranium, for instance, will not go from it to a distinct variety, but confine its attention to one species only, whatever may be the color of the flowers of that species. It does not go from the scarlet geranium to another scarlet flower of another species. He also points out that if Sir John's view were correct, the indiscriminate admixture of pollens would be inevitable, thus frustrating the designs of nature by leading to monstrosities or barrenness."

Had any common observer broached such a theory as that of Sir John Lubbock, it probably would not have received the currency that his opinion seems to have. It is impossible to tell, from the above extract, whether he applied that theory to insects as a class, or only to a few restricted species—those for instance that draw their nourishment from

flowering plants, as bees, wasps, hornets, butterflies, moths and a few beetles that feed on nectar and pollen. If he means to apply it to the whole class, practical observation will demonstrate that it is an enormous error; and, so far as our experience goes, in reference to the various kinds of bees, we are in sympathy with the opinion of his "critics." We believe that insects are largely influenced by the odor of the flowers or other substances they visit, if not entirely so. This rule applies particularly to carnivorous insects, whatever their natural orders may be. Stercoraries and carioniferous flies and beetles are wholly attracted to excretal and putrid substances by their odors. Let an animal drop its *feces* in the middle of a forest or a field, and many minutes will not pass before it will be found by the above families of flies and beetles. This will also be the case if a dead and putrid carcass is deposited in the most isolated place, and where an insect of any kind had not been known to exist previous to such a deposit. Of course, this relates to the active season of insects. We have often noticed the coleopterous genera *Canthon*, *Geotrupes*, *Phanaeus*, *Aphodius*, and other allied species, in fields overrun by weeds or high grass, unerringly dropping down upon the faces of cattle pasturing in said fields, and under circumstances which left no room to conclude that they were governed by any other guide than odor. We freely admit that there are often *appearances* which seem to indicate that insects are influenced by color as well as odor, but we think that a closer and a more continued observation would demonstrate that there were other causes for this appearance. Enter a field in which are growing both white and red clover, and you may find the former visited by honey bees (*apis*) and others of about the same size, whilst the latter may be visited by humble-bees (*bombus*) and butterflies. But it is not to be supposed that color has had anything to do in determining this choice, but that it is the result of physical organization. Even among butterflies, where a discrimination is made between the flowers they visit, it is likely to be due to the same cause. The honey bee cannot get the nectar in the flower-tubes of the red clover—if it can reach it at all—as conveniently as it can at that in the white clover. Moreover, the nectar in one flower may be more to its taste, or in greater abundance than it is in the other. There are also cases in which necessity, and not choice, determines the actions of insects. There is, however, much yet to learn on this subject.

WHEN IS THE PROPER TIME TO SOW CLOVER-SEED.

"As there seems to be so much diversity of opinion among farmers in regard to the time for sowing clover-seed, I take the liberty of inquiring through your columns, what is the right time to consign that seed to the embraces of mother earth, that we may be the most sure of its germination and subsequent growth? Some recommend sowing it in the fall of the year, when the timothy is sown; some in the winter, when the snow is on the ground; and some prefer leaving it till late in the spring, believing that it should not be put in until all danger of severe frost is over, as after germination a slight frost is pretty sure to injure it beyond recovery.

"I have been in the practice of sowing about the second week in April, and have seldom missed a good take; but I have been under the impression that in a general way we do not raise the crops of clover we used to do, either from lack of some ingredient in the soil necessary for the sustenance of the plant, or owing to our hot and dry summers; and it

would be well for farmers to inquire a little into the subject, for there is no forage crop in my estimation that has such advantages for feeding purposes as the clover, and I am sorry to see any diminution in the yield of the product."—*Germantown Telegraph*.

The veteran editor does not seem to have answered the question of his correspondent, and perhaps for the reason that where such a diversity of opinion already exists, there is little use in making "confusion worse confounded."

Had any person asked us the same question fifty years ago, perhaps, we would have promptly replied, "on a frosty forenoon in January or Febrary, of course." We do not recollect of having ever sown clover-seed on the snow, or ever having seen it thus sown. But of course some progress must have been made in fifty years, and therefore we may be far behind the times—an "old fogy" in the matter—and such being the case we feel compelled to reply as the "learned Fusbus" did to "King Arlaxomones:"

"Would the King know when to plant,
"I can't advise, upon my soul I can't."

About the period we refer to, February was usually chosen as the proper time, but only when the ground was frozen, and then early in the day, before the ground began to thaw. If the ground contained sufficient moisture to form bunches of vertical filaments, or icy ascidulations, with numerous cracks or crevices between, it was deemed in the best condition to sow clover-seed. These icy filaments always held up by their elongation and expansion a quantity of the earth from beneath, and as the seed would rebound and fall into these crevices, when the thaw, from the increasing power of the sun would follow in the after part of the day, these icy crystals would melt, and the earthly particles would fall back from whence they had been raised, and the seed would be completely covered. This was the theory and the practice in those days, and we know that the sowing had been occasionally more or less delayed, in waiting for a good frosty morning. Clover was usually sown on wheat or rye—most frequently on the former—and when the grain was harvested, the ground was well covered with the young clover, which then began to grow rapidly. Long continued March winds were sometimes injurious to the clover, but any winds not injurious to the wheat itself left the clover intact. Five years of our boyhood were spent on a farm, and we cannot recall a single instance in which there was a "short" hay crop, (1822 to 1827,) although such a contingency may have occurred some where and we not know it. We do not know that any apprehensions were entertained of the young clover freezing; we think it generally supposed that the growing grain afforded it sufficient protection. It seems wonderful, that we do not yet know the best time to sow clover-seed.

PHILADELPHIA POUDRETTE.

The Philadelphia Poudrette is an active, energetic, natural manure, is soluble (like barn-yard manure) without the use of acids. It contains the soluble salts of plants, which have served as food. These elements are indispensable to the development of cultivated crops, and in supplying these excrements to the soil, we return to it the constituents which the crops have removed from it, and renew its capability of nourishing new crops. It is an invaluable manure for Tobacco and other plants requiring an early, healthy start, and rapid growth, maturing them from ten to fifteen days earlier. The increasing demand and uniform satisfaction it has given on all crops during the past three years, prove it a reliable fertilizer. A profitable and high degree of culture requires a liberal supply of manure.

Circulars with testimonial can be had at the office of THE LANCASTER FARMER, and at No. 101 North Queen street. Price \$25 per ton. Hiram E. Lutz, manufacturer, office 1136 Market street, Philadelphia.

NOTICE EXTRAORDINARY.

Through a stress of preoccupation we have omitted to heretofore call the attention of our readers to the cards of C. B. Thompson, and Wells, Richards & Co., on the 2nd and 3rd advertising pages of THE FARMER. Mr. Thompson's "Nutmeg Grater," and "Smoker's Pet," are articles of acknowledged merit, and cost a "mere song," bringing them distinctly within the sphere of popular favor. We therefore admonish our patrons not to forget *The Latest Invention*, and *Something New*, as either article can be cheaply obtained through the U. S. mail.

Wells & Richardson's *Perfected Butter Color* has already elicited the commendations of the dairy men of the eastern and southern portion of Lancaster county. All that is necessary to insure the popular adoption of the aforesigned articles, is an intelligent trial of them. Therefore, as soon as you have finished reading this notice, turn to the advertisements, peruse them carefully, and you will be enabled to learn what the articles are, what they will do, what they will cost, and how you may obtain them. They are not reapers and threshers, running into the domain of dollars, but trifles, confined within the realm of pennies.

MARCH.

Kitchen-Garden Calendar for the Middle States.

Spring has arrived according to the calendar, but the experienced gardener is not to be caught by arbitrary terms; and though March and the almanac may indicate spring, frost and storm and biting winds caution him to care and patience. He will wait the progress of the month and bide his time. If the temperature prove mild, let him proceed as indicated below, otherwise, delay until more favorable weather.

Artichokes, dress, plant. Asparagus, sow; plant the colossal roots. Cabbage, sow in a sheltered place, if not already in a hotbed. Test Landreth's new varieties—the Wakefield, Early Market, and Bloomsdale Brunswick. Beets, Extra Early Philadelphia. Turnip, and Early Blood Turnip, sow. Carrots, Early Horn, sow. Cauliflowers, attend to those under glass. Celery, sow. Composts, prepare. Dung, prepare for later hot-beds. Horse-radish, plant. Hot-beds make; also force. Lettuce sow; prick out. Mushroom-beds attend to. Mustard, sow. Onions, put out as sets, those known as "Philadelphia Buttons" much the best. Parsnips, sow; the sugar is the best. Peas, Landreth's Extra Early and Early Frame, sow. Also McLean's Advancer and McLean's Little Gem, which can be with confidence commended. Potatoes, early, plant. The Early Goodrich continues to secure admirers, but the Early Rose will distance it; it is admirable in every respect. Last year's experience demonstrated that the Snowflake was the best potato grown in Lancaster county. Radish, the long scarlet and red and white turnip, sow. "Strapleaved Long Scarlet," an improvement on the old Long Scarlet, are recommended. Rhubarb, sow; plant roots. Sage, sow, plant. Tomatoes, sow in hot-bed. Turnips, Strapleaved Early Dutch, sow; but generally be it observed, so far north as our parallel of latitude, these directions will apply better to April than to March.—Landreth's Rural Reg.

[Of course, the backwardness or forwardness of the season will have much to do in hastening or retarding these labors, but the matters contained in these directions, in most instances, should be attended to as soon as the ripest judgment of the experienced farmer and gardener dictates that the work should be done, without injudiciously "taking time by the forelock," and prematurely pressing him into service, nor yet indolently and undecidedly lagging behind. Details that can only be determined by experience, had better be left to the suggestions of experience as they transpire.—ED.]

PENNSYLVANIA STATE BOARD OF AGRICULTURE.

MEMBERS EX-OFFICIO.

HIS EXCELLENCY Gov. JOHN F. HARTRANFT. GEN. WILLIAM McCANDLESS, Secretary of Internal Affairs.

PROF. J. P. WICKERSHAM, Superintendent of Public Instruction.

J. F. TEMPLE, Auditor General.

REV. JAMES CALDER, President Pennsylvania State College.

APPOINTED BY THE GOVERNOR.

Hon. John P. Edge, Downingtown, term expires 1880; Col. James Young, Middletown, term expires 1879; John L. George, Monongahela City, term expires 1878.

ELECTED BY COUNTY AGRICULTURAL SOCIETIES.

Berks, W. G. Moore, of Womelsdorf, term expires 1880; Blair, Thaddeus Banks, of Hollidaysburg, term expires 1879; Crawford, M. C. Beebe, of Pleasantville, Venango county, term expires 1880; Centre, Prof. J. Hamilton, of State College, term expires 1879; Chester, Thomas J. Edge, of Londonderry, term expires 1878; Cumberland, C. A. Mullen, of Mt. Holly Springs, term expires 1878; Lancaster, H. M. Engle, of Marietta, term expires 1880; Indiana, G. W. Hood, of Indiana, term expires 1880; Luzerne, John B. Smith, Box 115, Kingston, term expires 1879; Mercer, A. Robinson, of Mercer, term expires 1878; Montgomery, W. A. Yeakle, of Flourtown, term expires 1878; Northumberland, J. M'Farland, of Watsontown, term expires 1879; Schuylkill, J. S. Keller, of Orwigsburg, term expires 1878; Union, J. W. Shriner, of Lewisburg, term expires 1878; York, W. S. Roland, of York, term expires 1880.

MEMBERS ELECTED, BUT NOT YET SEATED.

Tioga, S. F. Wilson, of Wellsborough; Lycoming, D. A. Foresman, of Williamsport; Franklin, C. Gilbert, of Chambersburg; Lehigh, J. P. Barnes, of Allentown; Bradford, L. J. Culver, of Towanda; Warren, J. H. Hiller, of North Warren; Juniata, Prof. D. Wilson, of Port Royal; Northampton, C. L. Whitesell, of Nazareth; Bucks, Eastburn Reeder, of New Hope.

THOMAS J. EDGE,

Secretary.

CORRESPONDENCE.

READING, March 4, 1878.

MR. RATHVON—Dear Sir.—Thinking it proper, I have taken the pleasure to write you a few lines more on the new peach insect. Since my last writing I have made several more observations. To my surprise I found this insect also on the plum and apricot trees, though not quite so numerous yet as on the peach. In many cases, the owners of trees are not aware that their trees are affected, and when it is made known to them they are surprised at it. In reply to your question of how I captured the winged insect, I will state that the manner which I take to get the ancestry of any insect is as follows: I hatch the egg, after which I enclose the brood in a glass jar, giving the brood plenty of food to live on, until transformation takes place, after which will appear the winged or flying insect. Thus I become acquainted with the three different stages of insect life. I will send you a brood in proper time, which you can also propagate with, receiving same result as mine.

Would it please you to favor me to inquire of the Lancaster county people, through the press, if convenient, whether this insect exists any among the peach growers of your section.—Yours truly, Wm. Young, 205 North 12th street, Reading, Pa.

[We thank our correspondent for his labors in endeavoring to develop the history of the new enemy of the peach tree, and hope that he may in the end be compensated. From the fact that he has found the same insect on the plum and the apricot, it may transpire that it is the same species we alluded to as having been seen in 1860, in which case, it would be an old thing become new. In our remarks in the February number of THE FARMER, we do not perceive that we asked how he captured the winged insect he sent to us through Mr. Engle, but we would like to know when he captured it, or obtained it, and whether it was dead or alive, because we must insist that the insect we received was a "lacewing," (*chrysopa*) and had no more to do with breeding the "peach bark-lice" than it had with breeding the "Rocky Mountain grasshoppers;" and we believe that this will be clearly demonstrated to him before another year. Since the issue of the February number of THE FARMER we have learned that this insect was seen on some of the peach trees in this city last summer. Please send us some specimens about the 1st of May next.—ED.]

APOLLO.

Owned by M. W. Dunham, "Oakland Farm," near Wayne, Du Page county, Illinois. Imported July, 1875; eight years old; is a dark dapple gray, 16 $\frac{1}{2}$ hands high, and weighing, in good condition, upwards of 2,000 pounds. Although not a high horse for his weight, his length of body and neck, depth of shoulder, in fact his whole form, moulded in the type of the most elegant carriage horse, gives him a rangy appearance. When in motion, the elasticity of his step, the ease and grace of his carriage, the rare symmetry of his form, would impress one with the belief that he saw before him one of that class, and not one of over a ton in weight. He presents a rare combination of all those physical qualities by which perfection is closely approached. In feet, legs, stifle, quarters, body, shoulders, breast, neck and head, muscular development, spirit and energy, all bear the unmistakable evidence of a masterpiece. He is one of those

ford purchasers an opportunity of selection from animals of the most undoubted quality, and on terms, and at prices, that can not but be satisfactory.

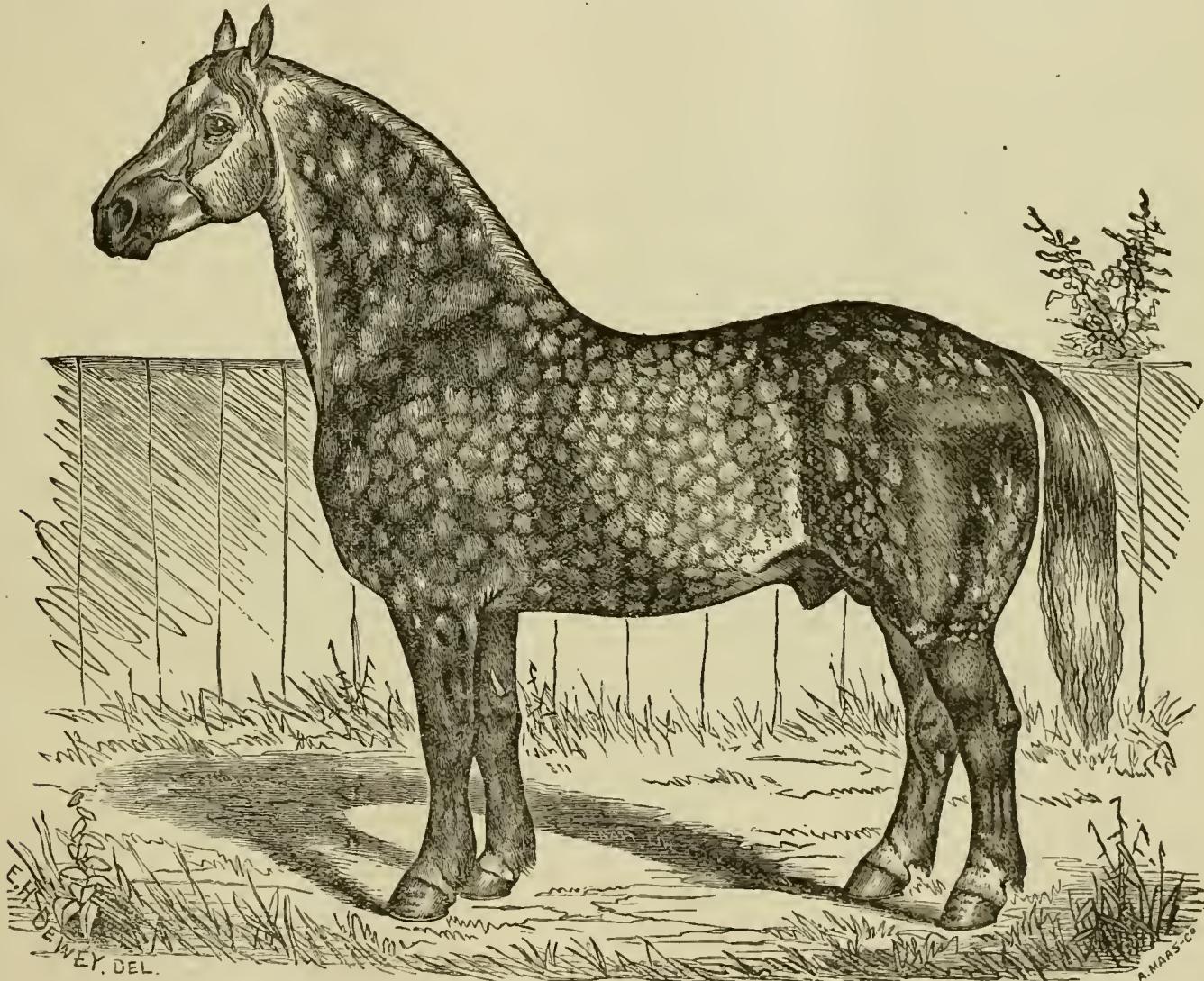
We would like to see this breed of horses largely introduced into this county, to replace, or to cross with, the famous "Conecloyo," which is now fast passing away. We have enough of fancy and fast running horses; we want good and healthy walking and working horses—less profligate and more economical horse-culture.

HONEY BEES AND FRUIT ONCE MORE.

We had sincerely hoped that our correspondents would have referred this question to the Lancaster County Bee Keepers' Association, which meets in this city in May next, and to our bee-keeping patrons in general, as a "committee of the whole," to take cognizance of the subject during the bee and fruit season next summer; and if we should respectfully

skins of any kind of fruit, as they obtain their living by suction. But the wasps and hornets are otherwise provided with a pair of *nippers that are very strong; and you may often see them biting and gnawing old wood, out of which they build their nests. I was much annoyed with them the past summer and fall in my grapevines—especially with the hornets. The mandibles of the hornet are very strong, and they always select the ripest grapes, they being the sweetest and thinnest skinned. I have often watched them, and seen them tear open the skin of the grapes, and when they were well filled they would leave them. Wasps likewise. Before the hornets and wasps returned, however, the lacerated grapes would be sucked out dry by the honey-bees. On the return of the hornets and wasps they would soon select another grape, and destroy it by the same process. I noticed this destruction of my grapes very soon after the aforesigned insects commenced their depredations, therefore I instituted a careful watch over them for several days in succession; and I killed them as fast as they came—they becoming very tame and quiet whilst they were filling themselves with nectar from the fruit. I soon had killed all that visited my grapes.

Whilst waiting for their return, I plucked from the



rare specimens of which nature is so sparing, and from which grand results may be expected. Apollo has never been beaten in the show ring. Won Grand Medal and diploma at the Centennial. Has been exhibited at two State fairs, taking the highest prizes at both. See our literary columns on the last page of this number of THE FARMER. For further particulars, the connoisseur is referred to the "Percheron-Norman Stud Book," Volume I., No. 14.

Mr. Dunham has developed an establishment that, in its systematic appointments, its practical and common sense management, its accumulation of the choicest animals of the breed, combining the highest elements of value in draft horses—size, symmetry, style, action and quality—has no equal in the world, and by the aid of large annual importations, selected personally from the best stud stables of France, he is determined to sustain its prestige, and be prepared at all times to af-

clude to publish any further communications relating to the vexed question until that time, we must claim the indulgence of the writers, on the ground that a further discussion of the question now, is out of season. Nothing can decide the matter, permanently, but fresh facts carefully ascertained through patient and persevering observation.

Our respected friend, William J. Pyle, of West Chester, Pa., wishes to be heard upon the subject, and we have concluded to give him a hearing, "for once," in this number of THE FARMER, and we have only delayed because it came too late for our January number, and was crowded out of the February number, for the want of space.

MR. RATHVON.—Dear Sir.—On reading so much controversy in THE FARMER concerning the destruction of grapes by the honey-bees, I feel as though I ought to say a few appreciative words in their favor; but they will be few, and to the purpose. The honey-bee has no mode of destroying grapes, because their mouths are not made for biting or tearing the

clusters all such grapes as had been bitten by them. These I mashed and gave them to my bees, they being but a few steps from the grape arbors. Although the grapes were sometimes black with them, (the honey-bee) not one of them attempted to cut the skins of them. A corroborating proof of this is, that after I had killed all the wasps and hornets, and plucked from the bunches all such as had suffered laceration from the aforesigned insects, my honey-bees ceased to visit the grapes on the third or fourth day thereafter. There was not a bee of any kind to be seen about the grapes afterwards. They ripened without any further disturbance by insects, and were delicious—some bunches weighing a pound

*These "nippers" (*mandibles*) are also present in honey-bees, although not so fully developed as they are in some other species, especially those that bore holes into solid wood, or capture grasshoppers, spiders, caterpillars, &c. The term *suction* does not quite express the idea as to the way the honey-bee extracts the nectar from fruits and flowers. The process is rather a species of *lapping* than of sucking. With its tongue, which it can elongate or contract, it reaches into an aperture, or cell, previously existing, and laps up the sweets it contains, but it cannot penetrate a solid substance with its tongue, as is the case with purely *suctional* insects.

and a-half, especially those of the "Christine" variety, but the "Concords" and "Clintons" were also fine.

N. B.—My bees are of three varieties, namely, the common black, the Italian, and the hybrid, and they do not and will not, and I sincerely believe, can not, destroy fruit of any kind. Therefore, they should not be charged with offenses of which they are not guilty.—Yours respectfully, William J. Pyle, West Chester, January 20, 1878.

Remotely connected with the foregoing, we select from a cotemporary journal, for what it may be worth, the following:

Curious Story of a Bee.

"My aunt was once lame, so that she had to stay in the room all day long, and her dinner was always carried to her. One day a bee flew in at the open window, and alighted on the pear which she was eating. There he staid till he had eaten enough, and every day after that, he came in at the same hour, and found some fruit ready for him. Once he came earlier than usual, and as the fruit was not yet cut, he thought he would try some lobster. He seemed to like it very well, and began to saw off a little piece. This he rolled over, and then, tucking it under his wing, he flew out of the window and away over the garden. In a few moments he came back again, sawed off another piece, and again flew away with it. Then Aunt called the children to come and see her pet, and as soon as they were quiet the bee came back. We all watched him as he busily tugged away at the lobster, this time taking a piece half as large as his body. He was gone about five minutes and then came back for more. When he found the lobster had been taken away, and that some nice peaches and pears were on the table, he was very angry, and flew round and round the table, but would not touch the fruit. My aunt laid a nice piece of a juicy pear on the edge of the plate to tempt him, but he became quite mad, and buzzed about the room, bounced against the window, and then went out of the window. He soon came back with another bee, and they both seemed very angry because they could have no more lobster. They buzzed around the head of each person in the room, and then went out of the window. After that the pet bee never came again, although the widow was left open for him. He could never forgive my aunt for sending away his favorite dish. I have often wondered what he did with the lobster he carried off."

Of course, this "story" would be more satisfactory if it could have been known what species this "curious" bee was. The simple name of "bee," is very indefinite, for it covers a large number of *Hymenopterous* insects. Perhaps forty-nine out of every fifty who read the story, will understand it to mean the "honey-bee" (*Apis Mellifica*). If it was this species, then two factors involved in the late discussion on the grape eating propensities of this insect, seem very apparent. First, it would not—or at least did not—cut the skin of the fruit on the table, but partook of it freely when it was cut and placed before it by the lady.

Second, if it had sufficient cutting power to eliminate a piece of muscular labster, it seems evident that it could have cut the skin of a peach, a pear, or a grape, with less labor than the former operation required, if it desired to do so.

It is a very common thing for bees, wasps and hornets (*apis, polistes, et cetera*) to fly into dining-rooms, in summer time, especially when there is any thing sweet upon the table, although the last named are generally in pursuit of flies. It is also a common thing for certain species of fossorial wasps (*sphex, odonatus et stizus*) to stock their cells with animal food, (usually caterpillars, spiders and flies,) upon which to rear their young. Others again (as *xylocopa, celecoxys, &c.*) gather pollen and nectar, and compound that peculiar *pabulum* known as "bee-bread," and rear their young on that kind of food, although we have never noticed this habit in the honey-bee, so far as concerns animal food.

LANCASTER PARK DIRECTORS.

At a meeting of the Lancaster Park Association, held March 8, 1878, at the office of Alderman McEconomy, the following directors were elected to serve for the ensuing year: R. A. Evans, A. Hiestand, A. C. Kepler, R. J. McGrann, George Youtz, J. H. Miller, Joseph Royer, George Styer, T. B. Rowe, James Stewart, H. Z. Rhoads.

COMMERCIAL FERTILIZERS.

A tabulated official report from the Pennsylvania State Board of Agriculture, showing the analysis of seventeen different commercial fertilizers sold in the State of Pennsylvania, and their comparative value, as analyzed by Prof. F. A. Genth, of the University of Pennsylvania, by order of said Board.

NAME.	MOISTURE.		SOL. & PRECIP. PHOS. ACID.		INSOLUBLE PHOS. ACID.		POTASH.		AMMONIA.		COMMERCIAL VALUE.	
	Dissolved S. C. Rock, B. & Sons, Phil'a.	4.00	39.10	0.22	0.11	0.23	0.08	33.16	29.30	32.30	30.35	30.35
"Challenge Phos., Baugh & Sons, Phil'a.	7.87	30.10	0.22	0.05	0.08	0.08	33.16	29.30	32.30	30.35	30.35	30.35
"Dissolved S. C. Rock, B. & Sons, Phil'a.	4.00	33.62	6.14	0.11	0.23	0.23	33.16	29.30	32.30	30.35	30.35	30.35
"Oppenheim's Selected Phos., Baltimore, Md.	9.93	5.14	2.22	0.13	0.13	0.13	33.16	29.30	32.30	30.35	30.35	30.35
"High Grade Phos., Farmer's Fert. Co., Phil'a.	6.65	7.53	5.26	0.50	2.03	27.08	33.16	29.30	32.30	30.35	30.35	30.35
"Ammoniated Bone Phos., Passmore & Cope, Penn'a.	4.20	9.68	1.95	0.61	2.46	28.89	33.16	29.30	32.30	30.35	30.35	30.35
"Moro Phillips' Phos., Phil'a.	4.23	8.94	5.85	1.82	2.13	32.57	33.16	29.30	32.30	30.35	30.35	30.35
"Genuine Phos., W. H. Jones, Phil'a.	4.95	10.03	4.89	0.24	3.10	33.16	33.16	33.16	33.16	33.16	33.16	33.16
"Ammoniated Dissolved Bone," Baugh & Sons, Phil'a.	5.58	12.68	3.36	0.09	1.55	33.54	33.54	33.54	33.54	33.54	33.54	33.54
"Ammoniated Dissolved Bone," J. J. Allen's Sons, Phil'a.	4.85	10.15	0.47	3.80	33.95	33.95	33.95	33.95	33.95	33.95	33.95	33.95
"Sun Gano," Walton, Whann & Co., Phil'a.	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
"Leng's Dissolved S. C. Rock, Phil'a.	1.98	5.32	3.07	0.18	2.03	24.46	29.19	28.89	29.19	28.89	29.19	28.89
Whann's Raw Bone Phos., Walton, Whann & Co., Phil'a.	5.85	9.70	3.86	2.27	2.72	20.46	24.46	24.46	24.46	24.46	24.46	24.46
"High Grade Nitro Phos., Farmer's Fert. Co., Phil'a.	8.43	8.43	4.56	2.00	2.06	29.76	35.19	35.19	35.19	35.19	35.19	35.19
Whann's Acid Phos., Walton, Whann & Co., Phil'a.	8.98	8.98	2.36	0.45	0.45	28.85	35.19	35.19	35.19	35.19	35.19	35.19
Improved Acid Phos., Farmer's Fert. Co., Phil'a.	13.48	8.14	.....	.....	.....	27.38	35.19	35.19	35.19	35.19	35.19	35.19
	9.49	8.14	.....	.....	.....	27.38	35.19	35.19	35.19	35.19	35.19	35.19

REPORT OF FRUIT COMMITTEE.

The committee appointed at the last meeting of the Lancaster Agricultural and Horticultural Society to report on the best varieties of fruit to plant in this section, would state that owing to the great variety of soil and climate, combined with the large number of valuable kinds of fruit under cultivation, they found the task rather a difficult one, especially in regard to apples. Of this fruit they would recommend planters to select such varieties as are known to do well in their respective localities, and not to plant too many kinds except for experiment. To those who have committed the error of planting northern varieties, which have turned out to be fall apples in this section, we would say, take them up and replace them with such as are better adapted to their locality and soil. The following list has proven of merit:

Summer Apples.

All Summer, Early Harvest, and Duchess of Oldenburg.

Autumn Apples.

Maiden's Blush, Fall Pippin, Mellinger, Benoni, Smokehouse, Rambo, Pound, Pennsylvania Redstreak, and Early Winter.

Winter Apples.

Smith's Cider, York Imperial, Romanite, Ewalt, Dominic, Rome Beauty, and Winesap.

Pears.

Bartlett, Seckel, Lawrence, Howell, Manning's Elizabeth, and Sheldon.

Peaches.

Mountain Rose, Early Crawford, Late Crawford, Smock's Late, Sulway, Stump the World, Mixon Free, and Reeves Favorite.

Grapes.

Concord, Martha, and Telegraph.

Strawberries.

Charles Downing, Wilson's Albany, and Boyden No. 30.

Raspberries.

Branchwine, Philadelphia, Drobittle, and Black Cap.

Blackberries.

Kittatinny, Lawton, and Wilson.

There are other varieties of fruits that are not generally known, some of which may be equally as valuable as those above named, but should be further tested before they are recommended for general cultivation.

M. D. KENDIG,
H. M. ENGLE,
L. S. REIST.

Lancaster, March 4, 1878.

QUERY AND ANSWER.

Mr. D. S., Lancaster, Pa.—The pear branch you sent us, "scored and grooved in various directions," was no doubt infested by the larva of a small "Typographer beetle," (*Scolytus pyri*) although we were not able to find any of the "worms" in it. There are a number of these little insects that injure various kinds of trees, sometimes called "Blight beetles." They are about an eighth of an inch long and of a black or brown color. The only way to destroy them is to cut off the infested branches and burn them. The external appearance of the branch will generally show where they are located.

Mr. S. S. S., Lancaster, Pa.—The small-winged insects so numerously issuing from the window frames and other wood work about No. 2 cotton mill, are "American Termites," (*Termes frontalis*) and represent the Termites, or "White Ants" of Asia and Africa. They are wood-boring insects, only coming forth during their nuptial or swarming season, once a year. We have never observed them heretofore so early in the season as the 8th day of March. We have noticed them issuing from several old buildings in North Queen street, between Lemon and James streets, but, there they usually appear in "swallow time," about the end of April or first of May, and we have noticed these for twenty-five years in succession. People sometimes confound them with small species of "Pearl-flies," (*Perla*) otherwise called "Shadflies," but this is quite a mistake, for the larvae of the Pearl-flies live in the water, whilst these excavate the wood-work of houses, and especially old houses. The remedy is to capture them as they come forth in the spring, and then to paint or whitewash the places from which they came. See the history of Termites, of Asia and Africa, where they destructively abound.

VINEGAR FROM SUGAR BEETS.

One bushel of sugar beets properly rasped and pressed, will yield five gallons of juice, which, treated the same as cider is, will make a stronger vinegar, of as good but different flavor, and in making cider, nine bushels of apples and one of sugar beets will make a cider superior to apples alone. Every farmer can raise sugar beets, and with the juice expressed at the cider mill, make all the vinegar he wants for his own use and have a surplus for sale. With vinegar at a price it could be made for from beets, its consumption would be increased, as it would enter into many articles of manufacture from which the price now precludes it. When it is found how cheap sugar beets can be raised, and their value for vinegar as well as food for stock, they will be grown more. The best juice can also be worked into sugar as easily as maple sugar now is, and requires no more skill.—Andrew H. Ward, Bridgewater, Mass.

A LARGE HORSE-RADDISH.

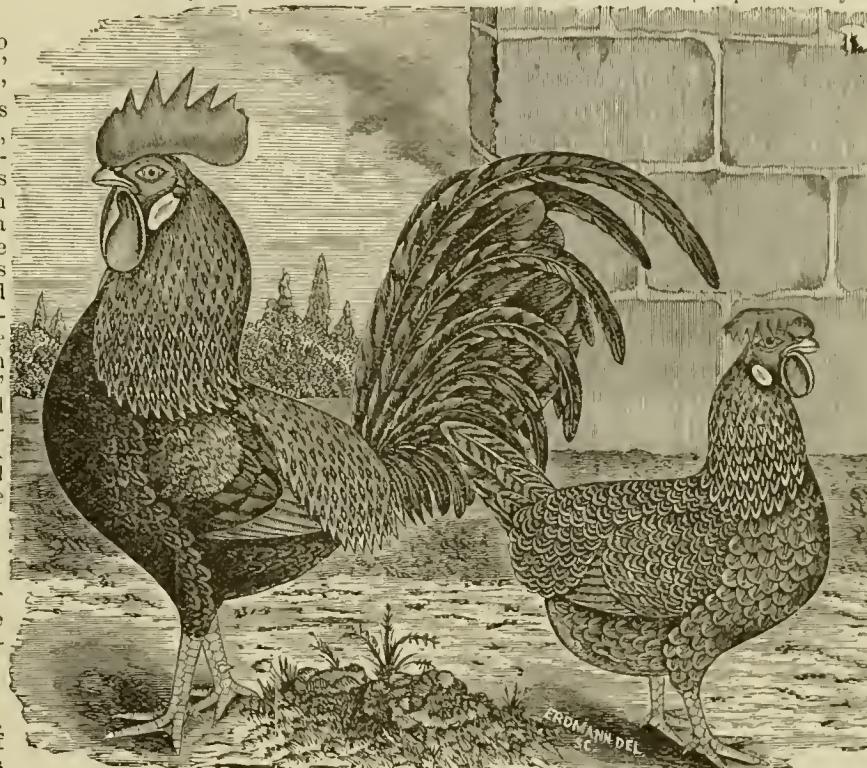
Mr. Wilson Bard, of Oregon, Manheim twp., Lancaster county, has cultivated on his premises a horse-raddish, with three branching tap-roots, 3 feet 10 inches in length, 21 inches in diameter, and weighing about 10 pounds. If anybody in or out of the county can beat that let them say so.

BROWN LEGHORNS.

Winners of highest Centennial medal. Bred by Benson & Burpee, Philadelphia. Drawn from life, immediately after the close of the Centennial. Brown Leghorns, although only recently brought prominently before the public, have attained a popularity excelled by no other variety. They are well deserving of all that can be said in their favor; in beauty of plumage and form they are equalled by none; in economical merits they have no superior. They are not so widely known or so common as the white variety, and are much more difficult to breed true to feather. In breeding no variety, is the adage "blood will tell," better illustrated. These fowls have large, solid white ear-lobes, correct combs and bright yellow legs, united with symmetry and elegance of form. The pullets are most delicately marked with beautiful maroon breasts of that deep rich shade so highly esteemed and so difficult to attain. Cockerels have solid black breasts, and resemble the black-red game in plumage. The stock of the above named firm has been bred with the greatest care, and is admitted to be very superior.

Pedigree.

Bred in 1875, from two flocks, headed by "All Right" and "Philadelphia First." "All Right" figured 91 points as a cockerel, at Hartford, January, 1875; pullet "Hartford Best," figured 93 points—they were the best pair on exhibition. "Philadelphia First," with mates, won the first premium at the Fancier's Show, and first prize and special for best pen of Leghorns of any variety, at the Pennsylvania State Show, in 1874 and 1875. "All Right" is deceased, but in his stead is a cock that will figure several points ahead of him. A young cockerel of this brood has been sold by Mr. Burpee as high as \$40.

**TOBACCO FARMING.**

"Preparing tobacco for market," may properly be said to commence with cutting it off.

When Should it Be Cut?

Tobacco should be cut, when, by doubling the leaf under, it breaks. Before it is ripe, a leaf will not break, neither by doubling it under or over. Tobacco should not be allowed to stand till it is overly ripe. When the color of the leaf assumes the shade of the olive, or when it will break as above stated, it should be cut; then it will cure on the pole to a delicate tea color, be firm and elastic and be all the manufacturer could desire. Some farmers are under the impression that a crop gets heavier by not cutting it till the leaves have turned quite yellowish and thick. This impression is correct. But such over-ripe tobacco will cure yellow—it will have lost its native elasticity and will be very brittle. Will the gain of perhaps 5 per cent. of weight not be more than neutralized by an inevitable loss of from 40 to 50 per cent. of original value? Is it not more profitable to sell 1,800 lbs. of leaf at 10 cents, than 2,000 lbs. at 7 cents, or even for less.

How Should it Be Handled When Cut?

With all possible care. Persons without much experience in tobacco farming have no idea of the tenderness of the plant and the injury it is liable to sustain if not carefully and properly handled. Leaves will break from the weight of the stalk if not carefully laid down when cut off; and a leaf broken at this stage, no matter how large and fine, if not lost before it is housed, must go to the

fillers, if saved at all. We may estimate the number of wrapper leaves on a stalk to be nine, and that on an average, one on each stock gets broken, the loss would equal the ninth part of the quantity of wrappers produced. This may surprise some. This estimate, however, is not immoderate.

But the breaking of leaves is not unfrequently the most serious injury which the tobacco receives on the field after it is cut off. Tobacco when cut and allowed to be on the field for thirty minutes exposed to the hot sun will be badly burned. A leaf so damaged is useless for any purpose excepting to put on the manure pile. The spots on the leopard are not more firmly fixed than the *green brittle blotches* caused by sun-burn. Should a tobacco merchant see sun-burnt leaves in a crop he purchased, he will have them pulled out as cleanly as any one would pull out of his garden poisonous weeds should he see any growing.

A custom also prevails, in a portion of this county, which is most pernicious. I refer to the hanging up of tobacco on the field and allowing it to hang there for an indefinite length of time, exposed to every change of

sheds or barns prepared for that purpose, but above hen-roosts and wagon sheds and on garrets, the most inconvenient and unsuitable places; where, to hang it, it gets torn—and to take it down, it gets more torn. Is it not as necessary, and will the investment not pay as well, to erect proper and convenient buildings to house tobacco as any other crop. However, this shiftless way of housing tobacco in this county is not the rule but the exception. Many have erected suitable buildings with all the conveniences to house their crops; and it is a pleasure to the buyer when he comes along to look at the crops so provided for.

Stripping Tobacco

should never be done before the sap has dried out of the stems thoroughly—when they will break like glass; then as soon as the leaves, together with the stems, have got soft and pliable again from moisture of the atmosphere, it may safely be stripped. If the crop was cut early, it will be sufficiently cured to strip by the first of January. If the sap is not all dried out of the stems, they will rot when the tobacco is bulked down and will impart a very unpleasant odor to the sound leaf in the bulk. Sometimes when the stems have much sap when stripped, the whole bulk of tobacco will be damaged thereby.

Assorting Tobacco

properly into grades is of the highest importance. A crop, no matter how luxuriantly it grows in size and fineness—no matter how carefully it was handled when cut and housed—no matter how well it was cured on the pole—if it is not properly assorted into grades and sizes when stripped, the farmer pays dearly for such carelessness. All the hanks of many a crop of tobacco after being sold are again opened by the buyer and re-assorted and sized before he packs it in cases. This work is attended with the expense of from one to two cents a pound which the buyer pays to have it done. Is it not reasonable, that the buyer, for his own protection, must buy tobacco for at least two cents under its intrinsic market value or he would lose money? If he would

not, it would only be a question of time when his capital would be sunk and he would be obliged to quit the field.

How should it be assorted? Into as many sorts as there are grades and sizes. This will make fillers, binders, and three or four sizes of wrappers. How is this to be done?

Erect tables, at least six feet long and three feet wide. This will accommodate a set of strippers which should, for convenience sake, consist of three persons. One person to strip the leaves off from the stalk; one person to assort them; and one person to tie them into hanks.

The stripper takes off all the ground leaves and places them on the table; the assorter will assort them into fillers and binders. Then the stripper will take off the balance of the leaves on the stalk. Then the assorter will pick out all the worm-eaten and torn leaves, if they don't make good binders they must go to the filler pile; then he will assort the balance, which are good leaves, into not less than two sizes. This is the way that every stalk should be stripped and assorted. Whenever there are from 18 to 20 leaves on the filler pile, the tier will tie them into a hank; when there are from 12 to 18 leaves on the binder pile, he will tie them into a hank; and when there are from 8 to 12 leaves on a wrap-

weather. Thus exposed the sun broils it—the rains wash off the gum from the leaves—it becomes brash—a fit condition for the storm winds when they sweep through it, to tear and break up completely. A crop so treated will not be bought, since its true character has become known to the trade, excepting at a very low price for export to use for a low grade of smoking tobacco. It may be hung up in the field to wilt, but should be housed before it rains on it.

Housing Tobacco

is the next thing in order. To cure well on the pole, the shed or barn should be well ventilated; with convenience to close up during protracted spells of damp weather until thoroughly aged. Tobacco so damaged is known as pole or shed-burnt. In years when the season of growing is most favorable—when the crops are large and fine—in those years' crops is found to be the largest quantity of shed burnt tobacco. A building 24 by 24 feet, 17 feet high with comb roof will accommodate the products of an acre, supposing that it was planted the proper distance apart, viz.: 3½ feet one way by 2½ feet the other way. What farmers, in this age and this country, would think of growing a crop of corn without providing proper and sufficient room to house it? Yet, tobacco may be seen hanging up, not in

per pile, he will tie them into a hank. He will bulk the filler hanks on a pile, the binders on another and several sizes of wrappers on another. Great care should be taken that the tobacco, after being stripped, does not dry out. The top of the bulk of the tobacco should be covered with boards and a few hundred pounds of pressure placed thereon to press it down.

Under no consideration should tobacco be tied up in bundles before it is sold. When so tied up, it dries out rapidly, the loss sometimes being as high as 5 per cent. in a month's time, and, in consequence of its loss of moisture, it can not possibly cure well.

When the tobacco has been stripped, as stated, it is "prepared for market." In my first communication I stated how "tobacco seed may be improved;" in the foregoing I endeavored to state briefly how to "prepare tobacco for market." The subject of "growing tobacco," of paramount importance, is reserved for another occasion.—I. W. G. Wierman.

THE "SHORT-PALMED MOLE-CRICKET," OR "CALIFORNIA POTATO CRICKET."

(*Stenopalma talpa*.)

EAST OAKLAND, Alameda County, California, February 9, 1873.

PROF. S. S. RATHVON, LANCASTER CITY, PA.—Dear Sir.—In your letter to the *Rural Press*, of November 3d, you requested a few specimens of the *stenopalma talpa*. I send you five by mail with this. The large ones are nearly as fine specimens as I have seen. Presuming that you have had no opportunity to study their habits, perhaps a few words may not prove uninteresting. They burrow from a few inches to three or four feet in depth, in dry soils, leaving the hole open to the surface, only coming to the top for exploration, which is generally in the evening or night time, and are rather slow travelers. When domiciled in a hill of potatoes, they are reluctant to change their quarters, and will sometimes tunnel completely through a large potato, at other times excavate them to the depth of an inch or more, often destroying three or four potatoes in one hill. They display the most undaunted courage in attack and defense of their kind. When one has his own grounds, he admits no intruding neighbor, unless possessed of greater strength than himself, and will defend his own to the death. Only one is ever found in one hill of potatoes. I placed one of the larger ones in a tin box, with one a little smaller, and in a few hours, on examination, I found only a portion of the legs of the smaller one; the large one had killed and eaten his companion. I then put two of about equal size and strength into a cup, and an immediate battle was the result; they attacked each other with great desperation, and could only be separated by using sufficient force to nearly tear the legs from the body. I have never had an opportunity to see an encounter with other than their own kind. They thrive best in a dry season; sometimes by thoroughly saturating the ground they will come to the surface. I am under obligations to you for giving the information that I could not find in any work here.—Yours very truly, A. L. Fuller.

[We are greatly obliged to our correspondent for the five specimens of the above named insect, and doubly so for his remarks on their history and habits. We had received specimens of these insects from near Sacramento, California, at least twenty years ago, but unaccompanied by a single word relating to their history or habits; but at the same time we suspected that they might approximate, in this respect, to the habits of our wingless "wood-cricket," (*Phalangopsis maculata*) which we sometimes find in cavities, crevices, or under the loose bark of much decayed timber, under or near the surface of the ground.

Although this California insect, from its habits of depredating upon the potato tuber is *herbivorous*, yet from the fact that when confined together—according to the observations of Mr. Fuller—they devour each other, we may conclude that it is also *carnivorous*. Indeed, this characteristic attaches to many of this family of insects, if not to the whole of them. On one particular occasion, during an unusually warm and sunny afternoon in the month of November, we discovered hundreds of our common field-crickets, feasting upon the lacerated body of a dead calf, which seemed to have met a violent death the previous night, perhaps by vicious dogs. Wher-

ever the flesh was exposed, through ruptures of the skin, the crickets were engaged in devouring it with the seeming rapacity of as many turkey-buzzards; nor did they heed our presence any more than they would have heeded a "stock or a stone." On several subsequent occasions, we have found them under similar circumstances. This carnivorous character of the California species, under consideration, together with their habit of coming forth from their burrows in the evening or during the night—a characteristic common to marauding carnivora of a number of species—may suggest a plan for their destruction, by setting traps for them, baited with some kind of fresh flesh. We have never noticed crickets devouring putrid or decomposed animal flesh, and probably they never do. The form of the trap, of course, would devolve upon the ingenuity of the trapper, or contiguous circumstances. Some insects seem to be highly endowed with the sense of smell, and an alluring bait will often draw them from a considerable distance.

During one of our Tucquan fishing excursions to the Susquehanna river, we had provided several cylindrical tin boxes of angle-worms, (*lumbricus terrestris*) to be used as bait. The weather being warm, these boxes were buried vertically in the sand at various places where they would be most convenient to the fishermen, and most protected against the rays of the sun. On the last day of the encampment, and about an hour before the order to "strike tents," we discovered the end of one of these boxes projecting above the surface of the sand, and as it was one of the largest, and had an aperture of about an inch in diameter in the lid, for ventilation, we concluded to save it for another occasion. The remaining worms had died, and from the hole in the lid issued a strong stench. On raising it up we were surprised to find it about half full of various species of "carrion-beetles," "burying beetles," &c., including the genera *necrophorus*, *necrodes*, *oicocoptoma*, *thanatophilus*, *silpha*, *nitidula*, *phenobia*, *ips*, *staphilinus*, &c., &c., a greater haul than we had made during the whole four days encampment.

Now, this experience may suggest a similar trap for the successful capture of this pugnacious potato-eater. Perhaps the discovery of the best kind of bait to decoy them into the trap, would be the most important consideration. The putrid stench was the attraction in our trap, but the *stenopalma*, belonging to a different order, (ORTHOPTERA) may require a different bait, and by experimenting with different kinds, the right one may be eventually found. We offer these suggestions for what they are worth.—ED.]

VISITING COMMITTEE.

The undersigned, one of the visiting committee appointed at a meeting of the "Tobacco Growers' Association of Lancaster county," begs leave to submit the following as a part of the labors of said committee, so far as relates to his own personal attention to the subject in hand.

My first day's visit was at the house of Henry Shaffner, of Mount Joy. Saw a lot of tobacco which was grown on 1½ acres of ground the second year. Fine, dark color, and mostly triple A. Florida and Connecticut seed, cultivated by first scoring, and hoed in for the hill to plant on. Rows 3 feet apart, 26 inches on the row. Favors plaster of Paris as a fertilizer. Tobacco well assorted, which we could not but expect from an intelligent tobacco grower and packer.

My next visit was to C. R. Stauffer; 2½ acres, Florida seed, second year's growth on the same ground—in an orchard—a good average lot.

Third visit, at the house of Jacob Shirky, Bird-in-Hand; 11 acres, mostly raised on new land. Large and leafy, fine and very fine. Cultivated by throwing two furrows together with the plow, cut down to plant in. After exhibiting his possessions, he took us to the hotel and gave us our dinner and had our ani-

mals fed at his own expense, for which we kindly thanked him.

Our fourth visit was at the home of Solomon Groff; 14 acres, scored and hoed in to set the plants. Used guano, ashes and plaster in the hills. A fine lot and a very fine quality.

The fifth visit was to Mr. Shank, at the Gap; 3 acres, fair, mostly double A. Planted alternately 4 feet and 3 feet apart in rows, 28 inches apart on the row.

Sixth visit, to Isaac Eby; 5 acres, 4 feet apart and 28 inches on rows, crop fair.

Seventh, to William Hamilton; 3 acres, dark and leafy. Mostly A and AA, very good. Here we were treated to apples and cider.

Eighth, to Squire Slaymaker; quality A.A.; dark color, and well assorted.

John Keneagy, 6 acres, mostly A.A., and dark in color.

Tenth visit to John Kennedy; 6 acres, pretty fine lot of AA. Mr. K. is willing to learn, and is experimenting to get on the right track, and doubtless before long he will be one of the first on the list in securing good quality and prices. Here we were treated to a fine turkey dinner, of which we were not slow to partake. We took the cars at Kinzer's station for Lancaster and home.

As a county, Lancaster makes a clever show in the tobacco growing world, but as a State we are but a "drop in the bucket," when compared with other States. In 1876 we had but 9,565 acres in tobacco, whilst Maryland had 31,159 acres; Virginia had 82,166 acres; North Carolina 29,500 acres; Tennessee 51,111 acres; Kentucky 188,235 acres; Ohio 32,716 acres; Missouri 53,800 acres, and Alabama 22,000 acres.—Respectfully submitted, Henry Kurtz.

MANURES AND SOIL FERTILIZERS.*

In entering upon this subject to-day, I want to forewarn you not to anticipate anything very new or startling.

The subject has been so thoroughly gone over, by intelligent farmers and scientific men, that it is hardly to be hoped that I can throw any additional light upon it.

But it is one of those questions that are ever new and interesting; that will bear line upon line, and precept upon precept, and the discussion of which, slowly but surely, leads to a better general understanding of the principles involved in agricultural improvements. Trusting, therefore, to your forebearance, while recalling points and facts with which you are already familiar, I will enter upon this subject by discussing it under these head:

First. Commercial fertilizers: Their need and application.

Second. Barn-yard manures and their accumulation.

Third. Soil improvement by thorough pulverization.

When we consider how small a proportion of plant organism is made up of inorganic or mineral matters—(9-10 of plant substance being obtained from the air)—and how few of them are ever deficient in our soils; we might readily suppose that soil fertilization was an easy and simple matter. It has been found, that as a rule, only three substances were needful as applications to secure good plant growth, viz: Phosphate of lime—potash and ammonia; and as it is easily ascertained how much of any, or all of these, are required for any desired crop, the question of fertilizer application would seem to be susceptible of a precise mathematical solution:

Especially so, as we can ascertain to a reasonable certainty the amount of these ingredients already in the soil upon which we propose to grow these crops. But when we come to put in practice this supposed precise knowledge, we find there are mysterious actions and counter-actions, not only difficult to understand, but impossible to wholly control.

Notwithstanding the great increase of our knowledge of agricultural chemistry, there are many things in God's laboratory of the

*Read before the Lancaster County Agricultural and Horticultural Society, by John I. Carter.

soil, difficult to understand, and the changes and alterations going on in it are impossible to foretell or calculate upon. We comprehend this difficulty when we remember that woody-fiber—gum, starch and grape-sugar are all composed of equal quantities of the former original principles, viz: C.12 H.10 V.10—and yet we see how differently they appear to us. Hence when we apply a certain number of pounds of potash to a soil deficient in that ingredient—we must not assume that the same potash will be found in the ash of the plant grown! But because axiomatic knowledge may be beyond our reach at present, is no reason we should refuse the aid of the light already gained. Exceptions to rules may make results uncertain, and their application in many cases extremely difficult—but established rules or principles should be accepted as guides and landmarks, regulating our practices, to a certain extent at least. Now we are told that a crop of 25 bushels of wheat and its corresponding weight of straw, say 3000 lbs. contain 49.40 lbs. of nitrogen, 21 lbs. of phosphoric acid, 30.12 lbs. of potash and 9 lbs. of lime.

If we fail to grow a crop of this quantity per acre, and we have given the soil a fair preparation, and no climate or insectivorous trouble has interfered with its growth or maturity, we are justified in assuming that there is a deficiency in the soil, of some or all of the above elements—at least in an available form—and it is our duty to set about ascertaining the character of this deficiency, and the cheapest and the readiest way of supplying it—but this may involve considerable labor and trouble, because our soils are so different, that one farmer's experience is hardly a safe guide for others, and each must carry on a series of experiments, that will be interesting and valuable it is true, but somewhat expensive.

I have prepared a series of tables, giving the amount of the mineral elements in our most important crops—and the kind and amount of commercial fertilizers we can buy to supply them. Of course the markets offer many fertilizers furnishing the needed ingredients, but I have selected for this table those manufactured and sold by Bangs & Son, of Philadelphia, because they are perfectly reliable parties, and their goods of guaranteed quality. I will also give the country retail price as near as I can, but of course that will vary with distance and other circumstances.

Corn—for 50 bushels of grain, and 4,000 lbs of fodder, we have in

Nitrogen.	Phos. Acid.	Potash.	Lime.
44.50 lbs.	17.76	10.72	16
The grain 19.00 "	14.	63.80	18

The requisite quantities of these articles can be bought in the following fertilizers:

Per Ton.
63.50 lbs of nitrogen in 470 lbs of a. a. nitrogen \$48
31.76 " phos. acid in 102 " chal. super. phos. 65
84.53 " potash in 565 " sulph. potash 16

Oats—in 40 bushels of oats and 2,000 lbs. straw.

Nitrogen.	Phos. Acid.	Potash.	Lime.
24.53 lbs	8.31 lbs	6.25 lbs	1.49
Straw, 12.20 "	5.76 "	28.10 "	9.34

Furnished as follows:

35.72 lbs nitrogen in 264 lbs of a. a. nitrogen at \$48
14.87 " phos. acid in 45 " chal. super. phos. at 65
34.35 " potash in 240 " sulph. of potash at 16

In 25 bushels of wheat and 2,500 lbs of straw.

Nitrogen.	Phos. Acid.	Potash.	Lime.
31.25 lbs	14.36 lbs	960 lbs	1.6
Straw, 14.00 "	6.70 "	15.76 "	8.68

We can furnish these as follows:

The 45.25 nitrogen in 335 lbs of a. a. nitrogen.
21.06 lbs phos. acid in 68 lbs chal. super. phos.
25.36 lbs potash in 170 lbs sulph. of potash.

In clover—2 tons.

Nitrogen.	Phos. Acid.	Potash.	Lime.
78.80 lbs	22.40	73.20	39.44

We can procure the nitrogen from 583 lbs of a. a. nitrogen, the phos. acid from 70 lbs challenge, the potash from 500 lbs sulphate of potash.

In timothy—2 tons.

Nitrogen.	Phos. Acid.	Potash.	Lime.
62 lbs	28.80 lbs	81.60 lbs	22.56 lbs

Furnished by 459 lbs. a. a. nitrogen, 92 lbs. of challenge super. phos., 550 lbs. sulphate of potash.

In 1,800 lbs of tobacco—in the

Nitrogen.	Phos. Acid.	Potash.
Leaf 49.00 lbs.	7.50 lbs.	71 lbs.
Stalk 33 lbs.	15.00 lbs.	47 lbs.

To furnish these take 607 lbs of a. a. nitrogen, 72 lbs challenge and 788 lbs of sulphate of potash.

There are other sources of supply for these ingredients. For instance the nitrogen may be supplied by sulphate of ammonia costing \$100 to \$120 per ton—containing about 500 lbs of nitrogen—while the a. a. nitrogen contains 270 lbs per ton and costs \$48, and instead of the challenge super phosphate costing \$65, and containing 620 lbs of available phosphoric acid, we could use a common acid or rock phosphate, analyzing, say 12 per cent. or containing 240 lbs of available phosphoric acid, and costing \$28 per ton, or instead of sulphate of potash, containing 14 per cent. of potassium or 280 lbs per ton—and costing \$16, we could use muriate of potash, containing 44 per cent. potash or 880 lbs, and costing \$38. The potash from the sulphate is reckoned the most assimilable.

Of course these ingredients can also be furnished in barn-yard manure, but owing to the difference in its quality and condition, it is very difficult to make any definite calculation about it—and if we take the usual estimation of the value of ash ingredients, we will find barn-yard manure a very dear way of supplying them, if we have to purchase it at the usual rates. A ton of barn-yard manure contains about 9 lbs of nitrogen, 42 lbs phosphoric acid, and 10.4 lbs potash; hence to produce a crop of 1,800 lbs of tobacco, which according to the foregoing tables, contains 82 lbs of nitrogen, we would have to use 9 tons of manure; to furnish the phosphoric acid would take 5 tons, and the potash 11 tons! Hence to supply the requisite amount of potash for a good crop of tobacco, it would take about 4 cords of manure, at a cost of \$8 to \$10 per cord, whilst the same amount of potash could be bought in the form of sulphate of potash for 6.28 cents.

But there is a growing dissatisfaction in the minds of practical and observing farmers, as to the value of nitrogenous manures, or of the application of nitrogen or ammonia in its commercial forms, that its cost is too great, that it is merely stimulating, and too transient in its effects, and that by supplying the other ash ingredients in requisite form and quantity—and giving the soil perfect tillage—the needed nitrogen will be supplied, from outside sources. Prof. Sharp, of Baltimore, carries this idea so far as to assert that a cord of barn-yard manure burned, and the ash applied, may do as much good as the unburned manure. Of course this ignores any good result from the mechanical effect of bulking manure upon the soil, as an ameliorator, which under many circumstances are important, but perhaps not so important as is usually supposed, and I think the time is not distant when thorough pulverization and good tillage will be made to supply the place to some extent of those bulky fertilizers, as soil ameliorators. By the way a notable illustration of this idea is given in an experiment of a correspondent of the *Country Gentleman*, who applied 24 loads of good barn-yard manure, to two acres for fodder corn. The ground was worked as usual, while two adjoining acres, upon which no manure was applied, was replowed, cultivated three times, and made as fine as a garden. Otherwise both lots were planted alike. The manured lot made twenty-two tons, the other twenty-eight tons—the extra work which was reckoned at \$4 standing against the twenty-four loads of manure. The explanation of this result is, probably, that the complete subdivision of the soil, rendered available each particle of plant food; the roots had free

access to them, and the aeration afforded by the thorough pulverization, offered every facility for the absorption of nitrogen from the air, or for such chemical changes as secured this result. But to take up again the consideration of the nitrogenous or ammoniated manures, and to show their inconsiderable value with us, I might give the results of some of our experiments with them on common farm crops. These results will show how poor and transient the action of the ammoniacal fertilizers, and that even barn-yard manure, whose chief value was supposed to be in its nitrogen, makes rather a sorry showing, compared with the phosphatic fertilizers. We have attempted to account for this, on the ground that one soil may already be well enough supplied with nitrogenous matter in the form of grass roots and decaying vegetable substances, but it may rather be due to the needed supply of nitrogen coming from some other source, as is held by Prof. Sharp and others.

To be Continued.)

*PENNSYLVANIA APPLES FOR EXPORT.

MR. PRESIDENT.—To give this meeting of intelligent fruit growers a dissertation on "Pennsylvania Apples for Export," while our State instead of exporting is annually importing thousands of barrels of apples for home consumption, must be considered in the prospective. It is, however, not asserted here that Pennsylvania does not export any apples, for some of the western counties have fallen in line with the New York trade, but our trade is so insignificant that it is scarcely worthy of notice, compared with that of New York and several other States. That Pennsylvania to-day might be rivaling any State in the Union, in the exporting of apples, had she pursued a course similar to that of other States now so far advanced in this branch of industry, your essayist firmly believes.

Had Pennsylvania fruit growers formed active societies as early as New England and New York did, and made efforts to disseminate and establish a reputation for the best and most reliable apples, native to the State, and at the same time diffused information necessary to the planting and management of orchards, as well as the picking, handling and marketing of their fruits, the commercial value of our orchard products would amount to hundreds of thousands of dollars annually; but instead of taking an independent course, we simply aped after New England and New York, taking for granted that the varieties that succeeded there, were just what we wanted, and thus have for the last twenty-five or thirty years planted northern and northeastern winter apples trees, and have harvested fall apples. No wonder we don't export. Now, what makes the present aspect the more humiliating is, that all the while Pennsylvania bad apples, native or otherwise, just as good as those that been disseminated in consequence of their popularity at home, and just as well adapted to her soils and latitude as those of other latitudes were to their native place. It is not claimed that fruits do not succeed except in the vicinity where they originated, but it is conceded that varieties of fruit that give satisfaction everywhere are few and far between. Under these circumstances your essayist feels more disposed to lecture Pennsylvanians for our short-sightedness in the past, than to tell us what apples to export while we have none; besides, if we had them, it is only the few that would know how to manage them properly for exporting.

I am, however, gratified to announce that a new era has opened for our State. By the diffusion of pomological knowledge, many of our citizens have learned to know the commercial value of apples in other States, as well as the steadily increasing demand abroad for the same; they have also learned to know our mistake in the selection of winter varieties,

*Read by Henry M. Engle, of Marietta, Pa., before the Pennsylvania Fruit Growers' Association, at their annual meeting at Williamsport, on January 16, 1878.

which only are valuable for export. It is therefore claimed, that we are rather in a transition state, which should tend to repair in the next quarter of a century what we have lost in the last, in the apple business, by not being sufficiently wide awake. My subject, however, is "Pennsylvania Apples for Export." I shall consider Pennsylvania seedlings first. I do not see why Smith's Cider and York Imperial might not become as popular abroad as at home. The former is no doubt the most reliable winter apple in Eastern Pennsylvania, and York Imperial very little behind; both are showy, of good quality, reliable bearers and good keepers. York Stripe is larger, more showy and of better quality than either, but perhaps not quite so good a keeper. Should it prove as reliable a bearer, it is destined to become one of our most valuable winter apples, and therefore may come in competition with the best northern apples in foreign markets. Belmont.—It seems strange that an apple with so many excellent qualities should have been so long overlooked in its native State, while it became very popular abroad. I would bespeak for this apple a promising future, when our State goes into the exporting business. Smokehouse, although not a very attractive name, there is nothing smoky about it. I know of no apple that is more sought for in its season where it is known, and it will become popular whenever it can be obtained in perfection; and if its season could be extended a month or two it would rank among the most promising for export. Rambo is equally popular with the latter, but simply as a dessert apple, maturing about the same time, in early winter, which will prevent them from becoming very valuable for export. Ewalt—This fine, large, showy apple is looming up in popularity. In appearance it has few rivals among winter apples. The most that can be said against it is that it is rather acid as a dessert apple before it is fully ripe, but for culinary uses it is No. 1. I have known it to sell in Chestnut street, Philadelphia, at \$8 per barrel, while the price of winter apples generally ranged from \$3 to \$4. Should it bear exporting well, it would, in my opinion, outsell any other American variety now shipped to foreign markets. Major and Creek are both new promising winter apples of very good quality, and worthy of more extended cultivation. In addition to these there are many valuable native winter apples that have only a local reputation, some of which will no doubt prove equal to any of the generally popular kinds. Among the varieties not Pennsylvania seedlings, the green Newtown Pippin has in some localities succeeded well, and among apples shipped to foreign markets, it has thus far sold at higher figures than any other. Were the yellow Bellflower as firm, so as to bear shipping well, it would be one of the most valuable for export. Peck's Pleasant is scarcely inferior in flavor to Newtown Pippin, of larger size, more showy, and the tree a more vigorous grower. I do not see why this apple should not stand as high in any market as the Newtown Pippin. I would not hesitate to plant Rome Beauty and Ben Davis, both of which are good, showy and productive, as well as good keepers. Romanite—I do not see why this showy and very productive apple might not become valuable for export. It is of good quality and an excellent keeper, and would bear shipping as well as any apple with which I am acquainted. There are, however, two varieties disseminated under the same name, with synonyms of Gilpin, Carthouse and others. They are both southern apples, and similar in many respects. I am confident that both have been grown in the same orchard, under the same name and as the same fruit. I believe the above named varieties have all proven worthy of cultivation in some localities in our State, mostly in the eastern division.

There are many other varieties worthy of notice, perhaps as valuable for export as those just referred to; but for some time I have been more disposed to strike a number

from our catalogues, than to add more, unless proving of superior merit. I do, however, not wish to be understood as discouraging the planting in our State, wherever they succeed, those excellent northern varieties, which have become famous both at home and abroad; for in our northwestern counties they have proved much better keepers than in the eastern part of the State. The same may be said of the higher altitudes of the mountainous sections throughout the State to its southern border. Therefore, Hubbardston, Baldwin, E. Spitzenberg, Northern Spy, Rhode Island Greening, King, American, Golden and Rox Russets and other northern apples may prove valuable for export in those sections of our State just referred to.

In order to establish a commercial interest in the apple trade of our State, more orchards must be planted, and those already established better cared for. There are both land and capital lying idle, or partly so, to pay investors a large profit, and the State a commercial income of hundreds of thousands of dollars annually. To such as would invest in this enterprise of apple growing as a business, I would say select a good location for an orchard, better a little rough and hilly than too low or wet.

Prepare the ground as you would for a field crop, observe the orchards surrounding yours close by, and make the largest proportion of your list of such varieties that succeed best in your neighborhood, and upon similar soils. Plant only young thrifty trees, not more than three years old, plant not deeper than they stood in the nursery, and head in the branches at planting, but get and save all the roots you can. Mulch your trees the first season with manure or any rubbish that will keep the earth beneath moist, and cultivate well with summer crops for six or eight years at least. Plan the shape of your trees from the start, and prune so as never to have occasion to cut off large branches. Nothing but finger and thumb and pocket knife should ever be used for pruning fruit trees while in thrifty condition, and such they should always be so long as you expect to harvest paying crops from them. When the trees commence bearing, keep the ground in good fertility with proper manures, which should be applied in proportion to the crops that your trees will yield. Keep out horners from trees, and any other insects injurious to trees and fruit, but especially keep down the codling moth, by the application of bands around the stems of the trees. When the crop is large, thin out as systematically as you would your corn when planted too thick. All fruits will keep better if not left too ripe on the tree. In gathering for market, reject all unsound and gnarly specimens. It will pay to make two or three grades of almost any fruit for market purposes, so as to have it run uniform. Pack carefully in new barrels, but by all means avoid deception, which is too common, in which the barrel is topped off with specimens far above the average. Do not close the barrels at once unless the weather is quite cool. Press the fruit so as not to move in the barrels while they are handled. Place in a cool or rather cold place until freezing weather. Slight freezing after the barrels are closed will not injure them, but they must not be roughly handled in that condition. Fix your brand on every barrel and also the grade of fruit it contains, and build up a reputation that you never need be ashamed of. By planting more extensively, and following the above directions, I will predict that the rising generation of our State will be enabled to talk more intelligently on Pennsylvania apples for export, than your essayist possibly can on this occasion.

FOR THE LANCASTER FARMER. ABOUT DARK BRAHMAS.

There was an article in the last number of your journal about the Dark Brahmias. I suppose your correspondent is acquainted with this breed, and if he has any fowls that are as nice as the picture in the journal, he

would not need to be afraid to put his name to his writing. It is a fact that they are good layers, and as mothers I have not had much experience, but know that they will make sufficiently good mothers. And as a table fowl, they can not be excelled. And, as to feed, they need less than any other breed. My pullets are not fat at present, and still they weigh nine pounds. Can that be beat? Farmers and poultry raisers ought to look to their interest, and always have the best breed. And as I have tried a number of kinds, I am convinced that this is the best and most profitable breed that I ever have had before. And if anybody wants any of these kind of eggs I would refer him to Simon Heisey, Elizabethtown, Lancaster county, Pa., breeder of thoroughbred Dark Brahma fowls.—*S. C. L. II.*

[The article referred to by our correspondent, is our own compilation, and relates to the Dark Brahma fowls in general; but as we raise none, and have none for sale, it was not necessary to append our name to the article. The pictures, however, are not exaggerated, for we have seen birds as handsome, if not handsomer than those represented. But we do not feel called upon to advertise them, until application is personally made. In the meantime we feel gratified that our correspondent is a reader of *THE FARMER*, and that, *experimentally*, he is in harmony with our views, *theoretically* expressed.—EDITOR.]

FOR THE LANCASTER FARMER. GRAFTING.

Eps. FARMER.—Noticing an invitation to all farmers to write for *The Farmer*, I thought perhaps it would not come amiss to give some new beginners a few hints on grafting and setting out trees, as I have had some experience in that line for the last forty years. When I first began to graft I was taught to cut my grafts in February or March, before the sap had risen in the trees, in order to get them before the bark got loose, to prevent them from peeling while setting them. Another idea they advanced was that, if the grafts became a little shriveled they would draw the harder on the sap when set, and be more likely to grow than they would if taken direct from the tree and set. I could not see why anything would grow better for being nearly killed. It seemed to me that was too much like giving a person medicine to make him sick, in order to have him recover quickly. I went to experimenting on it and found it was a humbug, as there was just as much danger of the bark starting on the tree as on the graft; so I took to cutting my grafts whenever I was ready to set them, and had no trouble in making them grow; in fact, they grew quicker and made a better growth the first year, as many of my neighbors can testify. I have cut grafts both early and late, frequently so late that the leaves were quite large on the graft. In that case I cut the leaves off, being careful to not cut the bud too close to the graft, and they would soon start out fresh again and make a good growth that season. The trees which I speak of are those that have grown to be quite large without being grafted. In grafting cherry or pear, I generally cut off a small piece and split it, to see whether the tree is winding or not. If it is, I cut the bark down as low as I think it will split to receive the graft, on both sides of the tree, being careful to cut with the wind of the tree, and when you split it leave it smooth; otherwise it would not fit to the graft and would not grow. In this way I have no trouble to make them grow. In grafting small trees, from four to six feet high, I top graft by cutting the top six feet high, I top graft by cutting the top off and getting a graft as near the size as possible, cutting the same slant, fitting them together, winding a little yarn to hold them in place and then waxing it over. The yarn is better not to be very strong; some old ravelings are best, as they will give when the grafts grow and not stop the growth. If the wax is put on so as to exclude the air and rain, I find no trou-

ble in making them grow. I make my grafting wax proportioned in this way: Four parts of rosin, two of beeswax, one of tallow. It stands the sun well without melting.

I will now give my opinion of setting out a young orchard. I think it is best to not go below the top soil, in our clay, to set, but rather raise the ground a little, to keep the water from settling around the tree. I have seen more trees spoiled by being too wet than too dry. I hear of a great many complaints in regard to the grub destroying trees. I mean what some call the borer. About nine times out of ten, I think, the trouble is in setting and shading the trees on the southwest side. The trees should be set to lean to the southwest, as the strongest winds come from that course in the spring while the ground is soft, and force the trees to the northeast; that gives the sun full power in the hottest time in summer, about 1 or 2 o'clock in the day. It cooks the bark on the southwest side of the trees, and bugs soon smell the sap, and deposit the eggs, and in a short time you will notice small, dark spots in the bark. Examine, and you will find a small worm, with a head as big as the whole body. You can cut them out, or wash with strong lye and kill them, but put up something to shade the tree. If you take notice, you will find the majority lean to the northeast, and that is where the trouble lies.—*John Beard, Practical Farmer.*

FOR THE LANCASTER FARMER.

MORE ABOUT HORNED OWLS.

I noticed in a late number of a horned owl having been presented to the Editor, and am not surprised at its being appreciated. This variety was scarce in the vicinity of Lancaster forty years ago. The first, and only one I had seen up to my sixteenth year, was on the Pequea creek, six miles southeast of the city of Lancaster.

On moving to Cumberland county, in 1837, we found them so numerous as to be a severe tax on the poultry; many a large one did my rifle bring down.

But to find this bird in its glory one must be along the Missouri river; along these high bluffs and extensive bottoms of cotton-wood and sycamore. Here they hold high carnival nightly, and to any one unacquainted with their various noises, and who might be a little superstitious, would suppose that he was within hearing of the infernal regions. I have shot them by dozens; have caught some birds with bare hands, and am therefore not afraid of them; but must confess that when passing through the forest on a dark night, these birds disturb my nerves. One trait about this bird naturalists have not mentioned, and that is, they are ventriloquists. One not knowing this might think he had half a mile to walk to where the sound proceeded from, when in fact it is not one hundred yards. At other times they may be two miles off and be supposed to be quite near. When two or three are about to pounce upon a hen roost, is the time when they seem to be possessed with the *very devil*. Many a night have I been awakened by their fiendish hoots and screams, so that I had to go out and fire a gun to silence them. We have some other rare birds here, a slight sketch of which I can give if you think they will be worth their room. Eagles and falcons, also ravens, are not uncommon here, while the wild geese are here all winter and are seen daily.—*Samuel Miller, Bluffton, Mo., February 25, 1878.*

P. S.—I was living in the Pequea Valley, six miles from Lancaster, and one-half mile west of Musselman's Mill, and lived there until 1837.

[We have never had the pleasure of meeting our correspondent personally, but through the mediumship of our venerable mutual friend Mr. J. B. Garber, we have known him from reputation these many years; and have published a number of his contributions in former issues of THE FARMER. We thank him for this renewal of his literary favors,

and assure him that we shall always be pleased to hear from him on any subject he may desire to ventilate, within the scope of our journal.—*EDITOR.*]

FOR THE LANCASTER FARMER.

BLACK HELLEBORE.

(*Helleborus Niger.*)

German Schwarze Neiswurz, Lancaster county Dutch—Grishwtzel—perhaps from "Christmas"—root instead of "rose."

We present our readers with a wood cut of the black hellebore, flower and root. This hardy foreigner is remarkable and highly desirable both for its ornamental appearance, and the fact of producing its large white flowers from the 25th of December to January—often in bloom about Christmas, whence it has obtained the name of "Christmas Rose." It has, however, no relation with the rose family, its acrid character, and deep green and pedately divided leaves, shows its affinity



with the "crow-foot family," the *Ranunculaceae*. The root is externally very dark, hence called black—the word hellebore has reference to its acrid, poisonous qualities. Dioscorides, who flourished in the reign of Nero, and was the author of five books on the "Materia Medica," extols the medicinal properties of this plant. It is a native of mountain woods, in many parts of Europe. Gerard introduced it into England in 1596, therefore it is nothing new in itself. This I have met with in numerous gardens, where it was cultivated for ornament as well as for domestic use. It is remarkable that after a long search in my medical botany, and other works, I can find no notice taken of the great efficacy of the long, round fibres of the root when employed as a seaton in cattle and hogs, affected with serious ailments of inflammation. While residing at Mount Joy, I had a very fine hog, that staggered about like a drunken man. I called the attention of a neighboring farmer to it; he said the best remedy he knew was the black hellebore. I showed him a plant growing in my garden, no doubt planted by the former owner, an experienced gardener, Mr. Frederic Eekert. My friend got two fibres of the root, punctured each ear of the hog with a pen knife, inserted a fibre in each ear, and interlaced the ends. That was all that was done; the setons formed a running sore, and in a few weeks the hog was lively and as healthy as ever, leaving a large hole in each ear, but all healed up. This may be a very common experience, and not new to many, but if so, I am not aware of it. Why

might it not prove of the greatest efficacy in "hog cholera?" I throw out this hint—I am not now in the hog line—to make the experiment.

This plant was highly extolled by all the early writers as a hydrogogue purgative and emmenagogue, i. e., for the cure of dropsy and female complaints, mania, cutaneous affections, worms, &c. It was one of the leading ingredients of Bachler's pills, so celebrated in the treatment of dropsy, which induced the French Government to purchase the receipt at a high price. But like other nostrums once in vogue, it has lost caste and is forgotten by later nostrums that annually rise and make a splash, just to be buried with other medical debris—in oblivion—let them rest in peace.

But facts are facts, nevertheless, and what experience has demonstrated it may be well to mention—for the benefit of those who may fancy to cultivate the plant for its beauty—for its flower in winter out in the open ground where all else is flowerless—except in the hot house, and for its use, if so be that it produces the curative powers, if only on hogs, those that raise them may test it on them if not on themselves.—*J. Stauffer.*

FOR THE LANCASTER FARMER.

TIMES AND SEASONS.

"Coming events cast their shadows before."

Spring is approaching, and will bring on plenty of work for the farmer. Everywhere, where we cast our eyes, there are stones to be picked, fences to be made, plowing to be done, trees to be pruned, gardens to be planted, roads to be made, ditches to be cleaned out, manure to be hauled, and a good many other jobs to be done. Pick stones from grass and grain fields as early as possible. Then roll as soon as the frost is out of the ground. A good time to roll grass fields is immediately after a rain, when the ground is soft, so that the roller may press down the high places, and make the surface smooth and even for the mower. To roll grain fields we must wait a little longer, and until the surface gets nicely dry, so that the soil will not stick to the roller; and when once dry enough, do not delay the matter, but go at it at once, or else you might miss it. If a rain comes before you have done the work, it will take several days to dry again. Then another rain may come, and at length the grain may get too large to roll it without injury. Roll it lengthwise along the drill rows. It makes the nicest job, and the roller does not press the grain plants.

A stiff clayey soil is best if plowed in the "rising"—it will not get so hard as when plowed in the "setting," and a light soil that is too loose, is best if plowed in the "setting," because, then it will settle a little more than it otherwise would; and in spading a garden it is the same. Oats if sown in the *rising* will not lodge as readily as when sown in the *setting*. Pole-beans ought to be planted in the *rising*—they will wind up the poles better than when planted in the *setting*, and bunch-beans are most successfully planted in the *setting*. If they are planted in the *rising*, they will throw out shoots and wind more or less, and this is also the case with peas. I have no doubt but some of the readers of THE FARMER will laugh at me for writing such nonsense—even those who may be practising these rules more or less, "on the sly"—because, they may know a great many people who have no faith in these things, and therefore entirely disregard them. But let them laugh; it is much better to laugh than to cry.

Nevertheless, some seed may fall on good soil, take root and grow. Every one can try for himself; and it is good sometimes to try other modes than those we have been accustomed to, even if we have no faith in them.

When we make what we call a "worm-fence," we find a difference between that which was made in the *rising* and that in the *setting*. The latter soon sinks down on, or into the ground, whilst the former remains intact for a much longer time. It is about the same

in shingling a roof. I recall one particular occasion in the shingling of the shed of a cider-press. It was shingled with oak shingles, all made from one tree. Those shingles that were put on in the *rising* turned up their ends, and looked like the reversed feathers of a certain variety of chickens, (*Straub-hinkle*) once very common on every farm; whilst those that were put on in the *setting* remained flat.

Pruning trees is best when done in the "increase," (*Zumemen*) because the wound will then heal sooner, and the wood will grow over the wound than when the limbs are cut off in the "decrease," (*Abnemen*). These are matters upon which every one can and ought to experiment for himself.—J. C., Warwick, March, 1878.

[It may be necessary for us to say, that by "rising" and "setting," and by "increase" and "decrease," our contributor alludes to the different phases of the moon. Of course we do not hold ourselves responsible for the opinions entertained by those who write for THE FARMER, but equity requires us to give our patrons an opportunity to express their views on all subjects relating to agricultural economy. We may, however, say this, that a larger number of the citizens of Lancaster county—and perhaps of the whole State of Pennsylvania—attach more or less importance to these "signs and seasons," than we have any idea of; and, as our contributor hints, many of those who *publicly* repudiate them, *privately* practice them. They seem to be inborn in our people; moreover, there are many phenomena that seem utterly inexplicable upon any other basis. It is acknowledged that the moon affects the tides and physical health, and this is only carrying its influence to the more solid substances.]

FOR THE LANCASTER FARMER.

REVIEW OF THE FEBRUARY NUMBER.

Home Expressions.—It shud be som encragement to the Editor and Publisher of THE FARMER, that ther ar a fu of the county journals that apreciat its merits, 'but the many farmers hu shud patronis it, prefer to help bild up jurnals from abroad.

Kitchen Garden Calender.—Farmers hu wil not prepar hotbeds, wil be served rit if tha hav to wat thre weks longer for thar erly vegetables.

Lancaster County Papers.—If tha wil increas in a proportionat ratio, every man wil publish his on paper by and by.

Querries and Answers.—The Editors reply is gud advis to plauters. Many shud tak advantag ov it. Thar is no necesse for bying so many peches from other stats, while tha can be grown at hom.

Peach Bark Louse.—Peach groers beter kep an I on it, as it mit spoil our peach prospects.

The Lombard Plum luks fin on paper, and no dout also on the tre, if the little turk don't put his trad-mark on it.

Essay on Grape Culture is vere gud, but it is to long to overhaul it in a revu of this kind.

Half way plowing and harrowing wheat by J. G. ma satisfy him, but we must not forget that won swalo dos not make a sumer, nor is won seson a far test for any crop.

Ruralist explans his fowlair as we expected, but he is a litle in the mist with our Fonetic, but he wil yet lern to spel it without Ph. He givs gud advis for rasing tobacco plants, and we are glad that he did not get his bristles up instead of puting them down.

The Coming Tomato has reched us about wons a yer, and no dout wil be coming for a long wile yet.

Planting Trees for Timber and Fuel seems to be a mooted question—we hav strong arguments pro and con. A. B. K. has handled the subject very wel. It wud be beter not to trifle with this matter tu long, for we al no that timber can not be grown at short notis, like field crops.

Hoeing Wheat.—This is water on our mil. We beleve strongly in the doctrine, and predict a buz if gud reports com in this seson wher it is tested.

Dairying.—This is an interesting subject, and Mr. Reall has handled it wel. The associated plan shud work as wel her as in other sections, wher it has proven quite succesful.

Dark Brahma Fowls.—We wud not object to receiving a par lik them as a present—we wud prefer them to squashes.

Address on Fruit Growing by President Calder.—This is won of the best articles on this subject that we hav sen. But Mr. Calder never talks nonsense, nor wastes words to no purpose. It wud do yur county societe gud to hav him give a lectur on any subject pertaining to Agriculture or Horticulture.

Paris Letter.—We ma alwas expect somthing nu from France. The leter contains som things worth trying here.

Agricultural and Horticultural Society is not progressing vere fast, but beter slo than not at al. We think som of the smaler coun-tes hav mor active societies.

Tobacco Growers Association seems to spred mor than any other societe. Perhaps ther is no more in it than in other pursuits. Som ov the members, however, sem redy to growl if tha don't get 30 cents per lb. Formerle tha wer wel satisfid when tha got 10 or 12 cents per lb. Wonder if thar aint some sharks among the groers as wel as the byers. Can't the groers send samples to Paris?

The Linnean Society dos not mak so big a splurg as the others that met in the sam rum, but we think it serves the public as much and posterite mor.

Value of Hen Manure.—This is an artiel that is much neglected. Perhaps if it wer calld hen guano it wud be valued more.

Oat Meal as Diet.—Its increased consumption augurs wel for economy in diet, as also the consequent heith of thos hu us it. Ther has ben som prejudis against eting hors fed, but why not et it as wel as hog fed.

Walking Horses.—This artiel shud be print-ed in larg leters and posted in every farmers hors stabl in the county. It mit be of grat valu.

We must drop som artiels, or revu wil get too long.—Von Humbolt.

FOR THE LANCASTER FARMER. FRUIT—WHAT VARIETIES TO GROW.

By special request, I will make some note of my personal experience in growing apples and other fruits, in Lancaster county. There are certain localities within our domain which we may properly call fruit-belts, where we can raise apples, pears, peaches, cherries and grapes with the usual success. All we have to do, is to plant and replant, and we can bring fruit to reasonable perfection. But, it is at the same time a life-study and a daily experience. In some localities in this county we can raise no fruit successfully but apples, and in others both apples and pears, and again in other places the apple tree will not thrive, or will produce only very inferior fruit. It is, therefore, necessary to find out the nature of our soil, in order to know what is, or what is not adapted to the different localities. Forest and fruit trees thrive well in some localities whether they be high or low dry or wet. The Black-oak and Hickory require a rich dry soil; the Poplar, White-oak and Red-oak, a low and wet soil; the Black-walnut and Locust, a deep, dry alluvial soil; the Persimmon, Paw-paw and Pear, a low, loamy soil. The sweet-cherry will never thrive in low places, and especially not along a creek, or low running water. The Early Richmond cherry will thrive either on high or low ground, and so will the Prune, if it is not destroyed by the *curculio*.

I spoke in the beginning about fruit belts. I own a part of one, where we can raise almost any kind of fruit adapted to this latitude, almost to perfection. Metaphorically speaking, or in point of altitude, we are one of the neighbors of Gen. Geo. M. Steinman, of Martic township, in this county, but we are twenty miles apart. We are on the southern slope of Kissel-Hill, or New Haven Hill, running east to the Conestoga, near Earlville. Our place is Millport, and our

township is built from the valley up to the hill, from the summit of which we can see the residence of Mr. Steinman and other buildings east of the Copper mines and Octoraro Hills. I planted a small orchard eighteen years ago—also 65 trees twelve, and the same number eleven years ago; and at the same time filled up an old orchard, where a good many trees were missing. The three different orchards are less than half a mile apart. The old orchard is on a Red-shale southern slope: the twelve year orchard on rich gravel, southern slope of a lower location, and the eleven year orchard is on a wet loam and still lower in location.

I have most of the new popular varieties of apples growing, but not yet in a bearing condition. In order to save time and space I omit naming the varieties. The Red-shale orchard is the best of the three and seldom fails to produce a good crop, as can be attested by Mr. J. B. Garber and others who have seen it loaded down with apples, when they were scarce elsewhere. I planted from one nursery in the three orchards, three trees at the same planting. Those in the Red-shale orchard are bearing heavily. The Hubbardston Nonsuch are the largest trees, but they are rather "shy" bearers, whilst in the old orchard they bear profusely, and come to perfection.

As I was requested to give a list of apples for our county, I must speak of different varieties for different localities, because I have experienced that some varieties will do best in limestone land, or in gravel, sand or loam. Sometimes apples in their native places will do well, whilst they will utterly fail in others. I think it wrong to discard some of the older varieties of apples. I desire to have a good word for the old Pennsylvania Redstreak and Smokehouse, for yield or profit. I have ten trees of Northern Spy of eighteen years planting, and I got out of patience with them for not bearing. But two years ago they began to bear liberally, and I now consider them worthy of culture. The apples on my place are the Pound, Baldwin, York-Imperial, Berks county cider, Krauser, Conestoga Pippin, Paradise, Winesap, and Romanite. The latter is my principal winter apple, and at the present writing it is the only apple in use in my family. The Millport Sheepnose is also a prominent apple with me, but on account of their overbearing they are not long livers. The Spahnhower is a good summer apple—a middle-sized red-apple—an ornament to the tree or table.—L. S. R.—Oregon, March, 1878.

[We regret that L. S. R. so completely ignores the Rambo. In its season there is not a better fall and winter eating apple, and none more healthful and generous to the taste. It is also good in a stew, pie, dumpling or fritter—none better.—ED.]

FOR THE LANCASTER FARMER. AROUND THE FARM.—No. 6.

Sweet Potato Plant.

Many farmers have a difficulty in raising sweet-potato plants. As we have had uniform success in raising fine plants it may not be out of place to give our method of laying up the tubes: Dig out the old mold of your pit about two feet deep and fill up with fresh horse manure. Cover the manure about three inches deep with the mold that was thrown out and on this lay the tubers, covering them also with mold about two inches deep. Don't use glass, the plants don't come quite as soon but are much hardier. The bed should be sprinkled every morning with warm water and covered at night with carpet or matting. Care should be taken not to let cold rains to fall on the plants. By this method we have raised fine plants.

Fire Wco 1.

In going through the country one sees sights sometimes which do not uphold the boasted credit of Lancaster county. One of these is that of women chopping wood. Whatever tends to elevate and lighten woman's labor should engage the attention of every farmer. Their labor is so varied and multitudinous

that men should take on their shoulders of her burdens when ever they can, and I think it is an indication of a shiftless farmer who lets his women get the firewood.

During the winter all wood needed through the summer should be drawn home, sawed, split and housed. Few things are more annoying than the necessity of cutting wood when you are busy in the fields.

Farmers' Homes.

I think we farmers do no not cultivate enough taste for the beautiful. In our inordinate greed for the "dollar of the daddies" we too often lose sight of the beauties of nature and transform ourselves to groveling worms instead of the gifted beings we ought to be. This fact is most forcibly illustrated in the general surroundings of our homes. There is large room for improvement and I trust the day is not far distant when a general wakening up in this matter will be had through the influence of the few who now adorn and beautify their homes, and our county will abound in fine rural scenes and picturesque homes as well as fine tobacco fields and fat steers. The improvements need not be sudden or expensive, a few evergreen trees planted in the lawn would already improve it, besides a few flower beds would make such a contrast that you will be induced to plant more largely next year. Please try it this spring.—*Ruralist.*—Creswell, Penn'a., March 4th, 1878.

FOR THE LANCASTER FARMER.

THE TOBACCO FEVER.

Tobacco raising is the main object with some farmers, and very few raise none at all, in our section of the country; and much of the talk among farmers is about tobacco. I often noticed last summer when I went from home, that whenever I met other people, where two or three were together, the talk among them was about tobacco. For my part, I raise none, and my belief is that I would not be doing right in raising this weed. God has given us a fine country in which to raise grain, and vegetables, and fruit—eatable articles—and, before God, I believe it is not right to desecrate the soil by raising tobacco. Hundreds of acres of our best lands are absolutely wasted by planting them in tobacco, which would produce good crops of wheat, corn, or potatoes, and a good many other useful and nourishing crops—articles for poor people to eat. Tobacco robs us of a good deal.

First, it demands the best soil on the farm. *Secondly*, it demands the best and the largest quantity of manure. Farmers haul manure liberally on tobacco land, then after harvest, they manure very sparingly their wheat land, in order to make it reach, and often, through their liberality to the tobacco it don't reach, and the result is a poor crop of wheat generally. Now what is tobacco good for? It is chewed, and snuffed, and smoked; and if used to excess, it often injures, if it does not ruin people physically and financially, to say nothing about it morally. It would be much better if they had never tasted it. Many a poor man spends more for tobacco than would buy flour for a loaf of bread every day in the week; or more in a year than would buy a new suit of clothing for each son in the family, even if the number were half a dozen. Not long ago a poor young man bought at an auction eighteen pieces, or plugs, of tobacco, half as long as his arm. Cheap as he considered it, it amounted to over six dollars. I am informed he chews a ten cent plug every day. This is more than a good many have to pay for house rent, to say nothing about the rich who spend dollars where the poor only spend pennies. But it often occurs that the poor are more extravagant in this than the rich. It is said in favor of tobacco that it makes a good deal of work for the poor among the people. So it does; but other more necessary work is neglected on account of the tobacco crop. I have seen farms—and a good many of them, too—where tobacco was cultivated, and I have noticed that the tobacco was kept

nice and clean, but the corn stood in high grass and weeds, and a person would have a hard struggle to get through them in corn-cutting. There they lost something of what they had gained in tobacco. Had they put all in corn and applied the same manure, and the same cultivation as they did on their tobacco, they would have had a much better corn crop, and the poor man would have had labor, the soil would not have been robbed—in short every man who is *willing* to work for a reasonable compensation, can always find *something* to do. Often when I wanted a hand to assist me on the farm, I could get none. They replied, "I must tend my tobacco," and I had to shift along the best way I could. Especially when the corn was ripe, I wanted men to cut off corn; but no, the tobacco must first be put away; corn can stand and get dry on the stalks, "tobacco is king." Tobacco, it is true, brings in a great deal of money, but still, on the whole, I believe it would be better in the end if a tobacco-plant had never been cultivated in the county. It certainly will impoverish the land after a few years. Some farms will be so poor that they will hardly support an average family, and leave very little to sell. But nearly all the people have this tobacco fever, and therefore there may be very little use in saying anything to them about it. Like all fevers, I suppose it will have to run its course; nevertheless I believe it will have its crisis. Many people will not believe even preachers of the gospel, when they warn their flocks of approaching danger. Therefore we see tobacco-raising saints going on in their way the same as sinners. There is preaching Sunday after Sunday, but people do not repent. They live on in sin from day to day, week to week, month to month, and year to year, without repentance, until the end, and so it will be with tobacco farming—at least, as long as there is *money* in it.—J. G., Warwick, March, 1878.

[Whatever the moral, physical, and economical status of tobacco growing and tobacco manufacturing and using—or whatever may be its ultimate effect upon the mental and constitutional condition of men, there seems to be a grave doubt whether there ever will be a perfect unity of sentiment on the subject; therefore, it seems that the most we can do at the present time, is to concede to every one the privilege of entertaining his own honest views in regard to it. In other words, we may "agree to disagree;" because, like manufacturing and selling or using liquor; selling and buying lottery tickets; keeping and running fast horses; dealing in fancy or fraudulent stocks of various kinds; men will engage in these occupations so long as they can see any money in them, or they are not directly contraband of law, without troubling themselves much about the abstract right or wrong of the thing. Perhaps so long as men do not violate their consciences, or invade the rights of their neighbors, we will have to leave them to their own convictions under the forms of civil law. One glorious privilege we enjoy in a land of freedom, and that is, if it is wrong to raise tobacco there is no power to compel us to do so against our own will, nor can the responsibility of another's wrong doing be laid on our shoulders. Nevertheless, every one ought to enjoy the privilege of expressing his own sentiments on the subject.—ED.]

FOR THE LANCASTER FARMER.
FERTILIZERS AND MANURES—THEIR
APPLICATION TO CORN CROPS.

I have been for several years interested on the subject of artificial fertilizers and manures of all kinds, and have read whatever came in my way, and such works as I could afford to purchase from time to time.

There has been a great change for the better, in the purity and strength of fertilizers offered by all reputable dealers, the object being now to give as much of the valuable ingredients as possible, as the freight and cost of hauling on the lower grades is just as much per ton as on the higher grades, and this of itself makes the lower grades the dearer.

No less has been the change in the manner of application. Formerly a man would purchase a certain kind of fertilizer and with perhaps the best results. The next season he and his neighbors would invest more money in the same or a different kind of fertilizer, and the crop would be very poor. The dealer was of course held responsible for this state of affairs in furnishing a worthless article. Either they did not know or did not take the trouble to inquire whether the failure might not have been attributable to their own lack of knowledge of what essential plant food their soil in the last case, was lacking.

The *essential* plant foods are three in number, and they are potash, phosphoric acid and ammonia. The latter is composed of nitrogen and hydrogen, and is mentioned in some works as nitrogen, and the amount according to the ratio between the nitrogen and the compound, ammonia, 17 parts ammonia being only equal to 14 parts nitrogen.

A soil to produce a crop, must contain all three of these plant foods, for if any single one of them is entirely absent, the plant will not come to perfection. Nothing else can be substituted for the missing ingredient. To soil containing neither of these, it would be easy to supply in the right quantity all the ingredients, but many soils contain one or two of them in sufficient quantity, but which of them is not known, and can be found out only by actual experiment. At one time the analysis of the soil was thought to be a sure method, but that idea is now practically discarded by all reliable and honest chemists, as they claim that the amount of any one of these ingredients is too small in comparison with the amount of soil to determine with accuracy, and that the peculiar place or places where the sample was taken from, may have more or less of the necessary ingredients, than the average would be in the whole field.

No one in America has done more towards forming an intelligent idea among farmers on the subject of fertilizers and manures than Prof. W. O. Atwater. From his articles in February and March numbers of the *American Agriculturist*, we condense some experiments made on corn in 1877.

The Experiment Station, at Middletown, Conn., sent out last spring, sets of fertilizers, 20 lbs. of each kind, consisting Dried Blood (I), superphosphate (II), Potash salt (III,) mixture of I and II, mixture of I, II and III, and also 20 lbs. of plaster. The amount in each set was to be applied to 10 square rods, which is at the rate of 320 lbs. to the acre.*

Mr. D. H. Birdsey, Middlefield, Conn., experimented on upland, gravelly loam, with gravelly subsoil that had been in grass for three previous years, the yield of hay estimated at $\frac{1}{2}$ to $\frac{3}{4}$ ton per acre. Last manuring (with oats) leached ashes; previous to this, barn manure and bone.

Where I, II and I+II were applied the product was mostly "nubbins," only 40 bushel baskets to the acre, while the stalks were small and weak; where III and I+II+III were applied the yield was 96 baskets of sound ears and large sound stalks; he also applied on one piece "yard and hen manure and ashes," (5 cords of the yard manure, hen manure and ashes applied to the hills but amount not stated) and the yield was 88 baskets.

When we examine what ingredients were contained in the different fertilizers we find that where there was no potash present, the result was a failure, and that the potash itself was as good as any mixture containing all three ingredients, and better than where horse manure was applied, besides being much cheaper. In fact Mr. Birdsey thinks the horse manure cost \$40.00 per acre (by which he probably means what he could have sold the manure and ashes and what it cost to apply;) the potash salt (I) would have cost only about \$7.20 per acre, and the mixture (I+II+III,) \$6.40 per acre. There is no statement as to yield where nothing is applied.

*The Dried Blood furnishes ammonia; Superphosphate, phosphoric acid.

Rev. W. J. Bartholemew reports in substance, as follows :

Hill land, surface, dark loam, moist, with clayey subsoil, 1874 no manure; hay, 1 ton, 1875, 12 cart loads barn-yard manure; corn 35 bushels, 1876, no manure; oats 40 bushels. 1877, experimental crop, white cap corn.

Where II, III, plaster, and where no application was made the yield was very poor, in fact a failure, as the yield was only from 14 to 20 bushels of very poor and green ears. In the first two cases the yield was less than when no application was made. Superphosphate (II) gave a clear profit of \$11.88; mixture I+II, \$8.72; mixture I+II+III, \$5.12. He also tried ammoniated superphosphates of different makers, the application costing \$6.40 per acre, and results in a clear profit of \$9.92 to \$12.48 per acre.

He also tried the following :

Thirty-two bushels ashes, costing \$7.20 per acre, gave a clear profit of \$5.44; 48 bushels of leached ashes, costing the same, gave a clear profit of \$7.36; 20 bushels hen manure gave an increase of \$26.56; 20 bushels hen manure and 80 lbs. plaster, an increase of \$27.84; all the foregoing had sound grain, stalks in the first two cases a little below color average, and in last two cases above average. 16 cart-loads of hog manure gave large average stalks, and good yield of ears, but the ears were mouldy; 32 bushels of light soil gave very large, above average stalks, and a greater yield of ears than any of the other trials, excepting hen manure and plaster, but the corn was very mouldy, in some cases husk and corn completely rotten.

In examining we find : (1.) Where phosphoric acid was not supplied, the crop failed. (2.) Where phosphoric acid was supplied, either alone, or with some, generally little, nitrogen, (in the ammoniated superphosphates), the crop was good. (3.) That the amount of increase where II, I+II and I+II+III were applied, corresponded with the amount of phosphoric acid contained in them. (4.) With potash salt and with dried blood, the yield was less than when no application was made. (5.) The crop got no apparent benefit from any ingredient in the chemical manures, the ashes or the farm manure, except what phosphoric acid they contained. (6.) That in every case where phosphoric acid existed in the fertilizers, alone, or in connection with a little nitrogen, there was a clear profit of \$10.00 to \$12.50 per acre, less where it was in connection with other substances, and positive loss where it was omitted. Mr. Bartholemew's soil needs phosphoric acid mostly.

Mr. Chester Sage, Middletown, Connecticut, has a very poor soil, consisting of a heavy loam, with hard-pan subsoil. Manured in 1874 with 300 pounds slaughter-house refuse per acre; crop, 15 bushels of oats; no manure in 1875, hay $\frac{3}{4}$ of a ton. No manure in 1876, hay $\frac{1}{2}$ ton. Fertilizers 800 pounds per acre, except hen manure, a handful to each hill. Fertilizers applied in the hill.

In each case where dried blood, (I) potash salt (III) or mixture I+II were applied, the yield was no larger (20 bushels ears per acre) than where nothing was applied, and in this and the last case and the first the kernels were mouldy and bitter; where superphosphate (II) was applied alone, the yield was 40 bushels ears, imperfect kernels, but not mouldy; where plaster was applied the yield was the same as in the last, but with kernels mouldy; stalks of all the above small. Mixture I+II+III, which is a complete manure, as it contains all the different plant foods needed, produced 120 bushels ears, kernels large, bright, sound, sweet, very fine, stalks large, fine, green, and ears large, long, well-filled; with hen manure the yield was 80 bushels ears per acre.

In experiment of Mr. Sage, we find that no single ingredient would bring a crop; that a mixture of two ingredients was no better, but that the fertilizer had to contain all three, viz.: ammonia, (nitrogen) phosphoric acid and potash. The mixture I+II+III supplied all three, as did also the hen manure.

We are sorry that no experiment was made on a soil which lacks nitrogen only, but perhaps this case does not occur so often, as nitrogen is believed to be absorbed more or less from the air by all plants, and on those decaying leave a portion thereof in the soil. In the case of phosphoric acid and potash, the case is different, for if not present in the soil the plant has no way of putting it there or increasing what quantity may be there, and it has therefore to be supplied artificially.

Whether it would be profitable to apply fertilizers to corn land in good condition, say yielding 100 bushels or more in the ears, does not appear, as nearly all experiments seem to be made on partly "run down" or worn out soils, and where the land is not completely run down, it may be that the very ingredient least needed is supplied more liberally than either of the other two. The best way is to experiment in small plats, and then supply accordingly to that field, for the field is generally wanting the same ingredients all over, unless, as is sometimes done, the same crop is not raised all over the field, but tilled in patches. As different crops remove the different plant food in different quantities, the field tilled in this manner may thus lack potash in one part, phosphoric acid in another, and nitrogen in still another.

It is therefore safer in these richer soils to give the same kind of application as would be made on a perfectly worn-out soil, that is, a fertilizer or manure containing all the essential ingredients of plant food.

If then we want to apply any fertilizer to the best advantage, we must supply as much of each ingredient, excepting nitrogen, as the amount removed by the increase above the natural yield, and in fact should apply a somewhat larger quantity if we want to increase the capacity of the soil. Thus a crop of 100 bushels corn in the ear (50 bushels shelled), and the natural proportion of stalks removed, 70 lbs. nitrogen, (19 $\frac{1}{2}$ lbs. ammonia), 35 $\frac{1}{2}$ lbs. phosphoric acid and 98 lbs. potash, which could be procured for about \$18.20, reckoning potash at 7 $\frac{1}{2}$ per pound, phosphoric acid 9 $\frac{1}{2}$, and nitrogen 2 $\frac{1}{2}$ cents, and only 35 lbs. of the latter, as the air is supposed to supply the other half.

The Mapes Formula Company give a somewhat different ratio, being for their "corn manure," ammonia 6 per cent., (nitrogen 5 per cent.), phosphoric acid 12 per cent., potash 7 per cent. In one of their pamphlets, "Leading Crops," they give the amount of potash removed at about 2 $\frac{1}{2}$ times the amount of phosphoric acid removed, and I can see no reason why they should make the amount of phosphoric acid nearly twice the amount of potash contained in their "Corn Manure."

Where barn-yard manure has heretofore been exclusively used, it may be that their proportion is right, for cattle take phosphoric acid from whatever they eat to form bone, and the manure put back to whence such feed is obtained, will lose just so much, but potash is not thus assimilated, and the manure therefrom contains nearly all the potash that was originally contained in the feed. It will thus be seen that while the phosphoric acid in the soil may grow less in amount pretty rapidly, the potash does not lose in the same ratio.

If the soil under consideration has been manured with barn-yard manure only, I might apply the fertilizer as they recommend, but on the other hand, if guano, which contains from four to seven times as much phosphoric acid as potash, had been used separately, or where bone in any shape, is ground, or burnt, or dissolved, had been used, in such cases I would want the fertilizer to be richer in potash than in phosphoric acid, because it is very likely that in many of these cases the fertilizers mentioned had been used until the land would crop no more. The land would then, in all probability be, in the case of using guano, pretty rich in ammonia and phosphoric acid, but lacking potash; in the case of repeated applications of bones, both ammonia and potash might be lacking.

We would then come to some definite rules,

arguing as above, and the substance of these rules would be in the case of corn:

1. Has the land been supplied with barn-yard manure, use a fertilizer richer in phosphoric acid; next potash; last nitrogen.

2. Has ground bone, burnt bone or dissolved bone been used (at any rate if often used) then have the fertilizer richest in potash; next nitrogen; last, perhaps not at all in extreme cases, phosphoric acid.

3. Has guano been used repeatedly, then potash may be the only one required; if any other ingredient is wanted let it be phosphoric acid in smaller quantity.

4. If the potash salts have been used heretofore, then apply some fertilizer rich in nitrogen and phosphoric acid, such as guano; but there is one potash salt, nitrate of potash, (salt petre) that is rich in both nitrogen and potash, and if this has been much used, apply something rich in phosphoric acid, such as burnt bone or bone dust.

5. As a general rule apply that fertilizer or manure which is rich in those ingredients which the others have lacked.

The course of reasoning pursued would seem to be right, but in practice, in the application of fertilizers, like in many other things, the results do not correspond with the assumed theory, not that there is anything wrong in the theory; but the points and bearings are not all known, or are overlooked, but of this we may be assured that when practice follows theory as far as the latter is known, the chances of failure are much less than when we go ahead in a hap-hazard, it-may-do fashion.—A. B. Kise.

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 Monday afternoon, March 4th, at 2 o'clock, in the Atheneum rooms.

The following is but a partial list of the members and visitors present: Calvin Cooper (president), East Lampeter; Joseph F. Witmer (secretary), Paradise; Levi W. Groff, West Earl; Simon P. Eby, city; Casper Hiller, Conestoga; Daniel Smeych, city; Ephraim Hoover, Manheim; Johnson Miller, Warwick; D. L. Resh, Bird-in-Hand; J. M. Johnston, city; Jacob Bollinger, Warwick; Henry Wolf, Warwick; John C. Linville, Salisbury; A. B. Groff, West Earl; M. B. Eshleman, Newport, Perry county; E. W. Eshleman, Paradise; W. H. Brosius, Drumore; Ambrose Pownall, Sadsbury; John M. Stehman, East Hempfield; C. S. Kaufman, Columbia; M. D. Kendig, Manor; Peter S. Reist, Lititz; Peter Hiller, J. G. Rush, Willow Street; Christian R. Landis, Isaac Bushong, East Lampeter; F. R. Diffenderfer, city; Clare Carpenter, city; Christian Coble, Mount Joy; Adam R. Bear, Lancaster twp.; William McComsey, city; Prot. S. S. Rathvon, city; John H. Landis, Manor; John I. Carter, West Grove; Franklin Sutton, Manheim; C. L. Hunsecker, Manheim; Levi S. Reist, Manheim; Walter Sutton, Manheim.

The society was called to order by the President, Calvin Cooper, Esq.

On motion, the reading of the minutes of last meeting was dispensed with.

Report of Special Committees.

The committee appointed to confer with City Councils about making arrangements for permanently renting the room, reported progress through their chairman, S. P. Eby, and were continued.

Crop Reports.

JOHNSON MILLER said the wheat fields look well; the young clover is lifted out by the frost, but he did not think it was much hurt. Farmers are preparing for spring work. But little tobacco has been sold.

JACOB BOLLINGER said some of his wheat was hurt by the fly in the fall, but seems to be looking better now. But little tobacco sold; all are ready to sell.

MR. LINVILLE said wheat looked very well. Clover also looks well. The tobacco is moving slowly.

MR. BROSIUS also reported wheat as being unusually fine. Grass also looks well.

EPHRAIM HOOVER said a friend reported that peaches would be a failure in his neighborhood.

The President reported peaches all right in his district. The wheat has recovered from the ravages of the fly, and now promises well.

JOS. F. WITMER also reported wheat as good. So also the young clover; it was lifted out by the frost, but will get over that. But little tobacco has been sold, although farmers are very desirous of selling.

He also read a short article cut from a newspaper, in which lime was recommended as a preventive for abortions in cows.

H. M. ENGLE moved the regular order of business be dispensed with in order to allow John I. Carter, of the Experimental Farm, of Chester county, to give the address he was announced to deliver, "Manures and Soil Fertilizations." See page 38.

On motion of **EPHRAIM HOOVER**, a vote of thanks was tendered to the lecturer for his able address.

J. C. LINVILLE said the farmers now believe better results can be procured by applying barnyard manure in its raw condition; composting is not generally followed.

H. M. ENGLE, of Marietta, said composting was not so well understood as it should be. He believed much was lost in manures by leaching and evaporation. Earth makes a good compost; anything that helps to retain the gases and liquids, will add value to the manure pile; they tend to pulverize the manure also.

WILLIAM MCCOMSEY thought the essay was a very practical one; it went to the foundation of things; it treated of manures and plant food from a scientific standpoint, because agriculture is a science, and all farmers ought to be scientists. All farmers should make themselves familiar with the character and requirements of the soils they own. The barnyard cannot supply all the food our fields need. We must, therefore, resort to the so-called fertilizers. We must know what our acres need before we can give them what they ask. Land requires treatment just as our bodies do; we must find out the nature of the disease and then take steps to apply the remedy.

C. L. HUNSECKER thought the attention bestowed upon manures shows we are awake to the importance of the subject. The lecture showed us how to make use of the various things presented to our acceptance for this purpose. After cropping a field for seventeen years and until it would grow nothing, he sowed clover, plowed it down, and the clover acting as a fertilizer, put the land in heart again and good crops were again raised on it. The lecture proved that if we knew more of chemistry we would grow larger crops; the farmers must understand the materials they use.

CASPER HILLER was pleased with the lecture. He was glad to have this talk about artificial fertilizers go out among the farmers. There is a prejudice against them, but this is wrong. There was great fraud formerly in them, but of late years this has been changed, and now manufacturers stake their reputations that their articles are as guaranteed.

MR. FRANKLIN SUTTON remarked that while it does not require much science to pulverize the soil, still we overlook this point; stirring the soil while the crops are growing is also very essential and we cannot afford to ignore it.

H. M. ENGLE alluded to an experiment referred to by the lecturer, that a crop that received no manure but more careful cultivation produced much better results than another which was heavily manured but received no after cultivation; thorough cultivation is almost equivalent to a coating of manure. This alone is a valuable fact. It shows us we can do without so many fertilizers.

MR. ESHLEMAN was glad to have heard the lecture. It will do much good, and he hoped it would be printed. The suggestion that manure should be kept together and composted, is a very important one, because some persons believe in hauling out the manure green.

MILTON B. ESHLEMAN was glad to meet so many of his old friends. He was never much of an experimenter, but he was sure the more the farmers experimented the more they would know. The crops along the line of the railroad look well.

MR. CARTER thought he was a little misunderstood. He did not recommend composting the barnyard manure pile; he alluded more particularly to composting with commercial fertilizers. He thought it did not pay to turn over and work the manure pile so often. It was well to cover it over, but he did favor mixing it with other fertilizers. In reply to Mr. Engle, he said top-dressing is better in some cases, such as grass, but on wheat ground he would plow it down. Corn fertilizers do better when plowed down. He ploughs shallow; four or five inches for corn. Lime does not seem to give good results on the Experimental Farm. They keep their manure pile under cover, and have a cistern, from which the liquid manure is pumped over the manure heap. In this way it is saved instead of being lost.

C. L. HUNSECKER observed that farmers who plough, harrow and cultivate the ground thoroughly, generally get good crops; those who cultivate imperfectly get poor crops, in spite of all their manures and fertilizers. So much is lost by improperly fertilizing that hardly one-half the proper result is attained.

EPHRAIM HOOVER thought that until we properly understand our soils, we will very often be unsuccessful. We apply manures at random. How much and what kinds of manures to apply is what we must learn. Until we know better, our common sense must be our guide. Some soils in this county must have lime, while others, as stated by the lec-

turer, do not get along well with it; therefore, our common sense and observations must guide us. Thorough cultivation and proper fertilizers are what we must rely on.

M. B. ESHLEMAN thought it was impossible for all farmers to be chemists; to become an expert chemist would cost as much as a farm. The State ought to provide chemists, and if not the State, then the several counties.

S. P. ENY thought the longer the farmers keep out of the hands of the Legislature the better it will be for them. This society, he thought, was not on the right track. Such lectures will do good; experiments are what is needed; if the Legislature were adjourned for ten years, the better it would be for us.

JOS. F. WITMER said, in Europe the system of having experimental stations was practiced. Our experimental farms are modeled on them. If we watch their experiments closely we get what we want; that will do us more good than a host of chemists.

M. B. ESHLEMAN explained that he thought chemists would be of more use to tell what there was in a fertilizer than to take a handful of dirt and analyze it.

MR. BROSIUS wanted the Legislature to do as much for the farmers as they do for other classes of society. We need protection against bogus fertilizers, but not being practical chemists how are we to tell?

Quite a lively discussion here took place as to the use or uselessness of the Legislature in giving aid to farmers, and providing fat offices for people at the farmers' expense.

H. M. ENGLE said there was a bill now before the Legislature given protection to farmers, against fraudulent fertilizers.

LEVI S. REIST said our best farmers know least of chemistry.

JOHNSON MILLER thought the debate was drifting from the subject, and moved it be closed, which was carried.

Report of Fruit Committee.

MR. KENDIG, chairman of the Fruit Committee, appointed to ascertain the best varieties of fruit for home cultivation, presented his report. (See page 36.)

JOS. F. WITMER was opposed to endorsing Crawford's early peach; it is a poor bearer and hardly worth cultivation.

H. M. ENGLE said his experience with the above peach was very favorable; it was a great bearer with him; it is our earliest yellow peach, although not our best. Still he would not recommend planting many trees. Other kinds might have been recommended, but the committee did not wish to give the names of so many.

The President suggested that the "Benoni" and "Hawley" apples be added to the list, as being among our very best apples.

CASPER HILLER endorsed the "Benoni" but the "Hawley" was very poor one, in his opinion.

H. M. ENGLE thought there were many good local varieties that don't find entrance into nurseries. It was well to depend on such apples as do well in your neighborhood. The "Lancaster County Greening" was described as a trifling, knotty little affair, not worth planting.

LEVI W. GROFF, thirty years ago bought an orchard, and he tried to improve it. He yearly added new varieties, and found they did little good. He now relies on the old-fashioned kinds—the "Romance" and "Seek No Further."

CASPER HILLER moved that John I. Carter be elected an honorary member of this society. Adopted.

The report of the Fruit Committee was, on motion, accepted, and the committee discharged.

CASPER HILLER moved that as the report of the committee that went to Williamsport to attend the meeting of the State Society has already been published in *The New Era*, the reading be now dispensed with.

Deferred Business.

The question of soiling cattle was called up, and the president read an article on the subject from the *Village Record*, which was pertinent and satisfactory. The advantages of soiling were clearly pointed out in the essay, a number of reasons being given for the same.

W. McCOMSEY believed soiling cattle was one of those progressive measures that will eventually be adopted very generally throughout this county. More stock can be kept, more land can be put under cultivation, while all the interior fences can be dispensed with.

M. B. ESHLEMAN thought it was act of cruelty to let the cattle run at large in the hot sun in summer time, and be molested by flies.

LEVI S. REIST moved that the article in the *Record* be endorsed as the sense of the society.

MR. BOLLINGER objected to the motion. He once lived in Franklin county, where they had a great man, named Alexander McClure. Believing in him, the people sent him to the Legislature, where he did some railroading, making about \$100,000 by the job. He had a farm of about 200 acres, and on this he began soiling his cattle and tearing out his interior fences. The result was he broke up. Shortly after another man in his neighborhood did the same thing and his fate was the same as McClure's; in conse-

quence the people have lost all confidence in soiling cattle.

The motion was then withdrawn, and the discussion on soiling will be continued at the next meeting.

Election of Members.

On motion, Christian R. Landis was elected a member of the society.

Bills Read.

Several bills, for coal, janitor's services, and other necessary expenses were read and ordered to be paid.

On motion, it was decided that inasmuch as the first Monday of next month comes on April 1st, the regular meeting of the society be put off until the second Monday in the month. Agreed to.

Business for Next Meeting.

"How shall we manage to raise 100 or more bushels of corn to the acre?" Referred to Jacob Bollinger.

"Have we evidence that commercial fertilizers pay in this county?" Referred to Casper Hiller.

For General Discussion.

"Shall we continue to grow apples, and to what extent?"

There being no other business the society adjourned until the second Monday in April.

TOBACCO GROWERS' ASSOCIATION.

The regular monthly meeting of the Lancaster County Tobacco Growers' Association was held on Monday afternoon, February 18, in the Athenaeum Rooms.

The meeting was called to order by the President, M. D. Kendig.

The minutes of last meeting were read by the Secretary, Webster L. Hershey, and, on motion, adopted.

The following members and visitors were present: M. D. Kendig (President,) Manor; Webster L. Hershey (Secretary,) Sylvester Kennedy, Salisbury; Henry Kurtz, Mount Joy; Henry Shiffner, Upper Leacock; Ephraim Hoover, Manheim; Mr. Hoffman, Donegal; Washington L. Hershey, Calvin Cooper, C. L. Hunsecker, Peter S. Reist, John Brady, Winfield S. Kennedy, W. D. Hoar, J. G. Rush, J. P. Mellvaine, Andrew Lane, H. Engle, Rapho; J. G. Horner, Donegal; John Shenk, Salisbury; Jonas Meek, John Meek, J. W. Leidigh, Paradise; John Hersch, West Hempfield; John Huber, Pequa; Daniel D. Hersch, Manor; Daniel Reninger, Conestoga; J. Hartman Hershey, Hempfield; F. Pennell, Mount Joy; J. M. Frantz, Manor; I. L. Landis, Clare Carpenter, F. R. Diffenderfer, city.

Reports of Special Committees.

The committee on getting samples for the Paris Exposition reported, through Henry Shiffner, that they had called a meeting and there being no attendance at the same, they gave up the project. The question can be taken up to-day if it is deemed proper to do so.

SYLVESTER KENNEDY thought it was now too late to do anything; samples should have been in Washington by this time.

The visiting committee reported through Henry Kurtz and Mr. Kennedy. The latter said the matter was delayed too long. The committee has not got around as far as they hoped. He thought the committee had not done its duty so far, and no fitting report can in consequence be made; the report should be made by the chairman of the committee.

MR. SHIFFNER also had a report to make, and was ready to do so to-day, but also thought the matter should be delayed until all the members were ready. A motion to this effect was made and carried.

Reports on Crops.

HENRY KURTZ reported the tobacco was nearly all ready to sell. There have not been many sales—some were good and others not so good. He reported some sold at 3-15, 5-15, 5-20 and 20 all around. A good many buyers were about, but could not come to terms with the farmers.

SYLVESTER KENNEDY reported some sales from Salisbury; the offers are lower than farmers were willing to accept, so very little has been sold.

HENRY SHIFFNER, of Upper Leacock, reported a good deal sold there at 15 and 18 cents. The tobacco is good in that township, as it generally is.

MR. HOFFMAN reported sales at 2-15 to 5-20.

M. D. KENDIG, of Manor, reported the tobacco as good; but there is no market as yet. Farmers want to sell but feel assured the times are not favorable to high prices.

WEBSTER L. HERSHHEY, of West Hempfield, reported sales at from 12 to 20 cents. The condition of the crop is good and a considerable amount has been sold.

Reading of Essays.

Sylvester Kennedy, according to appointment, read the following essay on manures:

At the last meeting of this association the subject of manures being up, I advanced some views at variance with those of many of the members present, and was asked to give my views on the subject at some future meeting, which I now propose to do.

The question marked out by the society, "Can manure be made equally as good without the farmers feeding their grain to their cattle as by feeding it?" was not the question as I argued it, but does it pay the farmers to feed their grain to their cattle. By pay I mean the benefit to their manure pile, or in any other way any profit may seem to accrue. These two questions run so nearly parallel that by answering the one you may answer the other, only that the last gives a little more light and latitude to the subject.

In ventilating this subject I know I shall encounter the prejudices of those who have been led to believe that a farm can only be kept in a fertile condition by a farmer feeding all his corn and oats to his cattle, and in this way transferring it to his manure pile. And this idea has been so thoroughly ground in by parental precept and example that I may use the old proverb, that "the fathers have eaten the sour grapes and the children's teeth are set on edge." And there are now old fogies in Manor and other townships so set in their opinions that what their fathers did was right that they pursue the same old trodden path to the mill with a stone in one end of the sack and grain in the other. Now I want them to discard these old foggy ideas and adopt those of Young America, of thinking for themselves. Circumstances are continually changing, and what may seem advantageous to-day may not be so to-morrow.

The time was when the subject of manures, ground bone, phosphates, &c., was not spoken of, and for two reasons: 1st, a farmer did not think he had done well unless he got double his first cost when he sold his cattle, and, therefore, corn-fed manure came in as a consequence and secondary matter; and 2d, because he could send his grain to market condensed in form of beef, cheaper than he could hale it to market. This was before the era of railroads. Then Lancaster and Chester counties could put a corner on the market for several months in the year; then a few hundred supplied the market; now it takes as many thousands, and Lancaster and Chester counties don't supply one-tenth of what they did then. Chester county, which used to be the banner county for grazing fat cattle, has now gone almost entirely into dairying, and Lancaster does little in comparison to her former greatness in that line. And why is all this? Simply because it don't pay. If it was not for our large exports to foreign countries of both live stock and beef in refrigerator vessels, beef would not bring four cents per pound in our market to-day.

The great West is only just beginning to be developed, and she can now send her produce, corn, etc., cheaper to market, condensed in beef and pork, than by any other methods. Texas is now sending her beef, net weight, in refrigerator cars and underselling both us and the West in price, and this is only the beginning of the end. And now I predict that in five, or at most ten years, it will not be argued that it pays to feed grain to cattle.

Now let us see what it costs the farmer to make beef, and we will have a better idea of the cost of grain for the manure pile. From observation and from the best information I can get from our best feeders, I find that about 200 pounds is the average weight put on cattle; some make 300, and by grazing in the fall, and feeding late in the spring, 400 pounds may be put on. A fair average is 200, and that takes 40 bushels of grain or 20 bushels per 100 pounds. Now, the 40 bushels, at 50 cents per bushel, will cost \$20; this is a low estimate of the price of grain, and it will cost five cents per bushel to pay the grinding, making 55 cents per bushel, or \$22 for 200 weight, or 11 cents per pound of weight put on, and about five pounds for every bushel of grain fed; this is the debtor side.

Now, let us look at the credit side for our profits. The average price of feeding cattle I suppose to be about 5½ cents per pound. Some have paid, I am told, 6 and 6½, and even 7 cents for fine cattle. But I wish to make a low estimate of cost of cattle and feed, so that no complaint shall be made that I have not made a fair expose. Now, the quotation of the Philadelphia beef market is from 3¾ to 6½ cents per pound, the latter for choice, and that is one cent per pound more for choice than any Lancaster beef cattle will bring, as you may notice that this quotation is entirely for Western cattle. Western cattle bring more for two reasons; first, because we don't get the best cattle here to feed, and second, by being several days on the road in ears they make more net weight per 100 pounds of beef than cattle only one day in the ears. The best Lancaster county cattle therefore bring but 5½ cents per pound, and it takes at least on-half cent per pound, taking loss of weight and other expenses, to get our cattle to market, thus netting us five cents per pound, making us lose five cents per pound on first cost in the original weight.

Now I have shown that every pound of beef we put on costs us \$11 per 100 pounds, and 200 pounds costing \$22, and by netting us at home \$10 for 200 pounds, we lose \$12 per steer, and add to that a loss of half a cent per pound on first cost of weight of steer, 1,000 pounds being \$5, viz: 12 plus 5 makes \$17 loss on each steer in feeding, not counting any loss of substance of hay, fodder and corn fed to the cattle.

Now let us sum up results in profit and loss:

DR.	
20 cattle, wt. 1,000 lbs. each = 20,000 lbs., at 5½ c. per lb. \$1,100 00	
20 cattle, 800 bush. feed, at 55c. per bush.....	440 00
	<hr/> \$1,540 00
CR.	
20 cattle, wt. 1,200 lbs. each = 24,000 lbs., at 5c. per lb. \$1,200 00	
By credit to the manure pile.....	340 00
	<hr/> \$1,540 00

Here we have the very respectable sum of \$340, which is supposed in some way to have been added to the manure pile. If invested in lime, that money would buy 3,400 bushels, which would manure fifty acres; or, if used in the purchase of plaster, it would buy thirty-four tons, or three and a-half car loads, which, if applied to the farm, would, in my estimation, be of far more benefit to the soil than that which might be derived from the supposed increased value of the manure.

Now, we come to the point: How much substance do the cattle take out of the hay, cornfodder, &c.? They consume, you say, perhaps nothing but what passes to beef and the offal that passes into the manure pile. I say more than that. As well might you say the fuel you put into a stove all passes off in smoke and ashes. Condense the smoke and weigh the ashes and you have a very small portion of the original weight of fuel left. The rest passes off in heat to make uncomfortable the outer man. Just so in feeding cattle; it takes a large portion of the feed you give them to generate the heat and keep life and action in the animal. Every motion he makes is just so much of the supply used up—extracted from the feed he consumes, and not to be counted in the manure pile.

An important question arises: Can you convert your hay, fodder, straw, &c., into manure, and as good, without feeding grain? I say you can. Put on layer after layer of this vegetable mass, and to each layer add plaster as you think it requires, and the rain will soon decompose it for you; and as you have a credit of \$340 from not feeding grain, for which you can purchase 34 tons of plaster (3½ car-loads) at \$10 per ton, or 30 tons of plaster and 400 bushels of lime to go to your manure pile.

And here I wish you to especially notice that for every pound of grain fed you have the value of and can put on 1½ pounds plaster. Now is not this better and of more value than feeding grain? I do not say you shall use the whole of 34 tons of plaster, but use as much as you think necessary, and have the rest in value to put on your farm in any other way, or for pocket money.

In this calculation you will see I have made no account of possible loss by cattle dying, of what might be made from keeping horses from the city, or dry cows bought in the fall to come fresh in the spring, all of which might be brought into the profit account.

It was contended at a former meeting that where cattle are fed the farms are more productive and show better results. With this I do not agree, as I know farms the past year in my neighborhood which raised 90 bushels corn per acre, and as good wheat as any of the cattle feeders, and this where no cattle had been fed for several years; and beside those spoken of as not so productive, they did not likely apply any of the credits shown before in favor of not feeding.

It was said at our last meeting that facts are stubborn things, I say better than this, that figures won't lie; and I want our friends of Manor, who seem to be wise above what is written, to make a better showing.

My friend Kurtz, of Mount Joy, is, I suppose, among the largest cattle feeders in the county. Does he raise more or better tobacco or other crops on his farm and get better prices than those who do not feed cattle?

Now let us see why the West can feed cattle and send them to market cheaper than we can. To make figures easy to calculate we will say a steer weighing 1,000 lbs. will take 40 bushels of corn, or 2,240 lbs. to put on 200 lbs. of beef, and in place of sending 2,240 lbs. of grain she sends 200 lbs. of beef, saving over a ton weight of freight in every beef they send to market.

It looks very much as if raising grain and feeding cattle, particularly the latter, is about played out, and the sooner we can get to productions in which the West cannot compete, the sooner may we look for more profitable investments. It may be done in milk, market truck, and, perhaps, in some other ways; or, if Western soil is not adapted for raising first quality tobacco, we may make it pay, and we have a better chance to compete with the West in tobacco than any other crop, even if she can raise as good quality tobacco as we can, from the fact that labor is much more costly and scarce in the West than here, and it requires more labor in proportion to the amount of land put in than any other crop.

It may be contended that this essay is more calculated for agriculture in general than tobacco; but I contend that anything that will throw any light or have a bearing on the productiveness of the soil is as necessary to the cultivation of tobacco as any

other crop—in short, what is sauce for the goose is sauce for the gander.

HENRY KURTZ thought the essay was a pretty good one, but the essayist had made some wrong estimates. His manure pile made in the above way would be next to worthless. On such land not more than a ton of hay can be raised per acre. (Here Mr. Kennedy inquired of Mr. Kurtz how much he raised per acre from his grain fed manure pile, when it was discovered that Mr. Kennedy raised a good deal more than Mr. Kurtz). He said we pay too much for our cattle; we should combine together not to do it. He knew of an instance where a Western dealer got 5½ and 7 cents for stock cattle, but even then he believes money can be made out of them by feeding them grain. Such corn fed manure lasts years, and its effects are plainly visible for a long time. He kept an account of an 8 acre field which he planted one year in wheat and one in tobacco, and he got \$4,700 worth of produce off it. That paid, but he put on 100 bushels of lime per acre and as much manure as he conveniently could.

WINFIELD S. KENNEDY has fed from 30 to 46 head of cattle each season; he always goes to Pittsburgh and still further West to get his cattle; in this way he buys them right; he begins with feeding four quarts of corn per day, gradually increasing to six quarts. Twelve or fourteen bushels of corn are all he feeds to a steer; he makes about \$45 or \$50 per steer, and it pays him: he does not take into account the grass they eat—only the grain. He makes a large amount of good manure.

SYLVESTER KENNEDY said the pasturing question had nothing to do with the subject. If Mr. Kurtz can't raise more than fifty bushels of corn to the acre, he ought to quit feeding corn to cattle. If it is the wrong plan to pay too much for cattle, why does Mr. Kurtz do so?

HENRY SHIFFNER related the fact that on two farms in his neighborhood no cattle are fed; they are surrounded by cattle feeders, but yet they raise one-third more corn and wheat to the acre than their neighbors. He had carefully observed these farms for the past seventeen years, and such was the result of his observations. Last year he saw many lots of tobacco, and also this year, and he has found that where cattle are grain-fed on the farm, the tobacco is invariably the best, both in quality and quantity. No lime was put on the above farms, but only the manure made in the ordinary way.

SYLVESTER KENNEDY did not believe in over-liming; he would put on a smaller quantity and put it on more frequently; he has found this method produces the best results.

JOHN BRADY has a field which he limed fourteen times in fifteen years, putting on nothing else, and has had good crops every time; there has never been a growth of sorrel as is contended when no lime is put on land.

C. L. HUNSECKER said when a farm was worn out, how is it to be made productive again? Lime or plaster will make hay and corn, and these in turn when fed to cattle, will make manure, with which the farm's fertility can be kept up indefinitely. It is absolutely essential that you have barnyard manure as well as lime or plaster. It pays farmers within miles of this city to come to town and buy manure for their farms. He has seen farms where nothing but rich manure is put on the land; there was little grain but much straw. Lime was needed to give strength to the wheat straw.

SYLVESTER KENNEDY admitted lime would bring up a farm, but that had nothing to do with the manure pile. He contended manure of the common sort in conjunction with lime, would be better than all grain fed manure, and no lime.

Referred Questions.

"How many pounds of moisture will tobacco take in per hundred pounds, taking dry tobacco as a standard?"

HENRY KURTZ did not know, but he has been told that a ton of dry tobacco will absorb at least 300 pounds of moisture. He steamed some once himself and the gain was about forty pounds to the ease. A packer who was present thought it would gain nearly one-third in weight.

"What per cent. will tobacco lose in the process of sweating after being cased?"

HENRY SHIFFNER thought tobacco will lose forty pounds per hundred after being packed in a damp condition. He saw some that lost twenty per cent. of its weight.

WASHINGTON L. HERSHAY had some ninety cases reweighed and it lost ten and one-half per cent.

M. D. KENDIG had a lot that lost twelve and one-half per cent.

HENRY KURTZ thought from twelve to fifteen per cent. is the usual loss; if not sweated properly the loss may be greater.

"What distance apart should the plants be set to produce the best results?"

HENRY KURTZ thought from 20 to 24 inches the best distance. Some plant from 10 to 20 inches. The rows should be four feet alternating with three feet rows. At these distances he has been very successful.

JOHN BRADY reported a field that was planted in four feet rows with plants 30 inches apart in the

rows, which produced a tremendous crop. At that distance the sun can have full play on the plants.

HENRY SNIFFNER said experience taught him that 26 inches was the best distance in the row, with rows $3\frac{1}{2}$ feet apart. The plants need plenty of sun and cannot have it at closer distances.

At this point the debate on the expediency of sending samples of Lancaster county tobacco to the French Exposition was resumed.

The French Exposition.

I. L. LANDIS said it was still time to send samples of tobacco to the French Exposition. He alluded to the fact, previously stated, that a meeting with this end in view was called and none but reporters were present. Since the last meeting he had received labels, instructions and other things from the Agricultural Department at Washington, but he was unwilling to meet all the expenses that were to be incurred, personally.

A good deal of discussion was carried on between the members on this subject. The main question was—"Can the money be raised to cover the necessary expenses?" Various plans were proposed to carry out the project. But as there was no one ready to say how much the cost would be, it was found difficult to know how to go about the matter. J. M. Frantz discouraged the project. He said as tobacco is a government monopoly in France, and as that government has agents in Baltimore and Richmond all the time, who are fully posted as to the qualities of Lancaster county tobacco, and all the other tobaccos raised in the country, we would have no pecuniary interest in sending goods over there for exhibition. He did not think there was any special pecuniary benefit to be derived from it, and thought it might as well be given up. It was finally moved that the members present be requested to try and raise money and gather samples and meet on next Monday, the 25th inst., at 2 o'clock, p. m., to report progress. The question was finally disposed of in this way.

It was moved that a committee of three be appointed to prepare business for the next meeting. The President appointed Sylvester Kennedy, J. M. Frantz and Washington L. Hershey the committee.

Referred Questions.

"What variety of tobacco should be cultivated?" Referred to I. L. Landis.

"What is the best method of growing tobacco plants?" Referred to John Brady.

For General Discussion.

"Is early plowing advisable for the culture of tobacco?" There being no further business, on motion, the society adjourned.

LINNAEAN SOCIETY.

A stated meeting was held on Saturday, February 23d, Vice President Rev. J. H. Dubbs in the chair. Five members were present. The donations to the museum consisted of a bottle containing numerous specimens of the "California potato cricket" (*Stenopalma taipa*), sent to Mr. Rathvon via U. S. mail, by Mr. A. L. Fuller, of East Oakland, Alameda county, California. These are about the size of our mole crickets, and found very injurious to the potato crops; being, however, also carnivorous and very pugnacious, they fight and feed upon each other. Thus their temper is a check upon their excessive increase. One bottle with a twig of a peach tree, covered with scale insects, first noticed on a single tree in Redding, by Mr. William Young, of that city, five years ago; they have spread extensively since and two of his trees have perished—hence they must be attended to. They seem to differ from those on the pear trees, but are evidently a species of *Lecanium* and for the present may be called *Lecanium persicum*, the name given them by Mr. Rathvon. Master Harry A. Dubbs donated a specimen of cannel coal from Cornwall, England. Mrs. Zell brought a large portion of the stem of a "castor oil plant," (*Ricinus communis*) three inches in diameter, hard and dry; the outer portion woody, of a fine grain and satin-like gloss, very light, rather brittle, yet strong; interiorly hollow, with cross nodes every four inches. It might be used in fancy cabinet work. Mr. W. P. Bolton had an exotic flower which he wished a name for. It belonged to the natural order of the ACANTHACEÆ, much in character like our native *Dianthera* growing along the water's edge on the Conestoga. The numerous species of *Justicia* have been divided; this may be the *Decleptera*. Mr. J. H. Ryan found a double row of imbricated, ovate, grey colored bodies on a twig, which was new to him. They proved to be the eggs of a species of green hopper near the size of our katydid, but of a different genus, the *Phylloptera oblongifolia*.

Additions to the Library.

THE LANCASTER FARMER for February; Mrs. Gibbons sent two Journals, containing articles written by her; also a *Reformer*, book catalogues and numerous circulars of publications. Mr. Rathvon deposited 5 envelopes containing 48 scraps of historical interest. As chairman of the committee he reported that the Young Men's Christian Association had abandoned the idea of fitting up a room, as had

been mentioned, and per request the committee was discharged. Before reading the papers, Mr. Rathvon offered a resolution:

Resolved, That Microscopy be recognized as a branch of Natural Science to be cultivated and developed by the members of this society, in connection with other branches of science, and report their observations at each meeting under the rules of *Scientific Miscellany*, either verbally or in writing, so far as their time and pleasure will allow.

Papers Read.

Mr. Rathvon read a paper, No. 491, on the "California potato cricket," giving an interesting history of its relations and habits. He also read a paper, "Entomological Record," No. 492, giving the history and habits of the scale insect found on the peach trees, and those of similar habits on other fruit trees. J. Stauffer read a paper, with illustrations, of Infusoria, No. 493. Having put some moss in a bottle, to which hydrant water was added, he was occasionally exhibiting the crowds of animacule to persons coming to his office—about five marked species were bred in this lot. The most remarkable one was of larger size than the rest, although by no means visible to the naked eye or common magnifying pocket lens. This assumed very numerous forms in quick succession—protean-like—but the surprise was to find one of those infested with parasites and actually feeding upon it. Mr. George O. Sanderson, who for some time has been putting heat regulators on furnaces, in this city, called attention to this fact; while looking at one of these he saw smaller creatures crawling over the larger one. On inspection such proved to be the case—like buzzards upon a carrion. This truly verifies the old adage. Remember this is all in a single drop of water; hence it is true that

Great fleas and small fleas
Have little fleas to bite 'em;
Little fleas have lesser fleas,
So on ad infinitum.

No further business offering, adjourned to meet Saturday, March 30, 1878.

TOBACCO CULTURE.

Raising Tobacco Plants.

As the time is approaching when tobacco growers will have to prepare their seed beds and provide plants for the coming crop, we give below the method recommended by Dr. B. R. Senneney, in his book on the cultivation and preparation of tobacco for market. As most of the plants grown in this county are raised in open beds instead of hot beds, we give the former method as best adapted to the requirements of the large majority of our tobacco farmers. The general belief is, and it is doubtless correct, that hot bed grown tobacco plants are not so hardy, nor so likely to withstand the vicissitudes of the season.

Open Air Plants.

This is the best mode of raising plants in all districts where the climate will allow of working the ground and sowing the seed early in the month of April, or the latter part of March. It is less expensive, less trouble, and the plants are harder and less apt to wilt and die, when transplanted from their beds to permanent quarters. It has, however, the disadvantage which I before mentioned, first, of danger of being frost killed, and also inability, very often, of maturing them soon enough, so as to allow of setting out in time to secure, after cutting, a good second crop from the same stalks.

This is no small matter, for if an early start be secured and the crop cut about the first to the tenth of August, and the fall be a long and open one, you may secure an after yield, paying from fifty to seventy-five dollars per acre—or even more. I am thus plain in these details, because in cultivating this plant it is well to observe every point which will add to success. I calculate my second crop will at least pay for manuring and plowing the land.

In preparing my seed bed I am always careful to select a warm and sheltered locality, looking to the south or east. Select, if you can, a piece of new ground, protected at the north and west by a copse, piece of woodland or a large building or close board fence.

Then rake all the dead leaves, old brush, corn stalks and old limbs of trees into small heaps about twenty feet from each other and then set afire. When they are thoroughly consumed, have the ashes raked evenly over the surface which is intended for your seed bed. Then have the ground well spaded to the depth at least of twelve inches. While it is being spaded, work into the furrows a plentiful supply of well rotted horse manure. After spading the ground, have every clod broken, all stone and stubble removed and rake it clean and smooth. Then top dress the surface with a compost made up of horse droppings two parts, leached ashes two parts, and one part Peruvian guano or chicken manure. This must be well raked and thoroughly incorporated in the surface soil. When this is done the ground is in readiness for the seed. The ground must not be too wet, neither too dry, when the seed is sown, but

select a day when there is an appearance of approaching rain, or one or two days after a light rain. Do not sow the seed on a windy day, as the light grain will be blown and fall unevenly over the surface of the bed, but choose a mild and calm morning. For over twenty-five square yards of surface, take one tablespoonful of seed and mix thoroughly in about one peck of ground plaster or finely sifted ashes. Then sow it broadcast over the bed, endeavoring to secure as even an application to the whole surface as possible. Secure from the slaughter yard about one bushel of hog hair and spread it evenly over the bed. This answers several purposes. It secures warmth and protection to the delicate young plants, and, chemical ingredients which tend to promote their rapid growth. When this is done, get a few bundles of small branches of pine or cedar and place them over the surface of the bed. These also furnish heat and protection, and may be removed when the plants have grown to the size of a silver dollar.

During the growth of the plants great attention must be given to the weeds, taking them out as soon as large enough to be distinguished from the young plants, and this must be done by hand. In a case of a drought, sprinkle the plants in the evening from a watering pot, giving them a thorough soaking. This will be all that will be found necessary to mature the plants for use when wanted to set out in the patch.

Views of a Connecticut Tobacco Grower.

An intelligent Connecticut river valley grower favored us in an interview within a day or two with the following personal view of the situation and prospect in the valley:

"The business of tobacco is now a very poor one with us. Prices have got so very low that none of the growers can raise tobacco at a profit, and furthermore, their present condition is generally bad, owing to the system of gambling which they have indulged in for the past several years, and which has nearly ruined them financially. By gambling I mean that farmers have been in the habit of raising, we will say, a crop of tobacco one year, and not getting cost price for it, have turned right around the next year and got into debt to raise another crop, thinking to recover the losses of the previous year. When they raised good crops they were so stimulated that they would at once seek to enlarge their business by buying land, erecting sheds, and experimenting in commercial fertilizers, etc., purely on speculation. There are two classes of growers who are going to abandon the growing of tobacco in the Connecticut valley, and probably elsewhere as well; one is the capitalists who in past years have been raising from fifteen to fifty acres. The prices have so depreciated in consequence of the large supply that has been grown and held by them in the hope that they would get what it cost to grow it, that they are completely discouraged, and at present they are throwing their tobacco into the market at almost whatever price they can get. This class say they have got through with the growing of tobacco. The other class comprises the small growers, who, with a few acres of land, have grown all the tobacco they could and have got into debt in doing so, and have had to sell their tobacco for the last three years at less than cost price. They have parted with their tobacco at a sacrifice in order to meet their liabilities, and now many of them are compelled to leave the business and place. Hereafter the tobacco to be grown will be mainly grown by the regular class of farmers, who will raise a few acres of tobacco each year—making and using chiefly their own manures—and cultivate sufficient other farm produce to maintain themselves, and set aside their tobacco for their money crop. All the tobacco that will be raised for the coming few years will be grown by that class, and will be put into the market and sold green. They will not try to make themselves dealers by boxing and casing their crops, as has been done in the past few years, greatly to the injury of both the growers and dealers. I don't think the tobacco market would have been in nearly as bad a condition as it is at the present time if the farmers had sold their tobacco directly to the dealers instead of boxing it. When the dealers bought the tobacco in the valley, prices could be set upon it and its positive value known. After it was sweated, when one dealer had his tobacco sampled he knew what each class of goods was worth in market; and if a manufacturer went to A to buy a bill of goods, and the dealer had in his warehouse the goods the manufacturer wanted, whatever price was set upon these goods, the manufacturer was aware that if he went to B's warehouse he would have to pay the same price for the same quality of gradea there that he would have to pay A. But, as the market is now, with this vast amount of sweated tobacco in the growers' hands, there can be no regular price established on any quality of goods, because the growers are not good enough judges of sweated leaf to know what the tobacco is worth when it is sweated; and the manufacturer, taking advantage of this, starts right out into the country and goes round among the growers and picks up his stock sometimes very cheap. He will go riding around until he comes to some one who is offering his tobacco for less than it

is worth in the market, or else he will find people that are hard pressed for money and have got to sell, and, of course, in that way he often gets his stocks cheaper than he could of a dealer. One reason why so much poor tobacco is left in the country is because it has been held by the growers and there has been no chance to export it. The trade has not had control of it. In years past, when the dealers handled the tobacco, any of it that was poor, after it was sweated, was shipped right out of the country, and that kept the market continually drained of the poor grades. But since the grower has tried to make himself a dealer, a great deal of the poor tobacco is persistently held in the growers' hands, and left here in the country as a drug in the market. If the growers in the valley had never been tempted to save a dollar by boxing their tobacco, it would have been a great deal better for them, as there would not now be much, if any, old tobacco left in their possession."—*Tobacco Leaf.*

PENNSYLVANIA is rapidly assuming a leading position in the cultivation and manufacture of tobacco. The supremacy for many years enjoyed by the tobacco-growers of the Connecticut Valley is being stoutly disputed. Pennsylvania leaf tobacco is daily becoming popular, and in all the counties of the State in which it is cultivated large establishments for the manufacture of cigars have been established and are doing a very successful business.—*Allentown Chronicle and Herald.*

Our valuable and usually correct exchange is slightly wrong in the statement we copy above. Instead of stoutly disputing the supremacy of the Connecticut Valley, Pennsylvania already leads that famous tobacco-growing district. The product of Connecticut in 1875 was 9,900,000, and of Massachusetts for the same year, 8,500,000, making a total production of 18,400,000. Lancaster county alone grew nearly, if not quite, that quantity of the weed in 1876, while the entire yield of the whole State for the same period was between 30,000,000 and 35,000,000 pounds. We therefore already lead the Connecticut valley in the weight and money value of her tobacco crop, and while we have not yet reached the enormous production of Virginia, Tennessee, Kentucky and Missouri, we are rapidly closing in on Virginia and Missouri in the matter of pounds, and already exceed them in the money value of our crop.—*New Era.*

How to Use Bones as a Fertilizer.

The easiest manner of preparing bones for use is to burn them with wood. The phosphate of lime is all in the ashes, but the nitrogen is lost as the animal matter is burned away. But an equivalent of ammonia could be purchased in the shape of dried blood, meat, or fish guano, for less money than it would cost to reduce the bones to a fine powder in their raw condition. One hundred pounds of dry bones contain forty-five pounds of gelatin, in which there are about five pounds of ammonia. This could be replaced by twenty pounds of sulphate of ammonia, at a cost of five and one-half cents per pound, or one dollar and ten cents. As the sulphate is at once available, while the ammonia of bones is only slowly produced, half or a fourth of the former would supply an equivalent of the bones.

LITERARY AND PERSONAL.

THE FERNS OF NORTH AMERICA.—Illustrated by superbly colored plates. Text by Prof. Daniel C. Eaton, of Yale College, illustrations by Mr. James H. Emerton; and published by S. E. Cassino, Naturalists' Agency, Salem, Mass. This splendid and much needed work is published in royal quarto parts, of not less than 20 pages each, and each part will be accompanied by three quarto plates, finely executed, and colored by chromo lithography. By subscription at \$1.00 per part. This beautiful work will be issued at intervals of two months between each part, and will be continued to about 20 numbers. Parts 1, 2 and 3 are now before us, and we question whether the work can be excelled by any other publication of the kind—anywhere on this planet—certainly not by any other in the United States. The publisher has availed himself of the best talent, the best material, the best artistic and mechanical execution, and has access to the best collections in the country, and cannot fail to produce a work as perfect in all its details, as the present state of science and mechanism can afford. There are no subjects of the vegetable realm that are more interesting, easier preserved in their natural condition, and more accessible in localities where they are found, than the ferns; and this work will comprise all the species known to North America.

THE SECRETARY'S THIRD ANNUAL REPORT of the American Berkshire Association, together with suggestions, instructions and rules governing applications for entry to the Record. George M. Caldwell, of Williamsville, Illinois, President, with 27 Vice Presidents, from as many different States. Philip Springer, Springfield, Illinois, Secretary and Treasurer. A handsome little diamond pamphlet of 12 pages. The attention of those interested in Berkshire stock is called to the following notice:

If not already furnished with entry blanks send for a supply, and on them make your applications, without further delay, for registry in the volume now in course of preparation.

Form 20 C is designed for the registry of the immediate descendants of recorded sires and dams.

Form 20 D is for animals not the immediate descendants of recorded sires and dams.

In your request for entry blanks state how many of each kind you are likely to need.

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, Chicago and Northwest Railway. The catalogue of Mr. Dunham for 1878, is an octavo pamphlet of 48 pp., of letter press, besides twenty full page illustrations of the choicest horse-stock in the country; together with a map of his locality and the railroads leading thereto, executed in the highest art of engraving. Any of our patrons who contemplate investing in this popular breed of farm and domestic horses, will do well to visit Mr. Dunham's Oakland Farm before they make their final purchases. Under any circumstances, they should send for one of his illustrated catalogues for 1878, if they desire to act intelligently on the subject; and be sure to give their name and address in full, including post office, county and State. We call the attention of our readers to the illustration and description of Apollo, a noble specimen of the useful horse, on page 35 of this number of THE FARMER, to be followed by others belonging to this famous stud, at suitable intervals, during the year, or as may be demanded.

THE POULTRY WORLD.—For the fancier, the family and the market poultreer: Devoted exclusively to the subject of poultry, in all its various branches. An illustrated demy quarto of 16 pages, published by H. H. Stoddard, Hartford, Conn., at \$1.25 a year, including postage. Clubs of two or more copies, sent to separate addresses, at \$1.00 per copy. The publisher proposes to continue, during 1878, the issue of full page chromos, illustrating the choicest varieties of fowls, and those who saw his chromos of last year may form an idea of what they may expect the present year. Twelve of these colored plates will be furnished for the additional sum of 75 cents, every one of which is worth that money. This publication has reached its seventh volume, and its subscription to twenty-five thousand is from which it may be inferred that it is one of the "livest" poultry journals in this country, or even in the entire world. We can conscientiously say to intelligent and progressive poultry breeders, "you cannot possibly afford to do without it," so send along your dimes at once and secure a copy.

WHEN BRAHMIN new pianos can be bought for \$125, and pianos containing Mathushek's New Patent Duplex Overstring Scale—which the highest musical authorities acknowledge to be the greatest improvement ever put into square piano—for only \$200, we ought to become a musical and music-loving people. This is what the Mendelssohn Piano Co., No. 56 Broadway, New York, are doing—selling pianos from their factory at these prices, and all styles—Grand, Square and Upright. The great reputation of these pianos—having been unanimously recommended for the highest honors at the great Centennial Exhibition—and the high character of the company for honorable and straightforward dealing, should insure for them liberal patronage. Their illustrated and descriptive catalogue, of forty odd pages, giving an account of their vulcanized lumber process, and highest testimonials of leading musicians, will be mailed free to all, and all inquiries by letter cheerfully answered.

"SEED ANNUAL," 1878, D. M. TERRY & CO., Detroit, Michigan. Where so much excellence exists it is difficult to discriminate, but we admonish our eastern seedsmen to take care of their laurels, else they may be carried off by their western brethren. This annual is a royal 12 mo. of 146 pages, exclusive of the beautifully embellished covers, and two full page colored illustrations. It is profusely illustrated with the finest cuts, from beginning to end, representing vegetable and flowering plants, designs for flower-beds, the most improved seed drills, garden implements, &c. It also contains valuable tables, embracing careful selections, weight of seeds, quantity sown on an acre, &c., &c. If this catalogue is a fair representation of the character of the firm and their business, it is a credit to the West. Office, stores, and warehouses, Nos. 199, 201, 203, and 205 Woodward Avenue, Detroit, Mich.

CARROTS, MANGOLD WURTZELS AND SUGAR BEETS.—How to raise them, how to keep them, and how to feed them. By James J. H. Gregory. Author of "onion raising," "cabbage raising," etc., etc. Marblehead, Mass., 1877. A handsome 12 mo. of 61 pages in paper covers, and fourteen fine illustrations. This neat little volume is printed on fine calendered paper and contains an index embracing 33 subjects, 20 of which are on carrots and 13 on mangold wurtzels; all written in that plain, practical and truthful style which so eminently distinguishes all his writings on field and garden vegetation. Price 30 cents by mail. Just the book for young and progressive farmers and gardeners, containing the "wheat" of

the subject, with the "chaff" blown away. Will the author send us a copy of his work on "Squashes, and how to raise them?"

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DESCRIPTIVE CATALOGUE OF PLANTS, alphabetically arranged in classes, Class 1. Plants of special interest. Class 2. Additional list of green-house plants. Class 3. Additional list of hot-house plants. Forty-eight pages octavo, with 25 illustrations of the most beautiful flowering plants, including the rarest floral novelties. This is the 31st edition of Ellwanger & Barry's No. 3 catalogue, especially designed for 1878, and includes the select bedding plants, chrysanthemums, dahlias, &c., cultivated and for sale at the Mount Hope nurseries, established in 1840, at Rochester, New York, by these enterprising nurserymen.

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THE NEW GUIDE TO ROSE CULTURE.—The Dingee and Conard Rose Company, Rose Growers, West Grove, Chester county, Pa. *Roses by mail a specialty.* This is a handsome octavo of 51 pages, with choice illustrations, and with a large amount of valuable reading matter on the cultivation of roses and other flowering plants, together with instructions of a practical character, for the destruction or prevention of such insects as usually infest the rose. Send for a copy of the *Guide*, make your selection, and then send for the plants.

DESCRIPTIVE SEED CATALOGUE, for 1877-8. William Rennies, Toronto, Canada, 80 pages octavo, on fine tinted calendered paper; with 103 illustrations of field and garden vegetations, embracing fruits, melons, vegetables, herbs, flowers, &c., with instructions in the management of hot-beds and cold-beds, with a copious alphabetically arranged index. Mr. Rennies seeds were awarded a Grand Prize Medal at the National Exhibition held in Fairmount Park in 1876. Send for a copy.

THE WESTERN AGRICULTURIST, Quincy, Illinois, comes to us this year enlarged and improved, upon entering its tenth volume. It is now the oldest monthly in the West, and that Dollar Seed Premium given to each subscriber, is one cause of its successful and widely extending circulation, which has led to this improvement these times, making so desirable a journal for every Western farmer. The price is still \$1.10.

NEW MUSIC—"SILVER GRAY."—We have received a beautiful song and chorus, entitled "*Silver Gray*," composed by S. Turney. It is said to be one of the prettiest songs now published. Any music dealer will mail it to your address on receipt of price, 30 cents.

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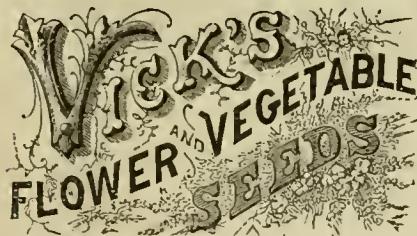
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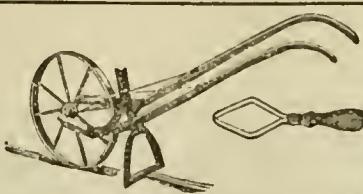
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ALICE HAWTHORNE.

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"Out of work, without a penny,
Pleading hel' before thy door,
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Look with pity on the poor."

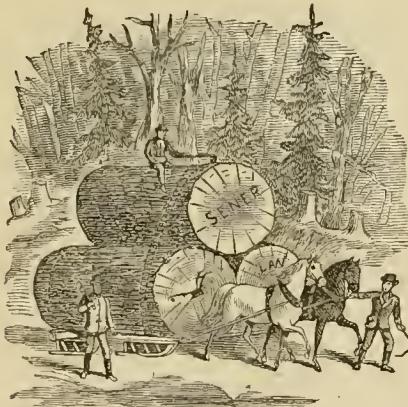
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9-9

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4-6m

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(all the standard varieties and many choice novelties), Summer and Autumn Bulbs, Plants, Small Fruits, Trees, Agricultural Implements, and Blooded Live Stock and Fancy Poultry. Send your address on a Postal Card and receive a copy by return mail. 10 packages Choice Flower Seeds for 25 cents.

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10-3-4m

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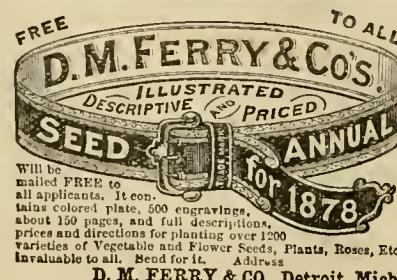
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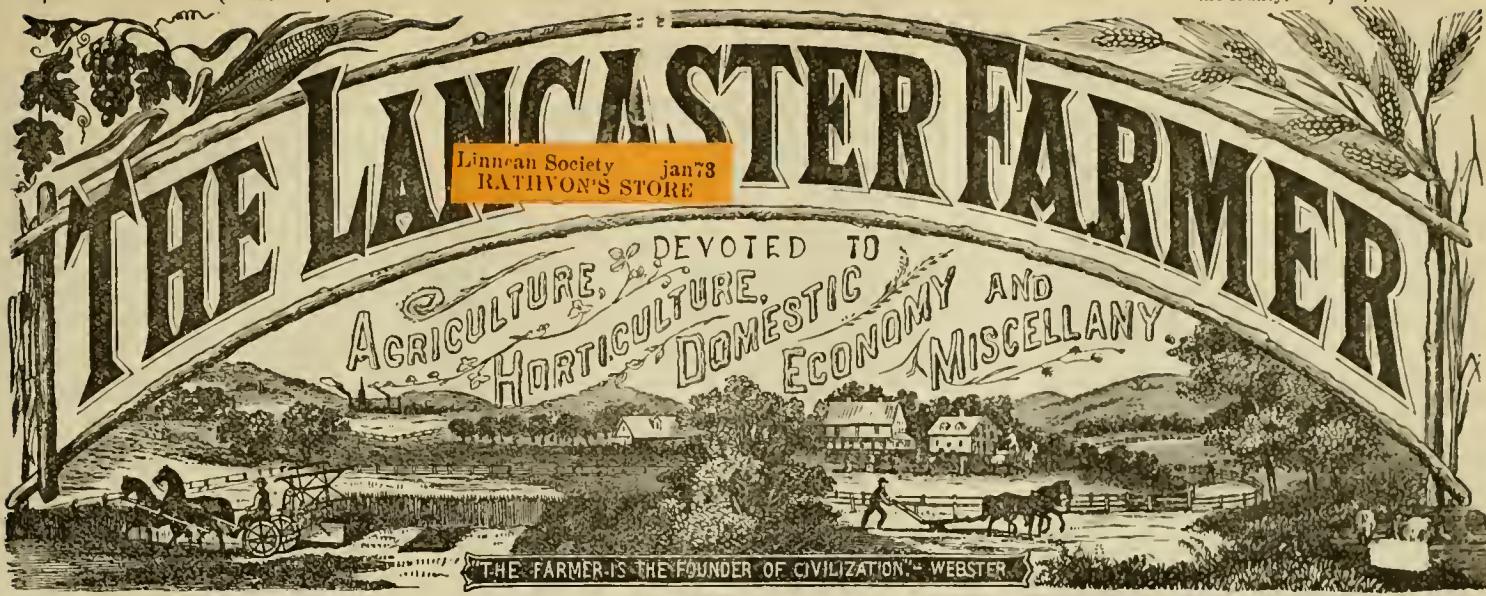
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10-2-1y

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the county.

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the county.



Prof. S. S. RATHVON, Editor.

LANCASTER APRIL 15 1878.

LINNEUS RATHVON, Publisher.

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10-2-2m]

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10-2-4m

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WE TWARD.	Leave	Arrive
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.....	11:20 a. m.	1:00 p. m.
Mail train via Mt. Joy.....	11:20 a. m.	1:25 p. m.
No. 2 via Columbia.....	11:20 a. m.	1:30 p. m.
Sunday Mail.....	2:10 p. m.	3:25 p. m.
Fast Line*.....	2:15 p. m.	Col. 2:45 p. m.
Frederick Accommodation.....	6:00 p. m.	8:10 p. m.
Harrisburg Accm.....	7:20 p. m.	Col. 8:00 p. m.
Columbia Accommodation.....	7:25 p. m.	8:40 p. m.
Harrisburg Express.....	9:25 p. m.	10:50 p. m.
Pittsburg Express.....	11:30 p. m.	12:45 a. m.

EASTWARD.	Leave	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*.....	5:15 p. m.	7:20 p. m.
Harrisburg Accm.....	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.

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9-10-6m

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Prof. S. S. RATHVON, Editor.

LANCASTER, PA., APRIL, 1878.

Vol. X. No. 4.

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The name of this month comes from the Latin *Aperilis*, which itself is a contraction of *Aperire*; and means to open, because it is the month in which the earth usually opens for new fruits and flowers, as well as vegetation in general. In old French it was called *Abreen*; modern French *Avril*; Portuguese and Spanish *Abrial*; Italian *Aprile*. According to our present time-calender it is the fourth month of the year, but anciently, on account of this opening quality, it was regarded as the first month. And, indeed, for all practical purposes, agriculturally considered, we may still regard it as the first month; for, no matter what the character of the preceding winter has been—whether mild or severe—not much can be expected in vegetable development until the advent of April.

Kitchen-Garden Calender for the Middle States.

"Now is the time to plaut and sow if we would hope to reap. Those of us who do not avail ourselves of the present need not expect to profit in the future. The exact time, however, in which certain seeds must be sown must depend not only on location, in respect to latitude, but also on the nature of our soil; if it be heavy a little delay will rather promote than retard our object. It is impracticable under the contingencies to which we are subjected to give undeviating directions—the common sense of each one must be brought into requisition. Artichokes plant; dress. Asparagus sow, if not attended to last month. This vegetable is now coming into season. Whenever practicable, a bed of sufficient size should be made to permit an ample supply without cutting every feeble shoot which peeps above the surface; indeed, where space and means admit, two beds should be maintained and eat alternate seasons. The new collossal appears to sustain its reputation. Beans, bush or bunch, sow. Beets, early and long, sow. Broccoli, Purple Cape is the best to sow. Cabbages, Drumhead and Flat Dutch, sow freely, that there may be enough for the fly and to plant; also, other varieties described in catalogues and books, which will afford an uninterrupted succession, so desirable in every country family. Carrots, Early Horn and Long Orange, sow. Cauliflower, late, sow. Celery sow, if not sown last month. Cress, sow. Cucumbers, Early Frame, sow in a warm spot. Horse-radish, plant, if not already done. Hot-beds, attend to. Leek, sow. Lettuce, sow in drills; also plant from beds of last autumn's sowing. Marjoram, sweet, sow. Mustard for salad, sow. Mushroom beds, make; attend to those already formed. Nasturtiums, sow. Onions, plant Buttons for table use, and sow thickly for sets. Parsley, sow. Parsneps, sugar, sow. Peas, early and late, for a succession, sow. Potatoes, plant plenty of the Early Rose and Snow-flake for the main supply during sum-

mer and autumn. Radish, Long Scarlet, and White and Red Turnip, sow, if not already sown; also, the Golden Glebe and White Summer for succession. Salsify, sow. Sage, sow or plant. Spinach, the Savoy, sow at short intervals. Thyme, sow or plant. Tomatoes, sow, to succeed those sown in hot-beds. Turnips, sow, if not sown last month—they may succeed. In short, this is the season for the main sowing and planting in the Middle States. Some tender vegetables must, of course, be deferred until next month, which we will then refer to. It is presumed the reader fully appreciates the importance of obtaining the seeds which he designs to sow from a reliable source, else all his labor may be cast away, and instead of reaping the reward which attends well-directed efforts, a barren harvest will prove his only recompense."—*Landreth's Rural Register*.

Health Suggestions.

"As the spring advances we should modify our diet to suit the altered condition of nature. Less cornmeal, hominy, milk and other highly carbonized articles should be eaten. In brief, what was said on former occasions on this subject, should be urged now; that is, if a greater proportion of fruits, and especially of tart fruits, were used at this season of the year, we should have less of lassitude and spring sickness. If a person eats properly and lives correctly in other respects, there is no reason why he should not feel as well in spring time as at any other season. But he must not think of indulging himself in other respects, and then ward off all evil results by eating fruit or some good thing. Moreover, those people who eat largely of meats, fats and greasy food will often conclude that fruits do not agree with them, though the fact is that the fruits and the fat do not harmonize with each other."

"If one is bilious or troubled with humors and a dyspeptic tendency, he should find relief and strength and satisfaction in a diet which includes wheat meal bread, crushed wheat mush with date sauce, cornmeal mush with fig sauce, oatmeal mush with grape sauce, rye bread with apple sauce, Graham crackers with canned fruits, &c., &c. Vegetable eggs are excellent if you insist on the name of animal food. Mix equal parts of Graham flour and cornmeal with the coldest water; knead thoroughly into a stiff dough; make into cakes of the size and shape of any fowl's egg you please, with a stewed fig inside, and bake in a hot oven."—*Wells' Annual Health Almanac*.

To one having a great appetite, a large stomach, powerful digestion, and much vital energy, we would suggest an ostrich egg—if not a "mare's egg"—as the proper "size and shape" of the egg to be formed. Under certain conditions and in the present physically demoralized state of the human family, the foregoing suggestions are no doubt, in the main, good; but there has been many an octogenarian and centenarian who never heard of them. No doubt we are all in the habit of eating too much meat and fat, and do not make the necessary seasonable discrimination in the use of food, but we find the bread used among our farmers generally far preferable to the stuffs called bread in the above paragraph, and as likely to prolong life and health as they are. Poor families, compelled to live on 75 or 80 cents per day, could hardly afford to purchase the fruits therein named. Fruit, and especially canned fruits, are about the most expensive articles any one could live on. It will be a good time for poor afflicted and diseased humanity, when the time comes when the poor can afford to freely use it as articles of daily food.—ED.

SOMETHING GOOD AND TRUE.

We call the special attention of the readers of THE FARMER to the card of Mr. C. H. Anderson, in the advertising columns of this number of our journal, not only as something new, but also something "good and true." The intrinsic merits of "Iron Stone" as a water and drain pipe, are sufficient of themselves to recommend this material to the confidence of the public. Mr. Anderson is so respectfully endorsed by those who have used the "Ardenheim Iron Stone Pipes," and is socially so highly connected in this county, that we believe our farmers may repose the utmost confidence in him, especially as through the superiority of his wares he has been enabled to build up a flourishing business.

MILK, CHEESE AND SUGAR

Are all articles of prime necessity, and are also products of agriculture; the first two are now produced largely by co-operative effort among the farmers, and the last can be as well, if the cheese factories now organized would add the requisite machinery for grating and pressing the sugar beets; such as is now used for making cider, and such pan as is used for evaporating sorghum juice, will answer the purpose as well as that more costly. If the farmers should raise the sugar beets, the pulp and leaves of which are good for stock, particularly milch cows, improving the quality as well as increasing the quantity of the milk produced; the patrons of the cheese factory would be benefited pecuniarily, and as cheese is an article of large export demand and sugar principally imported, if these interests were united, as suggested above, it would benefit the whole county, and the dairy interest in particular. The cost of the necessary apparatus is but little and the product large; it adds another remunerative crop to those now grown, and as all the mineral elements are again returned to the soil, its capacity for larger crops is increased without any extra expense, which enables the farmer to carry more stock, and consequently increase his profits from the sale of its products.—Andrew H. Ward, Bridgewater, Mass.

UNITED STATES ENTOMOLOGIST.

We understand that Prof. C. V. Riley, late State Entomologist of Missouri, and the head of the United States Entomological Commission, is a candidate for the position of Entomologist of the Department of Agriculture. Professor Riley has a record unequalled by any entomologist in the country for actual work performed during the insect plagues of the last few years. In the above-mentioned capacities, he has done work of great value to the whole country, especially in the study of the potato beetle and the Western grasshopper. It is true, that he was most favorably located; but he saw the opportunity, acted at once, and so intelligently, energetically and effectively as to put the means in the farmers' hands to conquer their terrible enemies, and no more can be asked of the greatest general. He has shown himself master of the situation, and it is due to the country that he be placed in a position where he can do the most effective work. Three hundred million dollars is the amount of loss ascribed annually to insect pests in this country; yet while the past entomologists of the Department of Agriculture may have been able men, they have not been made of the metal required to battle such powerful hosts. Professor Riley does possess the ability to act in such emergencies, and should be given the opportunity to do the most possible good.

With him as the Entomologist, the Department of Agriculture would not be placed in

the position it was last year, of seeing itself ignored and an entomological commission appointed to do the work itself ought to do, and under the supervision of a department entirely distinct—the Hayden survey, under the Treasury Department—which was a very sure way of showing the contempt in which this department has been held.—*Scientific Farmer, April, 1878.*

Coming from the East—and the very “Hub,” too—this is certainly no ordinary compliment to a Western entomologist. If a change is to be made in the national department of entomology, judging from the record which Prof. Riley has thus far made, there is, perhaps, no man in the country who has higher practical claims to the chieftainship of that department than he. But should he attain to the position of National Entomologist, we hope that Congress will vouchsafe a more sustaining recognition of the claims of that department than it has heretofore, and not like the State of Missouri, ignore the office by withholding the necessary appropriations to make it efficient and useful to the country.

The heads of our National Department of Agriculture may not have been all that such positions require, but it is more than probable that much of the inefficiency attributed to that department was due to the meagre support of the National Congress. If there is any truth in Webster’s aphorism, “The farmer is the founder of civilization,” then that department of the General Government which specially relates to the interests of the farming public, has been most shabbily treated, from its first organization down to the present time. If Prof. Riley should happily be placed in the entomological “chair” of the department, Congress should provide, at least, sufficient means to enable him to bring out his publications in a manner equal, if not superior, to those which have distinguished him heretofore.

Should the War Department, or any other department, attempt to conduct its affairs upon such principles as have been imposed upon the Agricultural Department—compelling it to beg for information from thousands of different localities in the country without the least compensation—we wonder how efficient it would be or what progress it would make? Fundamentally, agriculture is the basis upon which the vitality of the government rests, and it should be so recognized.

SCALE INSECTS OF THE PEACH.

“The editor of this journal was lately shown a twig cut from a peach tree growing in this city, which was completely covered with these scales. Subsequently the locality was visited and seven trees were found so badly infested with these insects that not a twig could be found, or a space of an inch on twigs or branches, that was not occupied. Altogether it was about as bad a case as an entomologist could meet with. Of course the trees were partially dead and presented the sickly, diseased appearance usual in such cases. Singularly no other peach trees in the immediate neighborhood had been attacked, although the insects have, seemingly, from appearances, held high carnival in this one enclosure for a number of years. The insect is known as *Lecanium persicæ*,* and is not very destructive or even common in this country. The eggs deposited by the females are said to hatch in July, and the males, which are minute, two-winged flies, to emerge in August, though an European authority states that the males emerge from the scale in May, and pair with the females, which deposit their eggs ‘in the commencement of summer.’”—*Field and Forest, January, 1878.*

The foregoing relates, presumably, to the same insect of which we received specimens from Mr. Wm. Young, of Reading, Pa., in January last, and which we have discussed in our February and March numbers, pp. 18, 19 and 34.

*In a letter received from Mr. Uhler, since the above was in type, he says the insect “probably belongs to the genus *Apidiotus*. It has some of the characters of the European *A. persiceoblongus*, Raumer, but differs in some respects.”

And, now, this same insect has “turned up” here in the City of Lancaster, and we have a number of the infested peach twigs before us, from the premises of Mr. Gundaker, of North Queen street, not more than a hundred yards from our place of business. We do not positively know that they are elsewhere in this city, but Mr. Wm. Harry informs us that the peach trees on the premises he occupied in 1877 were badly infested by them.

If it is a fact that the eggs are hatched in July, then will be the proper time to deluge the trees with whatever solution or decoction that may seem necessary to destroy them, but any attempt to destroy them now would not be practicable. As intimated on a former occasion, they have no doubt been imported from Europe.—ED.

THE CULTIVATION OF WHEAT.

The cultivation of the wheat crop, just as we cultivate any other plant which we expect to improve and increase its yield, although perhaps not entirely new, is a subject that is looming into importance in various sections of our country, and conspicuously so within the domain of our own “Garden County,” and the results have been as favorable as could be expected under all the vicissitudes which usually accompany a “new departure,” in any direction, from the modes and customs of our fathers. We need not give the reasons why cultivation improves the quality and increases the quantity of wheat or any other crop, for on a little reflection it must become self-evident. If we were to sow fields of corn, tobacco, cabbages, &c., and then leave them to take care of themselves, without any further culture whatever, as we have been in the habit of treating our wheat, does any rational man for a moment suppose we would be able to gather such crops of these vegetables as we do from them when we subject them to thorough culture? As “like causes produce like effects” in the general phenomena of nature, we are compelled to include wheat in the same category. To Messrs. L. W. Groff and his son, A. B. Groff, of West Earl township, belongs the credit of initiating the cultivation of wheat in the county of Lancaster, and we must refer our readers for the results of their experiments to their plain statement, and reports of committees on the subject, published on page 164 of THE LANCASTER FARMER for 1877. Since that period the subject has gradually been growing into favor, and now some of the best and most practical agricultural minds in the country have manifested an interest in it, and are successfully engaged in experimenting.

The Messrs. Groff’s success last year has stimulated their efforts in the present crop, in which they are joined by their most intelligent neighbors.

On Tuesday, the 9th inst., we, in company with Mr. J. B. Weisgarber, paid a visit to the farms of Messrs. Groff, and witnessed the practical operation of their mode of culture, and its visible effects upon the growing wheat, and we must confess that both the manipulation and the results far surpassed our ultimate expectations. The distance from Lancaster city is about ten miles, over a well-conditioned road, through quiet, tidy-looking villages, and a fine rolling country expanding on either hand. The wheat fields decked in their luxuriant vernal sheen, were “just beautiful,” and we doubted whether they could be excelled anywhere, but when we reached the Groff farms, the illusion quickly vanished, and the effects of cultivation were unmistakably apparent, in color, in firm and erect setting in the soil, and in the breadth of the blades. Of course, the difference between cultivation and non-cultivation can only be fully determined when the crops are gathered; but if external appearances indicate anything, then we without hesitation should record our judgment in favor of cultivation. It doubtless will be said that the Messrs. Groff liberally manure or fertilize their lands, and hence the difference in favor of their grain; but we found the fields of all their neighbors, who

cultivate by their system, in the same prosperous condition, even among those who are proverbial for their sparing of manure, and “hard working” of their lands, and this condition has been produced by cultivation alone. But that is not all. In fields that had been cultivated last spring, and then sown in clover, the same beneficial effect is seen in the said clover fields at the present time.

As an illustration of the benefits of cultivation to the “after crop,” it is only necessary to mention that in a field where clover had been sown on cultivated wheat, in the month of May, 1877, a very clever crop of clover hay was harvested about the beginning of October of the same year. When you enter a field of wheat over which the cultivator has passed the second or third time, you find the earth between the drills as mellow as it is in a vegetable garden, and it must be evident that this condition of the soil is as beneficial to the growing crops in one case as in the other. It seems to us a rational conclusion, because it absorbs more and retains longer the dews and rains which fall upon it; it allows a freer expansion and development of the main roots and the feeding rootlets, through which the stalk becomes firmer set, and therefore not so liable to fall or “lodge,” as under the old system.

The Messrs. Groff use a common wheat drill, six feet between the wheels. These six feet are divided into five spaces, each space being a fraction over fourteen inches. Instead of eight feeding hoes, as in the common drills, there are but four, so that the space between the two outside ones and the wheels is the same as that between the inner hoes. This leaves the drills wide enough apart for the horses to walk between them without treading down the wheat. It is not necessary to describe how a grain drill is operated, adjusted, feeds, &c., for that is familiar to all who have ever used one. It may, however, be necessary to say that the lower end of the hoes spread out something like a horse’s foot, only more pointed, being a little over four inches in diameter inside, and have a double beveled or deflexed diametrical bar near the lower end, upon which the wheat falls, and is thus more equally or evenly distributed—that is, it does not fall in one single crowded line, as in a common drill. These hoes can be attached to any drill by a re-division of the spaces; and the old hoes can be used by attaching the spreading foot and cross-bar below, because there is less crowding of the seed and it is more scattered on the ground as it leaves the drill, whereby every sound grain is sure to produce a vigorous plant which will mature its fruit. It is claimed to be more economical in its consumption of seed on a given quantity of land than the common eight-holed drill.

When the time for cultivation comes, if it is not desirable to have two machines, the feeding hose can be removed and the cultivator can be attached to the same running-gears. These consist of as many three-clawed cultivating hoes as there are feeding hose, and arranged the same distance apart. Between these are suspended triangular or V-shaped inverted troughs, that pass over the rows of wheat and protect it against injury during the process of cultivation, and it is remarkable to notice how complete this protection is accomplished. The young wheat comes from under them as erect and uninjured as it was before the cultivator passed over it. The claws of these cultivating hoes are in triangular groups, the middle one in advance of the two outer ones, which prevents clogging, and leaves the work even and clean. Of course, these cultivating hoes are so arranged as to be raised up and let fall again, the same as in the process of planting. It only requires the progressive agriculturist to see the process to be convinced of its utility. Notwithstanding all the wheat looks promising the present season, yet we observed none so vigorous, so uniform in size, so firmly set and so rich in color as that under the cultivation of the Messrs. Groff, Ranck and others who use this process, and we await corresponding beneficial results.

THE BRIGHTON GRAPE.

Grown and for sale by Edward J. Evans & Co., York, York county, Pa. Price, by mail, post-paid, for one year old, \$1.00; for two years old, \$1.50. This Grape, which is destined to become popular, is a cross between the Concord and Diana Hamburg, and was originated by Mr. Jacob Moore of Brighton, New York, who is well known for his enthusiastic devotion to the business of artificial crossing of fruits, in order to produce improved varieties. Mr. E. H. Hooker, of Rochester, who has the original vine, has tested it for five consecutive years, and it has given unqualified satisfaction. It received the *Wilder Medal*, for Mr. Hooker's display of the fruit at the Exhibition of the "American Pomological Society," at Baltimore, in September, 1877, and those who had the pleasure of tasting the fruit on that occasion, fully sustain all that has been claimed for it by its originator, and those who have grown it, and have it for sale. It is confidently named among our *Hardy Varieties* by Nursery men of the highest standing in the country, and Mr. Hooker who has tried it longest, and perhaps knows it best, declares that he knows of NO ONE VARIETY of grape which combines so many excellent traits as are found in this. It is confidently believed that a general trial will amply

ripen too early to be well adapted to packing and keeping in this latitude.

5th. *Beauty of Vine and Foliage.*—It is no small advantage that the Brighton Vine has immense glossy dark green leaves, which are very attractive, and effectually resists diseases which afflict feebler growing kinds.

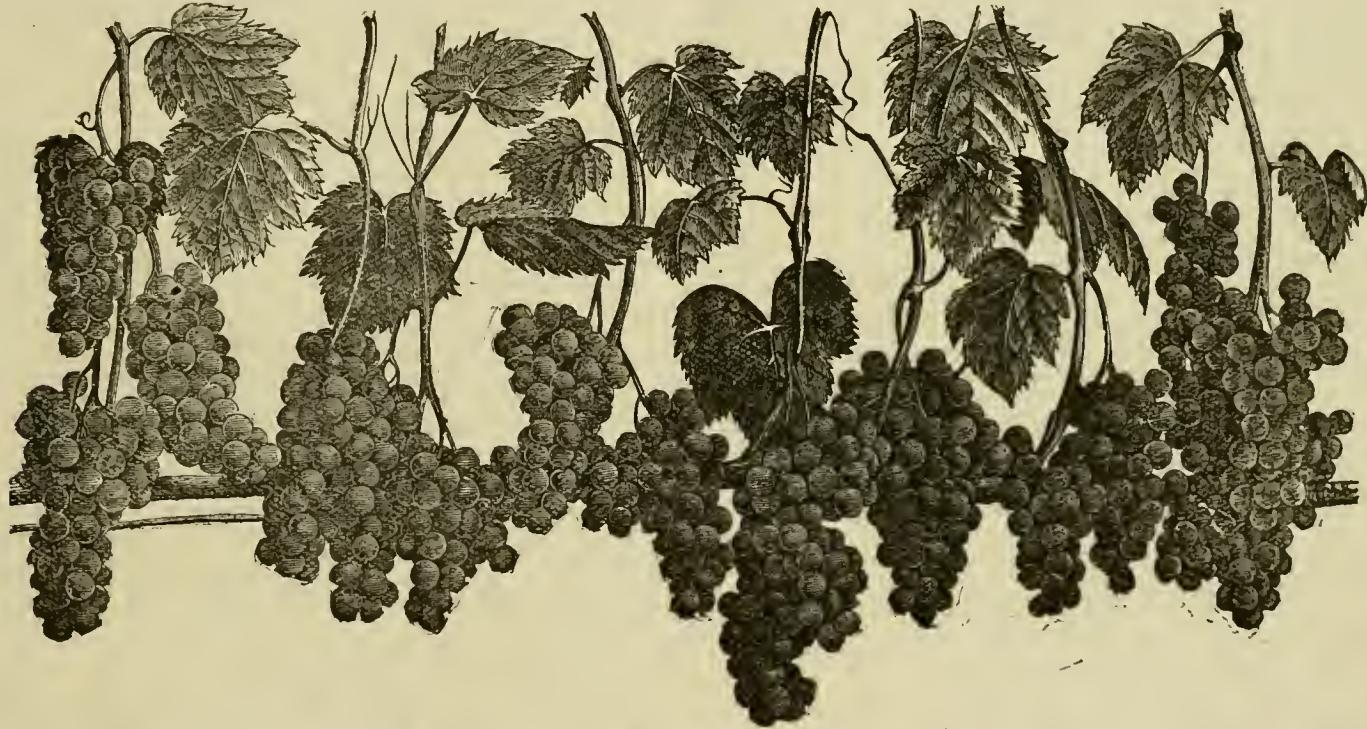
QUERY AND ANSWER.

Mr. J. M. J., Lancaster, Pa.—The branch of the peach tree submitted to us was infested by a species of *Scolytus* or *Tomicus*, small black or brown cylindrical beetles. We cannot be positive about the species by seeing the larva alone; but they probably are *pyri*—the pear-blight beetle. Two years ago a branch, similarly infested, was sent to us from Cecil co., Maryland. See third column, page 36, March number of THE FARMER.

The small, hard spherical object submitted to us two days ago, was the "nutlet" or seed of the "hack-berry," (*Celtis occidentalis* var. *pumila*), a small tree, growing on river banks and in woods, from New England to Wisconsin, and southward, belonging to the sub-order *ULMACEÆ*, or elm family. The fruit grows on a peduncle or stem, reddish or yellowish in color, but turning a dark purple at maturity; sweet and edible; as large as bird-cherries; flesh thin, and ripening in autumn.

it becomes necessary to give the matter serious attention, and to note with care how best to prepare sufficient for one's own use, and the most economical method of manufacture. The time and method of application, and the effect of different kinds upon various crops, are also matters of great and growing importance. But this essay proposes to treat mainly upon the best and most economical methods of manufacture, embracing not theory simply, for years of practice and watching the result of application are both embodied in everything herewith presented.

The richest barnyard manure produced is from corn-fed cattle; the next is, perhaps, from the droppings of grain-fed horses. The two mixed together make a very acceptable fertilizer, and a liberal application thereof to any soil will make the whole face of nature smile with an abundant harvest. In this connection there is another element richer and more acceptable to the land, that is almost wholly lost from nearly every barnyard. This element is the liquid matter so soggy, sputtery and unpleasant for farmers with leaky boots in moist weather. When a farmer can so arrange his barnyard that this liquid will run into a pit and be preserved for sprinkling his soil, he will find, by a few applications, that the richest of all his accessories has for years been running to waste. It is surprising how



bear out the following recommendations, as coming distinctly within the sphere of what is claimed for it.

1st. *Excellency of Quality.*—It is equal to or better than the Delaware in flavor and richness, with even less pulp; very pure, sweet, and delicate in character. A most excellent table fruit, surpassing every other *early* grape in quality.

2d. *Vigor and Hardiness of Vine.*—The vine grows with remarkable rapidity, ripens its wood early, and very perfectly; proving fully as well able to resist the severest winters as the Concord.

3d. *Early Ripening.*—The Brighton ripens along with our earliest sorts—the Delaware, the Eumelan and the Hartford. This is a very valuable peculiarity for all planters north of Pennsylvania, as many of our other best grapes fail to ripen in unfavorable seasons, or in any but the earliest and driest soils and situations. Ripe in Rochester, September 5th, 1876.

4th. *Beauty and Size of Fruit.*—It is as large and beautiful as the celebrated Catawba, which it resembles in color and form of bunch and berry. When first ripe it is of a reddish purple color, but if suffered to hang upon the vine until very ripe, it becomes purple.

The fruit never drops from the stem, but

The kernel is albuminous, and has a fine nutty flavor.

Mr. D. H. G., North Queen street, Lancaster, Pa.—Your peach twigs were infested by the "peach bark-louse," (*Lecanium persicae*) which is becoming numerous in the country. See THE LANCASTER FARMER for February, March and April.

BARNYARD MANURE.*

What was once considered in this country a disagreeable appendage to barns, and a necessary nuisance, has of late years resolved itself into one of the greatest blessings of the farm. What would a farm in the Middle States be now without its barnyard manure? What would the Pennsylvania farmer now put upon his land in return for the annual drain upon it, if he were deprived of the offal of his cattle? Not only has the barnyard manure grown in importance, but there is an increasing sentiment that unless there are larger deposits than the barnyard can afford to each farm, the land will soon be worn out, and the once fertile soil become utterly unfit for use. Since barnyard manure has taken such a high position among the thinking class of farmers

much of this liquid will accumulate in one year on an ordinary farm; and it is more surprising to the experimenter when he notes the beneficial results of this liquid upon his fields.

In preparing a sufficient quantity of manure, experience has demonstrated that it pays to buy up a quantity of cattle every year—enough to consume all the corn raised on the place, and sometimes more. It is far more economical to have cattle enough to eat up all the corn raised, and turn that into manure at home, and the fat cattle into money, than to sell the corn in market and with the proceeds buy artificial manure. Our farmers are selling too much feed and manufacturing too little manure. Consequently their land is becoming poorer, instead of richer, and with the present course persisted in, Pennsylvania will not be long in having a larger percentage of worn-out lands than some of the New England States now have. The more a Pennsylvania farmer judiciously puts upon his land, the more he will be able to take off. The great mistake now being made is putting so little on and taking so much off.

One of the best ways of securing an abundance of manure is to go along creeks and, where there are eddies, gather up the deposits. If the farmer is living along a river or canal, hundreds of thousands of loads can be gath-

*An essay read before the January meeting of the Pennsylvania State Board of Agriculture, by Col. James Young, of Middletown.

ered at the eddies in low stages of water; and the deposits, gathered with judgment, will be found to make the richest of fertilizers. Large quantities of exceedingly rich manure gather in mill dams, the accumulation, oftentimes, of miles of territory. Millions of dollars' worth of such rich manure now lie undisturbed throughout the State, which, if placed on corn or grass, would invariably manifest its value in improved crops the very next harvest. There are seasons when a farmer's time cannot be more profitably employed than in gathering up the rich beds of so-called "muck" in the eddies of small and large streams, in the beds of canals, and in the bottom of mill dams, or in other places where rich soil has been washed in. In fact, with some this work will be found more profitable ultimately than gathering in the crops of a double harvest. Much of this manure can be gathered at different times and piled up for use until the land is better fitted to receive it. Having personally to use large quantities of fertilizers, it became an imperative necessity for me to look around and learn where I could get it, the best and the cheapest, and now I use hundreds of thousands of loads, gathered in the manner described. I was first led to this course by noting the gratifying effects of the deposits of a large reclaimed swamp spread over my fields. These deposits proved to be from two to seven feet deep over the entire reclaimed space. It was first used in the garden, upon the suggestion of the German gardener, and found so valuable that ere long it was being scattered over the fields. Manure of this description lasts longer, and one gets barnyard manure.

Some farmers appear to place considerably stress upon manure made of forest leaves in compost heaps; but they will find a great saving and better manure by hauling from eddies of creeks and other streams, and from the deposit of mill dams.

Another very good and really economical method of manufacturing barnyard manure is, if you live near a town, to give your surplus straw to owners of horses and stock, asking in return only the manure from their stables or barnyards. This applies only to those who feed grain. Where they keep their horses or cattle on straw for provender it is best to send the straw elsewhere. But to those who feed their animals well, it pays to furnish them with straw for bedding gratuitously, with the privilege of hauling away their manure. Then the farmer is more likely to be called upon to furnish these parties with hay at remunerative prices. In hauling away manure it is best to select and load by itself that which will do for immediate distribution over a field, and dispose of it accordingly; that which is not fit for this purpose can be taken to the pile held in waiting for decomposition. It is not profitable business to handle manure too often, and if once loading will accomplish the purpose there is not much wisdom in loading twice.

To prepare manure properly requires careful study of soils and fertilizers, close observation of the effects upon crops, and a tact sufficient to make the best uses of the best methods. When I was in the lumber business I conceived the idea that it did not require much intelligence to be a farmer. I find that it requires not only intelligence, but, after years of experience, more intelligence than I possess. There is not enough education in the farming of this country. It is the most important of all secular occupations, and requires wisdom, judgment and understanding, all the time, and in every season. A practical farmer, to successfully carry on his work, can not be too well educated.

Fertilizers artificially manufactured throughout, are not the most economical in my experience. The good old barnyard manure first, then deposits of the streams, and then the next best you can get, is the policy of my experience. With economy and method, and a steady, persistent attachment to the calling of agriculture, then the manure, such as I have described, may well be accepted as the staff of life of the thrifty, profitable farm.

* MANURES AND SOIL FERTILIZERS*

[CONCLUDED.]

An experiment testing the continued action of fertilizers through a rotation of crops. The fertilizers were applied at the rate of eight dollars per acre to eighth of an acre plots, in the spring of 1874, and plowed down for corn. No further application made during the rotation. The results on the various crops were as follows:

KIND OF FERTILIZERS.	Net profit from application.....		
	Value of grain over no fertilizers.....	Whole value of crops.....	1088. .47% loss
Pounds of grass in 1877 per $\frac{1}{8}$ acre....	\$6.50% loss 5.9% loss	\$6.50% loss 5.9% loss	.52% loss .48% loss
Pounds of wheat in 1876 per $\frac{1}{8}$ acre....	65% loss 57% loss	65% loss 57% loss	6.46% loss 6.46% loss
Pounds of oats in 1875 per $\frac{1}{8}$ acre....	81% loss 80% loss	81% loss 80% loss	7.4% loss 7.4% loss
Pounds of corn ears in 1875 per $\frac{1}{8}$ acre..	481 loss 510 loss	481 loss 510 loss	109 loss 105 loss
Pounds of Fertilizer.	20% No Manure..... Sulphate of Ammonia..... Barnyard Manure..... Fine Ground Bone..... Bone Superphosphate..... Rock Superphosphate.....	20% No Manure..... Sulphate of Ammonia..... Barnyard Manure..... Fine Ground Bone..... Bone Superphosphate..... Rock Superphosphate.....	.47% loss loss loss loss loss loss

In the above table we have estimated the corn as worth 52 cents per 72 lbs of ears. The oats at 32 cents, the wheat at \$1.50 and the hay at \$15 per ton, which was about the price when the crops were harvested and sold. The barn-yard manure was estimated as worth the same as the other fertilizers, though had it been bought would have cost more.—W. P. C.

The above table shows such extraordinary results from the use of phosphate fertilizers, that it may be satisfactory to give the results of another set of experiments on another part of the farm. The fertilizers were applied to eighth acre plots as in the above case, and plowed under for corn in Spring of 1875.

KIND OF FERTILIZERS.	Net profit from application in three crops		
	Value of grain over no fertilizer.....	Whole value of crops on $\frac{1}{8}$ acre.....	loss, .67%
Pounds of wheat in 1877 per $\frac{1}{8}$ acre....	\$6.05% loss 5.72% loss	\$6.05% loss 5.72% loss	28 loss, 1.25 gain, 1.00 gain, 1.00 gain, 1.00 gain, 1.00 gain, 1.00 gain
Pounds of oats in 1876 per $\frac{1}{8}$ acre....	96 loss 95 loss 89 loss 85 loss 104 loss 121 loss 735 loss	96 loss 95 loss 89 loss 85 loss 104 loss 121 loss 735 loss	1.36% loss 1.36% loss 1.36% loss 1.36% loss 1.36% loss 1.36% loss 1.36% loss
Pounds of corn in 1875 per $\frac{1}{8}$ acre....	670 loss 620 loss 580 loss 545 loss 117 loss 104 loss 765 loss 866 loss 735 loss	670 loss 620 loss 580 loss 545 loss 117 loss 104 loss 765 loss 866 loss 735 loss	1.29% loss 1.29% loss 1.29% loss 1.29% loss 1.29% loss 1.29% loss 1.29% loss 1.29% loss 1.29% loss

The wheat plots in 1877 were very badly injured by the Hessian fly, and the product a

*Read before the Lancaster County Agricultural and Horticultural Society, by John I. Carter.

very low one, hence the net profit from the use of the fertilizers was seriously lessened. In these estimates no account is taken of the increased quantity of fodder and straw on the plots fertilized, as I allowed that to balance the increased labor of harvesting.

To go back to the tables in the earlier part of this paper. They are based upon a popular idea advanced several years ago by Prof. Ville, of France, and later by Prof. Stockbridge, of Mass.—and many commercial fertilizers are now compounded on the theory of supplying all the leading ingredients of a certain crop by a fertilizer containing them in the proper proportion. However plausible this may look, it ignores the important fact—that a soil may already contain some of these ingredients in sufficient quantities—and hence it would be a waste of material to give it more than needed—and this, as before stated, seems to make it desirable for farmers to do some experimenting for themselves, on their own soils. I would suggest the following programme of experiments that would be easily made, and might prove interesting and valuable to the maker.

Take plots containing 1-16 of an acre, and put on the following fertilizers for corn:

1. No manure;
2. Nitrogen—in the form of 30 lbs. a. a. nitrogen;
3. Phosphoric acid, in the form of 10 lbs. challenge superphosphate;
4. Potash—in the form of 36 lbs. sulphate of potash;
5. Nitrogen and phosphoric acid—half of No. 2 and 3;
6. No manure;
7. Corn formula— $\frac{1}{3}$ of No. 2, 3 and 4;
8. Barn-yard manure;
9. Plaster;
10. Lime;
11. No manure.

A careful observation of the results of such a series of experiments, will inform us, with reasonable correctness, which class of these representative manures our individual soil requires; and that class that shows no good result, may be safely discarded from further trial. For instance, if we see no effect whatever from potash, we may conclude that the disintegrating work of our soil keeps up the supply, or that the soil itself contains a sufficiency for our present wants—and so with the other ingredients. But if we find one of these classes or compounds making a marked improvement; our next step is to find out the cheapest and most available form and source of supply. Experiments upon our "Farm," and upon soils in sections long under cultivation, indicate the exhaustion of phosphoric acid. The importance of this fact is shown when we remember that this acid appears in every cultivated plant and in every part, from the strong, hard stem to the delicate stamens and pistils of the blossom—in the straw and the perfect grain. It is almost impossible to grow a plant without this acid being present in it. It is true that all soils contain more or less of this acid, and in quantities comparatively large, when compared with the amounts in the ash of cultivated plants; but as it is more plentiful in the grain of cereals, and in such crops as farmers frequently sell, it is apparent that without removing the supply, exhaustion will slowly but surely follow long cultivation. Phosphoric acid makes many combinations with different bases, the most important of which—to the farmer—is its union with lime, and the three most common combinations are: First, the tri-calcic phosphate of lime, or where 142 parts of phosphoric acid combine with 168 parts of lime. This is also called insoluble phosphate, and is the form in which it is found in our phosphatic rock deposits—in bones, and, indeed, is the prevalent form found in our soils.

The second form is the di-calcic phosphate, or where 142 parts of phosphoric acid unite with 112 parts of lime; this is also called reverted or precipitated phosphate, and is in a form so available as plant food that it is reckoned of nearly equal value with the soluble phosphate. Third, the mono-calcic phosphate, or where 142 parts of phosphoric acid unite with 56 parts of lime; this is called the soluble phosphate, or true superphosphate of commerce, and is reckoned the most valuable, because it is readily soluble in water. There

is a marked difference in the value of the tricalcic or insoluble phosphate in the rock deposits and that found in common bone—the former being hard to dissolve, responding slowly to the action of the acids on the soil—while the decomposing animal matter in the latter, when on the soil, gets it in a condition easily acted upon.

To test the comparative value of soluble and reverted phosphate, we applied on a $\frac{1}{4}$ acre, 60 lbs. of challenge superphosphate, containing over 30 per cent. of soluble or monocalcic phosphate; on another plat we applied the same number of pounds of the challenge, combined with 20 lbs. of quick lime, presuming that the mono-calcic would take up another portion of lime, making a di-calcic or reverted phosphate. The result was that No. 1 made 70 8-72 bushels of corn, and No. 2, 70 bushels, or only 8 lbs. in favor of the soluble acid.

Phosphoric acid, like lime, is never found on the soil, except in combination with another element; and like lime, as before stated, is present on every plant, and really much more important to its welfare. Yet there is a wonderful difference in the amounts used as fertilizer applications—from 2,000 to 5,000 lbs. of nearly pure lime being used per acre, whilst 50 to 100 lbs. of pure soluble phosphate would be considered a good application. But of course the great value of lime does not depend alone on furnishing, directly, a few pounds of plant food. It is due to its action on the vegetable matter or humus in the soil; and as these substances have to be resolved into their original elements, such as carbonic acid, water, nitrates or ammonia, &c., before they can enter again into plant circulation, and as lime is a powerful solvent, not only of vegetable matter, but of the inorganic or mineral matters of the soil likewise, setting free potash, magnesia, silica and other minerals, we can see at once the important part lime serves in its indirect action. Hence, we can account for a measure of its popularity on strong, rich soil, where an abundance of vegetable or animal manure is used, and for its lamentable failure where the vegetable matter is worked out—no manure supplied and the natural character of the rock a poor one. But even so good a thing as lime may some day fail us when we exhaust the mineral elements in the stone and rocks, upon which lime has been so successfully acting.

I shall not tire you further by saying much about plaster, or sulphate of lime; and another reason for not doing so is, that our information about its action is vague and uncertain. Probably under some circumstances it may supply lime and sulphuric acid directly to the plant as food. But its great benefit is like that of lime in its solvent action on the mineral elements in the soil. It is said, also, that when taken up largely into the circulation of the plant, to impede excessive evaporation of moisture from growing vegetation, thus enabling it to withstand droughts or grow in dry times. Plaster is also valuable in seizing upon carbonate of ammonia, the volatile form of ammonia resulting from decomposing manure and vegetable matter, and changing it into the sulphate, a non-volatile form. It no doubt acts in the same way upon the carbonate of ammonia in the air, in which there is always a small quantity.

I find I have no time to refer to potash, magnesia, the sodas and other mineral plant ingredients, and must even pass barnyard manure in a very hasty way, only recommending its persistent accumulation and careful saving. There are two considerations, however, that I might offer for its treatment: First, the adding of some of the more valuable mineral constituents to the manure pile during its accumulation, as in the form of ground bone, or a good dissolved rock or sulphate, or muriate of potash. These would not only enrich the pile, but notably improve the assimilability of the whole.

The other is, that all as manures, to be perfectly available, must be finely divided and

thoroughly distributed, therefore great care should be taken to have our yard manure well decomposed and completely spread.

A word or two on soil cultivation as a fertilizer: The spongioles, or feeding rootlets of a growing plant, are organs of exceeding delicacy, and thrive best in a feeding ground, mellow enough to offer no hindrances in their search for food. The food itself must be so fine as to be almost in a liquid or gaseous form, and to effect the chemical changes in the soil necessary to the development of plant-food requires a thorough communication of the soil, allowing the free interchange of particles and the unobstructed action of light, air, heat and water. Let any one examine a clod from our fields, and he can easily imagine how impervious it must be to all the above-mentioned influences and how ill adapted to support plant life. I fear we do not appreciate the importance of atmospheric influence as a source of fertility; how it may not only supply carbon, but that the abundant nitrogen of the air may in some way furnish to the soil and plant the much needed nitrates and ammonia, which, when furnished in manures, cost us so dear. And this new theory of root-pruning, lately advanced by Dr. Sturtevant, claiming that great advantages result from seasonable root-pruning by judicious cultivation—cutting off long straggling roots, forcing them to branch and send out an increase of fresh feeders, just as we shorten the long branches of a tree to make it stocky and strong. He applies it to the culture of corn, and claims great results. This, and the air influence, may account for the wonderful results from cultivating wheat, as reported by some of your members. To close this branch of the subject I would advise a careful pulverization of the soil, the application of manures in as fine condition as possible, and of fertilizers in a composted form, as far as practicable. I think the assimilability of many of our commercial fertilizers would be greatly increased by judicious composting; such treatment would also secure their more even distribution throughout the soil, and in easy reach of searching roots.

If it were not tiring you too much, I would like to refer in closing to the desponding way many farmers speak of our competition with the West, and I notice the same sentiment has been expressed in this society. If we look at the matter fairly, we will find the advantages preponderating in favor of the eastern farmer. Our western brothers have their exhausted lands as their only advantage—and that will be lost before many generations—while our contiguous markets permit us to ship cheaply and safely our more perishable products, and lessens freight on such heavy articles as hay and roots. We have an abundance of cheap capital and labor, and much of the land of Eastern Pennsylvania to-day is cheaper, counting improvements, than the improved lands of the West. Our dense population gives us superior educational and social advantages, and we have enlarged facilities for obtaining knowledge in all matters pertaining to our business.

Let us then resolve to take every advantage of our favored position, and make the farmers of Eastern Pennsylvania a worthy type of a happy, intelligent and prosperous people.

FOR THE LANCASTER FARMER. VARIOUS NOTES.

PROF. S. S. RATHIVON—*Sir:* As the bee and grape question is about almost wore threadbare I simply wish your respected correspondent in the March number of *THE FARMER*, Mr. Wm. J. Pyle, to try a very simple experiment, which he can do at any time, without waiting for the grapes to ripen. Just let him take a very small pair of pincers and very tenderly grab an Italian bee in the middle, being careful to keep the bee's natural armour (stinger) out of the way, and let him place the bee's nippers or mandibles on a tender part of his skin, and unless his skin is as hard and tough as an elephant's, I'll venture to

predict that the bee will give him such a pinch as to convince him that the *innocent* bee may, after all said to the contrary, possibly be capable of cutting the tender skin of the grapes.

Planting Apple Trees.

We see it recommended, time and again, “plant your trees no deeper than they stood in the nursery.” This may be good advice if the season happens to be wet, but if the season proves dry it would be better to plant a little deeper. I well remember that about fifty-five years ago a neighbor planting a small orchard, and as I happened to visit him at the time, I saw that he dug holes with a crowbar some eighteen to twenty inches deep. I was surprised that he was planting his trees so very deep, full eighteen inches. I told him I thought he was not planting them as they ought to be planted, that the roots thus thrust down into the cold ground the trees would not live or do well. He said we must put the roots deep down so that the wind would have no chance to blow the trees about to loosen the roots; of course I kept my eyes on that orchard; it was cultivated for eight or ten years; potatoes and other truck planted, then sowed with grass seed, and from that time to the present has had a thick sod of grass, which is cut and dried for hay once or twice a year; never manured; the hay removed off the ground annually. The ground was not rich naturally, and no decaying material placed on the ground, except the leaves falling from the trees. That soil is now richer than at the time of planting the trees. Most of those old trees are now dead and peach trees are now planted on the ground, yet those trees flourished, and for thirty or forty years bore heavier crops of apples than any orchard in this vicinity.

Per contra, we might say. Some years since, being in the city of Philadelphia, a number of us went out to see Mr. Bright's place. Mr. H. M. Engle and Mr. Purple being along, as they no doubt both will remember, Mr. Bright took us to see a dwarf pear orchard that he had planted for Dr. Houghton. These trees all looked flourishing, and Mr. Bright told us he used no *tool* but his *feet* in planting; that he would scratch a little hollow with his boots, set the roots in and scratch some soil over the roots in the same way with his feet; that he wore out two pair of boots in planting those trees. The soil, if it can be called soil, was almost a clean sand, and could be easily moved by the feet like an ash heap. The trees were then young, but appeared healthy and thriving.

Thus it appears there's no royal road to success for tree planting, no more than in securing wealth. And “that there are no rules without exceptions.”

Mr. Levi S. Reist's orchards, as he says, I saw them and very plainly perceived the difference, both as to soil and location. His orchard near Millport is certainly on a most suitable soil, as well as on a southern exposure, moderately elevated and a kind of loose, shelly soil; just the kind of soil, I should think, to be most suitable for all kinds of fruit trees; even the Japan persimmon might find there a suitable locality and a home.

Cultivating Apples for Export.

Our friend goes strong for growing apples for export. But oh! dear, if we could only grow a sufficiency for home use, we might then, and not till then, think of growing them for export. The fact is strange to me that they can grow them in plenty, north as well as south of us, yet we do not lack in trees. Occasionally we get a superabundance, then, again, for years only a few or none. Who can tell “the reason why?”

The prospect at present is that we may boast with a fair crop of all kinds of fruit this season; but we are not yet “out of the woods,” and “Jack Frost,” or some other casualty may yet intervene to mar our prospects—time will tell. The buds on peach and apricot trees are at least three-fourths safe and sound yet.—*J. B. Garber.*

HOVEY'S SEEDLING STRAWBERRY.

This splendid berry was raised by the Messrs. Hovey, of Boston, and for this climate is one of the finest of all varieties. It bears the largest and most delicious of fruit, frequently measuring, under ordinary cultivation, three or four inches in circumference, or from an inch to an inch and a quarter in diameter. To produce berries of mammoth size, take large, thrifty plants and transplant them in rich, deep soil, one foot apart, and keep all the runners trimmed off, and the ground loose. The next season clip off all but two or three of the first blossoms on each plant, taking care to have a few plants of another variety of the same class, with staminate flowers in their vicinity. Strawberry plants are commonly designated as male and female, and it is of some importance to know how to distinguish these from each other, since a bed with too large a proportion of the male plants will prove very unproductive. The distinction can be readily made when in bloom, the blossoms of the female having an entirely green center, whilst those that exhibit a great many yellow stamens represent the male or barren plants. Such flowers as have only a portion of stamens around the base of the green conical centre of the flower are termed staminate, or perfect blossoms.

More than a quarter of a century has elapsed since the introduction of "Hovey's Seedling" to the horticultural world, and many new varieties have temporarily superseded them, conspicuously among which were "Wilson's Albany Seedling," "Triumph de Gand," "Agriculturist," "Barnes' Mammoth," "Monarch of the West," "Charles Downing," "President Wilder," and many others, some which were no improvement on Hovey; some excelling them perhaps in special qualities, but the larger number have been long since abandoned. Perhaps the most prolific in the long line of succession is the *Albany Seedling*. We once heard an experienced fruit-grower declare that he could raise as many of this berry on the same quantity of ground, bushel for bushel, as any other man could potatoes. After all the newer varieties have had their "run" it would not be surprising to see people go back to Hovey again (although perhaps under some other name), and we only produce it here because it may be legitimately regarded as the type of the "new departure" made in the cultivation of the strawberry some thirty years ago, and which is still in progress.

VARIETIES OF FRUIT FOR PENNSYLVANIA.*

The apple crop being of more value in our State than all other fruit crops combined, makes it of vast importance. It is impossible to do the subject justice in one short essay. The great variation of soil makes it not an easy task, when in addition we add the difference of both altitude and latitude, which makes the variation of climate probably as much as that of soil. Meteorological differences have also great bearing upon fruit crops. The difficulty is not from want of varieties (for we have enough to confuse almost any one), but from a want of a proper system for testing them in the different localities. Proper organizations have always been and are still wanting throughout the State to diffuse the knowledge necessary to enable any one to make out a list of varieties, such as would give the required information. There are but few active horticultural organizations in our State. The Pennsylvania Horticultural Society is perhaps the oldest in the country, but its influence has never extended far beyond Philadelphia.

The Pennsylvania Fruit Growers' Society, in less than twenty years, has accomplished

much, and its influence extends over a much larger area, but thus far not half the counties in the State are represented. May we hope that the best talent, not only in the agricultural, but also in horticultural interests in every county in the State, will soon be represented in this board. Should such a result be realized the combined knowledge of its members would contain a store of matter from which a report on the fruits of our State could be more intelligently made than is possible with all the present available sources. The Pennsylvania Fruit Growers' Society has in progress a catalogue of fruits adapted to our State, which will be the most reliable for Pennsylvania yet published, but it can not be made complete until the State is fully represented in that society. The great number of valuable varieties of apples in this State makes this a difficult task, and especially so because many varieties are popular only in a few districts, while there are a few kinds that are successfully grown everywhere. Therefore the only accurate report that can be made will be from statistics showing what varieties are best adapted to different sections of the State, and which information can only be obtained by proper testing. The majority of farmers are not disposed to incur such inconvenience, therefor it is only the more progressive that we can rely upon to accomplish much in this

destructive insects, applying fruits to their best uses so as to realize the greatest returns, with other knowledge necessary to make fruit growing what it should be. It is also of great importance, from a commercial standpoint, that our State should realize a profit from this branch of industry as well as from any other, instead of paying to other States annually hundreds of thousands of dollars for apples and other fruits which might as well be grown within her own borders. In a correspondence with a friend in Bucks county, he states that from 15,000 to 18,000 bushels of apples, crop of 1877, were shipped from a single railroad station. From another source I learn that \$1,200 was realized from one orchard, and that the dealer who purchased them doubled his money on them; also that other orchards in that section did nearly as well. All these favorable reports are from the same county. Now it is not to be presumed that Bucks county is better adapted to apple growing than most other counties of our State, but that the orchardists have adapted themselves to the business of apple growing. Equally favorable reports could, no doubt, be collected from other sections of our State, even in the off year.

I can hardly forego at this juncture to refer to the hundreds of thousands of bushels of peaches that are annually purchased from the little State of Delaware, while our State has thousands of acres just as well adapted to the growing of this crop as the former. Only a few years ago peaches were shipped from Cumberland Valley to Baltimore, while the crop was short in Delaware and Eastern Maryland. The sections best adapted to this crop lie principally south of the Susquehanna river, but especially in the southern tier counties. There is no doubt in the mind of your essayist, that should capitalists understanding the business embark in this enterprise in the sections referred to, the trade of Delaware peaches in the middle and western sections of this State would in a few years be vastly curtailed, if not entirely cut off. A suggestion just here may not be out of place—that the Secretary of this Board, while collecting statistics relative to the comparative value of crops, at the same time solicit reports, so far as possible, of the actual value of the fruit crops of our State, which would demonstrate their importance and the necessity of their fostering care by the State, so as to make them not only of much greater commercial value, but also to enable our State to throw off its dependence upon other States for so large a proportion of our fruit supplies.

Among the apples that have proven valuable in our State are the following:

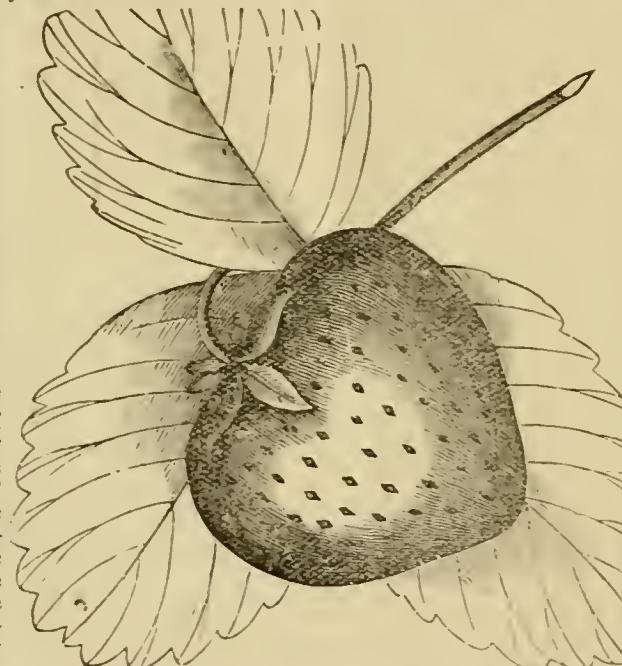
Summer—Early Harvest, Early Strawberry, Primate, Summer Queen, All Summer, Red Astrachan, Duchess of Oldenburg, Sweet Bough, Summer Sweet Paradise.

Autumn—Porter, Maiden's Blush, Summer Rambo, Fall Pippin, Jefferies, Gravenstein.

Early Winter—Smokehouse, Rambo, Falawater, Pittsburg Pippin.

Winter—Smith's Cider, York Imperial, Newtown Pippin, York Stripe, Peck's Pleasant, Ewalt, Rome Beauty, Dominie, Romanite, Yellow Bellflower, Winter Sweet Paradise, Talmor's Sweet, Lady's Sweet.

Northern winter apples that have proven of value, but in Eastern Pennsylvania are simply fall and early winter apples, are the following: Baldwin, Rhode Island Greening, Hubbardston, Northern Spy, Esopus Spitzenberg, Roxbury Russet, Twenty Ounce, King, besides other standard varieties in more northern latitudes. These popular northern apples have, however, proven equally valuable in the northwestern counties of our State as good keepers. In the mountain districts they are also good winter apples, while some of the most popular kinds in Eastern Pennsylvania



direction. One grand mistake that Pennsylvanians have made, was the planting of so many northern winter apples, which have proven to be only fall apples, especially in the eastern section of our State; at the same time some of the kinds most popular in the eastern counties are rejected by some fruit-growers in the mountain districts. All this proves that a more thorough knowledge in the matter of selection is of the utmost importance. Much has been achieved toward acquiring this much desired knowledge by the progressive pomologists of our State. It is therefore with gratification that we look upon what has been accomplished, while we look forward with hope toward still greater achievements in pomological knowledge.

A more extensive knowledge of geology, as also of meteorology, would be of vast importance to the intelligent horticulturist. The geological survey of our State, when complete, can not help but become very useful, not only to agriculture, but to horticulture as well. Were we in possession of facts pertaining to soil, temperature and varieties best adapted to different localities, our success then would not be complete without a knowledge of how to manage our trees from the time of planting to the marketing of their crops, which embraces planting, pruning, thinning of fruit, proper fertilizers during the different stages of growth, keeping down

*Read before the meeting of the Pennsylvania State Board of Agriculture, by H. M. Eagle, Jan. 23, 1878.

are being rejected in the higher altitudes. There are many other valuable varieties that might be recommended, but it is a general mistake to plant too many kinds in one orchard, unless for the purpose of testing.

The many excellent new varieties of grapes foreshadow a fresh impetus toward the extension of this desirable fruit. No kind of fruit will produce a large yield, with such certainty, as the vines can be laid down during the winter and be protected against any degree of cold. The pruning and training has been so much mystified as to deter many from attempting its culture, which, however, is just as simple as that of any other fruit. The Concord still continues to be the grape for the million, while Ives, Martha, Anna, Delaware, Telegraph, with some of the newer varieties, are successfully grown in the different sections of the State.

Small fruits should not be neglected by any family that has a square rod of ground to plant, but especially the strawberry, as it is so delicious as to gratify the taste of the most fastidious, while it is so productive and certain of a crop in almost any season that it seems almost criminal to reject it on the part of heads of many families, whose Juniors almost famish for the want of such palatable and health-producing food in its season. Wilson's Albany is still extensively grown, but is fast giving way to Charles Downing and other varieties of better quality.

For THE LANCASTER FARMER.
HARD TIMES OF 1817-1822.

My Dear Old Friend: In THE LANCASTER FARMER, of the 15th inst., you refer to the various periods of "Hard Times" through which you have passed, especially those following the war of 1812-15, of which you say you retain but "a faint impression," on account of your youth. As I am a few years your senior permit me to eke out your recollections with some of mine, and thus "fill in" Col. Benton's larger *general* picture with a few minute details, which will prove its correctness, so far as our former home (Marietta) was concerned. I would not retouch the subject were it not that the present moody reflections of some may be a little brightened by seeing that others have been worse off than they are—that hard as the present times undoubtedly are, we have seen much harder times. "Misery" may not "lose company," but sympathy is grateful to it—especially the sympathy which comes from like experiences—and the burden may be relieved by slinging, in unison, the old song, "Let us all be happy together!"

My father, as you may remember, was accounted a wealthy man (at the *then* standard, at the close of the war, in 1815, notwithstanding some heavy expenses and losses connected with raising a company of volunteers, ("Marietta Grays,") and absence from his business while in camp, in 1814). But the depreciation in all kinds of property, and the failure of some formerly wealthy men for whom he was surety, really left him in such condition that had his property been sold by the sheriff at any time after 1817 he would have been hopelessly bankrupt. But as all supposed him fully solvent he lived and struggled on the credit of that reputation until, after eight or nine years of intense anxiety, he gradually emerged from the continually impending ruin! This will explain the details I now proceed to furnish of a father's care and prudence, and a mother's wise economy and housewifely management.

During many of those anxious years, except when strangers sat at our board, our coffee was mainly, if not wholly, roasted wheat, rye, barley, chestnuts, acorns (white oak), &c. And this was not sweetened, nor (when milk had to be bought) whitened—in recompense of which sacrifice, so hard for children to make, we were each allowed one cent a week. We had meat at only about three meals in each week, and that, generally, of the cheapest kinds, but so well cooked as to be wholesome, nourishing and very palata-

ble. Fish were abundant in their season, for boys who delighted in catching them, and the best shad in the world, weighing from five to ten pounds each, were sold at 10 to 15 cents a piece. Our bread was rye, or wheat largely mixed with rye, cornmeal, or potatoes, and generally guiltless of butter—cheap molasses, "sunbeam," and apple, peach, or plum "butter," (without other sweetening than what the fruit supplied,) being the substitutes provided plentifully in the fruit years, but sparingly in other years. When "company" was expected a wheaten loaf was baked, and the table was well furnished to save appearances, for it was feared that if facts became known creditors might suspect the actual but hidden bankruptcy, and by wildly pushing their claims sweep away every particle of saleable property and leave us under a hopeless mountain of debts. Besides, those were days when imprisonment for debt yet shadowed our civilization, a dark cloud which my father always proudly claimed a large share in removing from the statute book. Also, except when we had "company," we seldom saw a cake on our table, save the "Fastnacht" cake un-sweetened, (and once or twice made out of rye flour,) and the Christmas cakes, without which two the year could not have rolled around in our German families. Sometimes there was "a birthday cake" instead of the traditional "turnover" or other pie. Canned fruits were unknown, and the few preserves that were made were reserved for extraordinary occasions, and for the sick, whether of the family or out of it.

Our clothing was on the same economical scale; for daily wear, in summer, the home-made tow-linen and linen-striped, with heavy home-made linen for shirting; and in winter, velvet for pants, or home-made cassinet for the whole suit. After a time a heavy cotton cloth took the place of linen, and sometimes a heavy woolen cloth (domestic) superseded the cassinet or velvet. The velvet being unlined, gave a fine start to the blood, and caused a catching of the breath when drawn over the bare skin in a cold room on a cold winter's morning! For those were times when we knew nothing of underwear in shape of drawers.

I doubt not that others, yet living, could more than match these statements, with greater hardship in food and raiment; for those were, indeed, hard times when many of our best citizens were torn from their families and thrust into the old Lancaster jail simply for being too poor to pay their debts, leaving wives and children dependent on the kindness and charity of friends and neighbors.

I will conclude this sample of personal recollections by adding a few extracts from an anti-biographical sketch, written for me, at my request, by my father. It will show the enormous rise and fall in the prices of real estate, between 1812 and 1822.

"From the commencement of the war until the close, every article rose in price. All the banks having stopped paying specie for their paper, and their number in Pennsylvania increased from 15 to 57, issued their paper without limit. This raised the price of everything, especially real estate. Houses in Marietta sold for from \$10,000 to \$20,000; vacant building lots 40 feet front by 200 feet deep, sold for from \$500 to \$2,500 a piece. In 1813 I caught the epidemic and purchased 48 acres of land adjoining the borough, at \$1,300 per acre, and laid it out in 175 town lots and disposed of them by lottery, (as was the practice at that period,) at \$500 per lot, exclusive of fence and five reserved lots. I bought a farm [about half way between Lancaster and Marietta] of 133 acres at \$250 per acre, and also bought several houses to get rid of my money. In 1818 the banks resumed specie payments, and the debts which had been contracted when 'rags' were the circulating medium, had now to be paid in silver when one dollar was worth \$5 of paper. The farm I had bought at \$250 per acre I sold at \$125, and in two years after it was sold at \$40 per acre! Houses in town which sold at

one time at \$10,000, were afterwards sold by the sheriff for \$1,100, and some did not sell for as much as the lime in their walls had cost. Building lots that had been sold for from \$2,000 to \$2,500 each, were sold for \$20 each. The fact is that there were but five men in a population of about 2,000 souls that did not break up before 1822."

My dear old friend, those were, indeed, "hard times" in and around our old home—*A. B. Grosh, Washington, D. C., March 2d, 1878.*

For THE LANCASTER FARMER
FARM NOTES.

Wastey Fields.

Hilly fields are apt to wash out ditches by heavy rains. Pick up the loose stones on the fields, haul them to such ditches and fill them up. If these are not handy, take brush and dirt and make banks. Throw dirt in on the lower end to stop the water. Then put brush in on the upper side. Set them upright, or slant them a little down hill that the water don't wash the dirt away. Then put dirt on the brush to hold them in place. Make such banks every ten or twelve yards through the whole ditch; the steeper the hill the nearer they must be together. But let them always be the depth of a furrow lower than the surface. The spaces between these banks will fill up of themselves, and by and by grass will grow over them, and the water will not again wash them out; but never plow them up again. If they are filled up too high the water will soon make a new ditch by the side of the old one.

Fences.

Straighten up all post fences while the ground is yet moist and soft. If neglected until the ground is dry and hard it doubles the labor. While the ground is soft we can push them as straight as we want them and keep them so by pounding in some dirt. But if delayed until the ground is hard they have to be dug out on one side.

Roads.

Make the roads everywhere on the farm before the ground is firmly settled, as it makes the best job, and is not so apt to wash away by heavy rains. When left until hay making, then the ground is too hard to pick or plow, and what is thrown into the road remains loose, and draws heavy when we come to haul in hay and grain. But when it is made early in the spring, it settles firmly fast by the time the hay-making and harvesting comes.

Finally.

Nothing should be put off until to-morrow that ought to be done and can be done to day; for this is only playing into the hands of that "procrastination" which is "the thief of time." —*J. G., Warwick, April, 1878.*

FACTS FOR FARMERS.

There are many valuable hints contained in the following paper read by Col. J. L. Stecher before the Berks County Agricultural Society, at its last meeting, that will be not only of interest, but of real benefit:

Mr. President and Gentlemen: I am indebted to Senator Ermentrout for a copy of the "Transactions of the California State Agricultural Society," and am amazed at the immense agricultural resources and unbounded fertility and prosperity of the Golden State, and the high appreciation of her citizens of agricultural and horticultural societies as a means of developing her resources. I have gleaned from this report many valuable facts to utilize for the benefit of our society.

State Aid to Agricultural Societies.

The Legislature of California appropriates \$5,000 to the State Society, and from \$2,000 to \$3,000 to each of the county organizations, thereby vastly augmenting their ability to give liberal premiums, which are largely in excess of those of the Eastern societies. The receipts of the State Society were over \$45,000 and the expenses about the same.

A Model County Fair.

At the great annual stock show of the Bay District Agricultural Association, one of the largest county societies, were brought together the finest and purest-blooded Arabian steeds and high-bred English race horses; horses for heavy draught, road, carriage and farm, as well as for every other purpose for which that noble animal may be used by man. Assembled there were also the noble Durham, the beautiful Devon, the milk-giving Ayrshire, the cheese-making Holstein, and the fawn-like and butter-producing Alderney and Jersey cows. The sheep were represented by the French Merino, Spanish Merino, Silesian, Cottswaldis, Southdowns, and all the various breeds in their crosses that may be found in the world, while the swine department was complete, so far as the quality of the animal and purity of the blood is concerned. The receipts of this society were about \$27,000, and disbursements about the same.

Some Liberal Premiums.

As an example of the liberal premiums paid in California, I will name a few of the principal ones awarded by the Bay District Association:

For the best Stallion of any age.....	\$100
For the best Mare of any age.....	75
Ayrshire Bull	75
Durham Bull.....	50
Ayrshire, Durham and Devon Cows.....	40
Thoroughbred Cattle.....	50
Thoroughbred Buck.....	50
Best Boar.....	30
Spanish Merino Sheep.....	30
Best exhibition of Poultry.....	20

It is amazing what giant strides have been made by California in agriculture in the short period of thirty years under the stimulating influence of agricultural societies.

Wheat, Grapes, Wines, &c.

Marvelous has been the production of grain, the State having harvested in 1876, 30,000,000 bushels of wheat. Under her genial sun the grape department will soon outrival Europe. The State has now 60,000 acres of vineyards, producing 10,000,000 gallons of wine annually, besides vinegar, brandy, rascins and fresh grapes, and has over \$30,000,000 invested in this industry. California is, perhaps, the only country where wine, at its place of production, is cheaper than milk. In 1869 a gallon of ordinary wine brought thirty cents at Los Angelos, while a gallon of milk cost fifty cents. The wine is luscious and fruity. The commercial varieties are the Champagnes, Angelica, Muscatel, Port, Sherry, Maderia, Tokay, Catawba, Hock Sparkling and Claret. The Pacific coast will be the great wine producing country on account of its climatic influence in developing and ripening the fruit, and inasmuch as the fine wines can be sold west of the Rocky Mountains at a profit, at \$1.75 a gallon, they will undoubtedly at these low prices take the place of imported wines.

Wonderful Fruit Production.

As an evidence of productiveness in the fruit department of California, Mr. Broughten, of the Santa Clara Valley, who is referred to as one of the most successful fruit growers, for his twelve-acre apple orchard was offered \$1,000 for the crop, the buyer proposing to take the fruit off the trees. His strawberry field of twenty acres yielded him \$6,400. The fruit crop of the United States is estimated by the government statistician at \$140,000,000. What a small portion of this crop is produced by Old Berks? It seems now, however, that this county is awaking from her Rip Van Winkle sleep, and will soon rank among the fruit producing counties of Pennsylvania, and thereby add largely to her material wealth.

Suggests Formation of Township Clubs.

Farmers' clubs under regular organization exist in California, meeting once a month for the discussion of subjects appertaining to the working of the farm and all other interests for their welfare. It seems to me that such organizations should exist in Berks throughout the different townships, auxiliary to our county society. Why should not the great State of Pennsylvania follow the example of her sister State, and set apart money for our societies

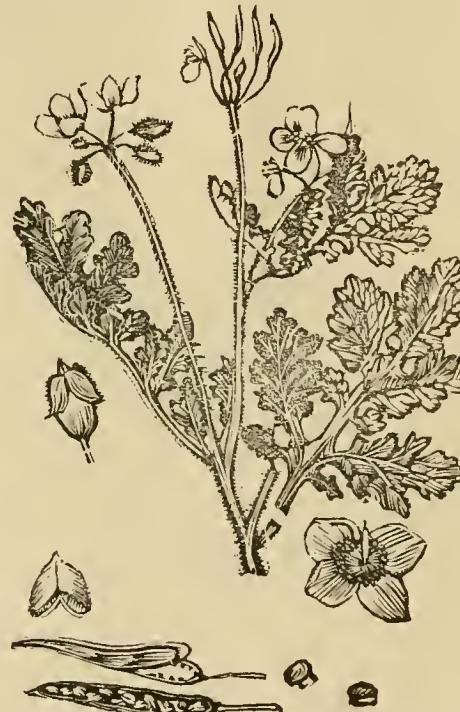
throughout the Commonwealth? Their efficiency would be vastly augmented if the Legislature wisely appropriated sufficient money to these societies to enable them to offer more liberal premiums for the exhibition of the productions of the farm and workshop, thereby stimulating all industrial classes to greater exertion.—*Reading Times and Dispatch, March 6th, 1878.*

**FOR THE LANCASTER FARMER.
CELANDINE.**

(*Chelidonium Majus*.—*Lin.*)

Chelidonium Majus, *Lin.* Also called Tetterwort, Swallow Weed, and in German, Shellkraut.

This is an introduced plant, about which there are some singular traditions among Greek authors; it is arranged in the Poppy family, *Papa veraceae*. Found growing along fences and in uncultivated grounds, among rubbish, near dwellings, formerly cultivated. It is readily known by its deep orange, yellow juice exuding from the leaves and stem when broken; the four yellow petals and the long pods suggest the idea of a cruciferous plant, but the two sepals becoming detached and carried up by the flower on opening, and numerous stamens, &c., at once shows its affinity to the poppy family. The leaves are pretty, green above, glaucous underneath,



lobed and notched, the petioles hairy, the whole plant is brittle; the juice acrid and bitter; it is analogous to gamboge, both in composition and properties, according to Dr. Thompson. I have actually used it as such in coloring a deep yellow on paper as a paint. Although not used in regular practice it certainly has the reputation of enjoying stimulating, aperient, diuretic, diobstruent and sudorific qualities; efficacious in removing obstructions of the liver, in promoting expectoration, and in cure of chronic cutaneous affections, such as tetter. Outwardly it is used for sore eyes, to dry up rheum, opaque specks of the cornea, hence the common German name, *Shellkraut*, a disease of the eyes called *Schell*. So for ring-worms and scurvy breaking out. Were I to copy from Huiland's journal of 1813, Hildanus, Ettmuller, Geoffroy, and others, all that is claimed for this neglected weed, in the cure of jaundice, scurvy, &c., but especially as an external application in healing old and indolent ulcers, removing fungus flesh, and giving healthy action to the torpid and indolent granulations, all could attest the power of this juice. This is usually called the Great Celandine; the lesser celandine is now called *Ranunculus ficaria*. Six species are described of this genus. Linnaeus comprehends the Chelidonium and Glan-

cium (Prickly Poppy). It would be interesting to trace the fluctuations of names and shifting in classifying it satisfactorily. Turnford separated them because they differ in the number of their cells. The only one then known to him had but one cell, while the glaucium had two. But it happens that *Glaucium violaceum*, which cannot be separated from their *G. luteum* and *phaeum*, which have only one cell; thus Jussieu, Ventenat, Gaertner and Dr. Smith discuss its true position and generic character, *pro* and *con*, which reveals this fact, that in nature genera and species approximate each other through some cause of hybridizing or climatic and local conditions, so that classical arrangement of the vegetable kingdom has been attempted on various systematic plans, but whatever typical or fundamental basis may be laid, some things must be admitted that do not accord in all particulars, whether the artificial or natural system is employed. Hence the study of botany has its difficulties to overcome before the mind can comprehend or recognize the plants described without ocular demonstration and close inspection.

CLOTHES MOTHS.

This name includes several distinct but similar species of minute moths belonging to the family *Tineidae*, which, in their larval state, are very destructive to woolen goods, fur, hair and similar substances. Among them may be mentioned the clothes moth (*Tinea restianella*), the carpet moth (*Tinea tapetella*), the fur moth (*T. pellionella*), and the hair moth (*Tinea crinella*). These tineans have slender bodies and lanceolate, deeply fringed wings that expand six-tenths or eight-tenths of an inch. The antennae and palpi are short and thread-like, and there is a thick orange or brown tuft on the forehead. The colors range from buff to drab and dark gray. The eggs are laid in May and June (the moth dying immediately afterward), and hatch out in fifteen days. The young worms at once proceed to work, gnawing the substances within their reach and covering themselves with the fragments, which they shape into hollow rolls and line with silk. These rolls are by some carried on their backs as they move along, and by others fastened to the substance they are feeding upon; and they are enlarged from time to time by additions to the open extremities and by portions let into the sides, which are split open for this purpose. In such ambush the worms carry on their work of destruction through the summer; rest, in seeming torpor, during the winter; and change to chrysalids during early in the spring. They transform again in twenty days and issue from their shelter as winged moths, to fly about in the evening till they have paired and are ready to lay eggs. Then follows an invasion of dark closets, chests and drawers, edges of carpets, folds of curtains, and hanging garments, and the foundation of a new colony is swiftly laid.

The early days of June should herald vigorous and exterminating warfare against these subtle pests. Closets, wardrobes, all receptacles for clothing, should be emptied and laid open, their contents thoroughly exposed to light and air, and well brushed, and shaken before being replaced. In old houses much infested with moths, all cracks in floors, wainscots, shelves or furniture should be brushed over with spirits of turpentine. Camphor or tobacco should be placed among all garments, furs, plumes, &c., when laid aside for the summer. To secure cloth linings of carriages from the attacks of moths, sponge them on both sides with a solution of corrosive sublimate of mercury in alcohol, made just strong enough not to leave a white mark on a black feather. Moths may be killed by fumigating the article containing them with tobacco or sulphur, or by putting it, if practicable, into an oven heated to about 150 deg. Fah.

Our subscribers will please consult the little yellow label on the wrapper of their paper to see how they stand.

CORRESPONDENCE.

SALISBURY, N. C., March 25, 1878.

EDITOR LANCASTER FARMER: I am sorry to say that thus far in 1878 I have not been able to send you more subscribers to your most valuable journal. All who have taken it here before, say it is a good paper and that they do not like to be without it, but that financial matters are so close that they are compelled to renew only now, at least this is the case with me. I have, however, not only been endeavoring to get former subscribers to renew, but I have also been trying to get new ones. THE FARMER is always a welcome visitor to our household; all read it with much pleasure, and derive much useful information from its columns. Being "to the manor born," I feel interested in its growth and its special welfare, although far away from you, the greatest county in the United States as we verily believe. We cannot see why the people of your great State, and especially of your greater county, do not put their shoulders to the wheel with all their "might and main." Intellectually, morally and financially I see no valid reason for excuse. I expect soon to write again, if the great *I am* permits, and to speak of things "past, present and future."—Yours truly,
M. R.

We thank our correspondent and his friends for their kindly sentiments, which are only echoes of the same encouraging character which we receive from many localities abroad. Why our own citizens do not "put their shoulders to the wheel" is, perhaps, because "a prophet hath honor, save in his own country and among his own kin," just as it has always been, and probably always will be, for a very long time yet to come. If THE FARMER was *sensational*—double-headed and double-leaded—and was issued in New York, Philadelphia, Chicago or Cincinnati, with an imposing premium list and showy pictures, no doubt twenty or thirty thousand could easily be sold in the country, and perhaps six or seven thousand in the county. We do not, however, find fault with any one on this score, but desire to let all act "in freedom according to reason." If they adjudge us unworthy we must submit to their verdict. We have now three bound volumes lying before us, and they constitute a mass of solid local reading matter, of which we are not at all ashamed, although with double the number of our subscribers, we could give them a journal one hundred per cent. better, and the chief aim of our ambition is to make it so.—ED.

FOR THE LANCASTER FARMER.

AROUND THE FARM.—No. 7.

I would like to call the attention of the farmers of our land to a little gnat that at this season of the year is troublesome to the horses. By examining the horse's ears you will find quite a colony sucking blood from the inner surface. This seems to me to be the most annoying of all the enemies of the horse, and I appeal to all horse owners to save him from their attack. By greasing the inside of the ear with a rag dipped in sperm oil or lard the trouble can be obviated, and I hope humanity has not yet died out to such an extent in our county as to leave the poor horse suffer when such easy means are at hand to prevent it.

Trailing Arbutus.

(Epigaea Repens.)

This plant is one of the prettiest, as well as most fragrant, of our spring flowering plants, and if those who do not know it will go in March or early April to some wooded hillside, where nestled among the fallen leaves, they will find a treasure worth the seeking. The plant is common in our county, generally preferring a sandy soil, though often found in rocky woods. It is a little evergreen shrub, trailing on the ground, as its name *Epigaea* expresses. The flowers vary in color from pure white to a rich rose, and as to fragrance they are not equaled by any of our wild flowers. Many have removed it to the garden, where, with ordinary treatment, it is sure to die, and some books state that it cannot be cultivated, but this is not so. By studying the natural habits of this favorite, and by giving it the treatment suited to their needs, the plant grows. The trouble with all transplanters is they remove it at the

wrong time, generally in the spring, which is the time it is putting forth its efforts to produce flowers, and hasn't time to attend to the growing business! It should be taken up in autumn with a good ball of earth around the roots and transferred to a bed prepared with leaf mold and plenty of sand, and over the whole put a thick covering of leaves; in spring remove part of the leaves, and your plant will grow on as if in its native haunts. Care must be had to plant it in a deeply-shaded nook in the lawn.

Another beautiful spring flower might be noticed at this time, the *Hepatica triloba*, which also is known by the common name of Liverwort. It is also an evergreen, often pushing its violet flowers up aside of a lingering snowbank in early spring. The most important characteristic is that it has no carolla, the sepals of the calyx being colored instead. It improves by cultivation, as all plants will. Two years ago I transplanted one from the woods to the lawn, and this spring it has upwards of two dozen blooms. By planting a variety of wild plants in a bed in the yard they will, without further treatment, except occasional manuring, come up every spring with their early flowers. In some future number I shall name a choice selection for the lawn.—*Ruralist, Crescent, April 8th, 1878.*

REVU OF MARCH NUMBER.

Best Time to Sow Cloverseed.—We, with the editor, think it strange that this question is still unsettled. Are farmers not progressive?

Philadelphia Poudrette.—Wonder if it is better than other fertilizers ov the sam sort.

Notice Extraordinary.—We wud giv a smal song for the nutmeg grater, but not haf ov won for the "smoker's pet." For coloring buter ther is nothing equal to a gud cow properly fed.

Kitchen Garden Calender for March seems to be a month behind, but as we ar having March weather in April, som ov the directions wil aplly very wel now.

Pennsylvania State Board of Agriculture.—The list ov prominent names shud constitute it, not simply a board, but a solid plank in the agricultural platform ov our stat.

Apollo.—If ther wer mor such noble stallions in the country, we mite sun luk for an improved rac of horses, provided our farmers lern to no that it can not be don with any old scrub ov a mar.

Honey Bees and Fruit Once Again.—It seems the riters ov bes hav not devoured eeh other yet. Tha mit swarm by this fin wether, but we fear tha hav no queen.

Commercial Fertilizers.—This bisnes is getting into beter shap. Farmers ma expect sun to no what tha ar bying as manure.

Report of Fruit Committee.—The comite has not given planters much choic, but the eror is generaly on the other sid. Either the comite or the printer mised the mark on raspberries in recommending Branchwine and Drobittle. We trust it was the printer.

Vinegar from Sugarbeets.—When we get a suply of vinegar and sugar from bets, the aple bisnes will be curtailed and the anexation of Cuba not required.

Brown Leghorns ar pretty birds, but \$40 for one cockerel looks rather step. We don't understand points, but he brot nerly 50c. a point, which fanciers can figur for themselves.

Tobacco Farming.—The riter ov this articel seems to understand his bisnes, if he practices what he preaches.

California Potato Cricket.—We trust he wil not get this sid the Rocky mountains.

Visiting Committee.—H. K. has made quit a detur among tobacco groers, wonder wether he registered at eeh plac.

Manures and Soil Fertilizers, by J. I. Carter.—This gentleman's reputation as an experimenter maks his essa of grat valu to farmers. So far as we hav red it ther is very little to be criticisiced on it. We can tel better when we rech the conclusion.

Pennsylvania Apples for Export.—We believ with the riter, that our stat shud gro aples

enuf for hom consumplum befor we speculat on exporting.

Grafting.—J. B. leavys the wel troden path and yet clams to be successful in grafting. Ther ar many other customs in whch it wud be saf to leav the old ruts.

More About Horned Owls.—Wonder wether tha ar related to the won that emerges from Lancaster wons a wek. If tha ar tha must be a grat annoyanc to many.

Black Hellebore.—Wonder if its application wud hav the sam effect on bipeds which get reling spels, if it wer aplid in the same wa that a frend aplid it to J. S.'s pig. If so, it mite du a grat del ov gad.

Times and Seasons.—J. C. gives som gud advis to farmers, but in cases wher he becoms munstruk tha wil not al hav fath. He fers that som wil laf, but he sas, beter laf than cri. We spos he wil allow us to laf a little at som ov his doctrin. He lays grat stres on rising and seting of the mun. He sas son in the rising wil not loge as redily as wen son in the seting. We think part wil loge, whil som wil not, as the soil ma vary, regardles of the mun. Supos we so ots in won sin and haro it in the other, it wud ball it so that it wud not no wether to go up or down. Perhaps it would refus to gro at al. He refers to a ruf wher son ov the shingles turned up, evidently from being put on in the rising sin. He compars them to bred of chikens that hav ther feathers turned the rong wa, but forgot to sa that tha wer hatched in rong sin ov the mun.

Fruits—What Varieties to Grow.—L. S. R. has switiched of from the frut comite, but we don't no that he has improved the list. He aded another shepnos ov wich our stat had had a ful suply.

Around the Farm.—This articel of "Ruralist" is excellent. We find no flaw, only we wud lik to teeh him Fonetic, to wich he sems somwat inclind.

The Tobacco Fever.—J. G. whispers sharply into the ers ov tobaco groers ho ma hav som conshens, but he may as wel preach to the Gentiles so long as it pas beter than other erops. He must not forget that even pins men's conshenses ar governed by dolars and cents, and so long as the Milenium is in the futur we must mak up our minds to inhal at times som ov the olmoxious fumes wich som of our frends chus to puf into our faces.

Fertilizers and Manures.—A. B. K. has evidently given this question a mor thoro consideration than farmers generally do. It wud be a long strid in the direktion ov progres, if tha understud beter the natur of ther soils and manurs, and also the quantetes required to produc certain crops. Tha wud not grop so much in the dark.—*Von Hombold.*

FOR THE LANCASTER FARMER.
QUESTIONS SUGGESTED IN CONVERSATIONS ON FERTILIZERS.

Are the plant-food materials, nitrogen, phosphoric acid and potash the only ones really necessary to plant growth?

The statement usually so made has reference only to the ingredients usually purchased in fertilizers.

Besides those mentioned, lime, magnesia and sulphurieacid are necessary in considerable quantities; soda is also considered necessary by some, but its necessity denied by others. Most of the just mentioned ingredients are always present in all tilled soils and are usually replaced in nearly sufficient quantity in the manures and fertilizers that may be applied.

Where can these materials be found when necessary?

Lime is contained in considerable quantities in bones, all phosphates and superphates, in guano, ashes, plaster and manure. The heavy applications of lime are not necessitated from its removal by crops, as two bushels of quick lime would more than replace the quantity removed. Johnston says, that when applied in large quantities as quick lime it eats chemically by neutralizing acids, decomposing noxious compounds, changing the inert vegetable matter in the soil, so as to render it use-

ful to vegetation and producing useful compounds in the soil. It also acts mechanically on the soil to its advantage.

Magnesia is contained in large quantities in sulphate of magnesia (Epsom salts,) and has been applied as a fertilizer, but more, I think, for the sulphuric acid than for the magnesia itself. The seeds of plants, which compose the greatest part of the produce sold from many farms, contain from two to twenty times as much magnesia as lime, and I do not see why the former should not be replaced, from time to time, as well as the latter and other plant-foods.

Sulphuric acid is supplied cheapest in plaster (gypsum), there being forty-four pounds of acid in every hundred pounds of plaster. Where quick action is wanted the sulphate of magnesia may be used, being so very soluble it acts sooner than the less soluble plaster. The cost in this case is, however, much higher, the acid costing in the plaster only about one cent per pound, while in 60 per cent. of magnesia the cost would be somewhat over five cents per pound.

Soda is often found in fertilizers and constitutes 35 per cent. of nitrate of soda, now so highly recommended for oats.

Oxide of iron and silica are also necessary ingredients of the soil, but it is not supposed that the minute quantity taken up in plant-growth will ever exhaust the quantity contained in all soils, though there are fertilizers now on the market containing silica in soluble forms.

What is the reason that in THE FARMER, for March, in a crop of 50 bushels of corn you have larger amounts of ammonia, &c., than Prof. Carter?

Prof. Carter calculates for only 4,000 pounds of fodder, (stems and leaves,) while my calculation is for over 5,000 pounds. Besides, the amounts themselves vary somewhat, so that no two chemists exactly agree, and while the writer of one article may take a certain chemist for authority the other one may take the analysis of some other chemist.

Do you believe in trials to determine what ingredients are lacking in the soil?

Yes, providing there is any profit in using chemical and other fertilizers, but not in the way generally recommended. I would make the trials in the usual manner on a part of the field, but on the part I would apply a complete fertilizer or one specially prepared for the crop, and thus make one year's additional profit.

Do you believe in special fertilizers?

To some extent, on the score of present economy. In some plants, as onions and cotton, the amounts of phosphoric acid and potash contained are nearly the same; in others, as beets and tobacco, the potash amounts to five times that of phosphoric acid; the amount of nitrogen also varies from $1\frac{1}{2}$ to 4 times that of phosphoric acid. The Ville formula gives the proportions for a complete fertilizer, as ammonia, 7.69; phosphoric acid, 5.00; potash, 7.59; for clover, ammonia, 2.55; phosphoric acid, 5.09; potash, 9.13; for potatoes, ammonia, 4.50; phosphoric acid, 5.97; potash, 13.64. From this we see that Prof. Ville considered that potash is needed in nearly twice as great a proportion in comparison with phosphoric acid in a potato as in a complete fertilizer, and that the amount of ammonia, as compared with phosphoric acid, is just reversed. If we now get a fertilizer specially prepared for potatoes we can make a heavier application for the same money, as $2\frac{1}{2}$ lbs. of potash can be purchased for every pound of ammonia saved. Where large quantities are used the saving, by purchasing special fertilizers, will be quite an important item.

Mr. Henderson, in "Gardening for Pleasure," ridicules the idea of special manures, not that he has a "reason to say that the vendor of these fertilizers was a quack," but he thinks that it makes no difference what kind is applied only so that a sufficient quantity is used. It is a well-known fact that market gardeners use enormous quantities of concentrated fertilizers, as much as one ton to the

acre. Of course such quantities will bring large crops and very early, the latter being the great desideratum with market gardeners. Mr. H. would find that where profits notch so close as in regular farming, and where a few days, earlier or later, in the maturing of a crop does not make any difference in the money value, that some study on the application of manures and fertilizers was necessary. His experience, as given in "Gardening for Profit," shows that he also uses fertilizers in a special sense, for he has found that the same fertilizer will not bring as large or as early crops after two years' successive use, and that he has to change to some other kind. The plain facts are, that he has perhaps used a bone preparation which contained only phosphoric acid, or phosphoric acid and nitrogen. The heavy crops produced exhausted the potash in the soil; he now, perhaps, used some fertilizer with a liberal proportion of potash, which was just what his soil needed, and he, of course, raised as good crops as at first. Had he used a special fertilizer I am under the impression that he would have found that his soil could have been cropped from year to year without any diminution in the crop.

But will not the soil be exhausted by using fertilizers? A great many farmers think phosphate and other stuffs run out their land in a few years.

The use of concentrated (soluble) fertilizers will run out any common soil in a short time when such fertilizer is used in small quantities. Many farmers put on but one-half, or even only one-fourth the amount needed to perfect the crop; the fertilizer being, perhaps, very soluble gives the crop a good start, so that it is carried through; but, of course, the soil has been impoverished by just as much as the fertilizer lacked the amount of ingredients taken by the crop out of the soil. This manner of applying is a very common one, and has tended in a greater degree to bring approbrium on fertilizers than perhaps anything else, except that of applying one that has only one or two of the ingredients needed by the plant as food.

Can we not bring up our soils at least cost by green manuring?

The plowing under of green vegetable matter is by some considered as the way to bring up worn out farms to pristine fertility.

Although a very good thing in itself, yet there are a number of serious objections against plowing under green crops.

In the first place, the expense is too much if it prevents a crop being taken off in the regular rotation. Clover is considered the best for this purpose, but if there is any profit in feeding cattle, or making butter, or if the clover hay can be sold for more than it would cost to replace the amount of plant-food taken up, then would it be best to use or sell the hay and purchase the fertilizer.

It is urged that our soils need humus, and I have no doubt they are benefitted by it, but I also believe that with the aid of a good fertilizer a crop can be raised that will leave enough roots in the soil to fully supply the humus needed. The trials of Lawes and Gilbert seem to bear this out; they raise crop after crop on the same soil, by the help of artificial fertilizers, and sell the whole crop, never applying stable manure, and the only humus the soil can possibly have is from the stubbles and roots. I have no data at hand now, but I am under the impression that their crops average higher now than they did at first.

It is not clear to my mind that humus is absolutely necessary, but do not deny but what it has a favorable action on plant-growth. If we would apply the plant-food ingredients contained in the humus, as so much nitrogen, phosphoric acid and potash, the effect might be the same. In the experiments on "water culture," and "artificial soils," the humus is omitted, at least in the former case and generally in the latter, and yet the plants raised are as healthy and prolific as if grown in a natural soil.

Another error is, the supposition that green manuring increases the amount of plant-food

ingredients in the soil. Nitrogen alone is supposed to be derived partly from the air, and this then is the only ingredient of the soil that would be increased in amount, the phosphoric acid and potash remaining the same. We have, however, to take into consideration that deep-rooted plants, like red clover, will, with long slim roots, appropriate whatever they find in the subsoil and store the materials in the thickened roots above. The crop above ground and roots below will, of course, make a bulk of decaying vegetable matter that will carry any crop through. But the subsoil is not inexhaustable, and sooner or later it will also be in the same condition that the surface soil is—exhausted of plant-food below the minimum amount needed for healthy plant growth.

Do you think then that all farms will at last be run out? Your argument seems to point that way.

I believe that any farm will run out in time, no matter how well it is taken care of, if any part of the produce, vegetable or animal, is sold off and nothing brought from some foreign source, to replace the plant-food that was required to grow such produce. It may be slow in many cases, but the exhaustion is none the less certain.

Where will the enormous quantity of fertilizers come from at last if this theory is accepted?

Nitrogen and phosphoric acid are supplied by Peruvian guano, fish scrap and bones of animals; phosphoric acid is found in a rock called apatite; phosphoric acid is also found in large quantities in the extensive deposits in South Carolina, known as phosphate rock; impure potash salts are mined at different places, the largest being situated in Germany, from whence a great part of what is consumed by us is brought.

I have no doubt that many other large deposits will be found in time, yielding the essential plant-food materials, and should even beds now in existence be eventually exhausted, I have no doubt nature is preparing fresh beds that will be then available.—A. B. K.

CORRECTION FOR MARCH.

In the article, "Fertilizers, &c.," commencing on page 43 of THE FARMER, for March, for "19 $\frac{1}{4}$ lbs. ammonia," read "85 lbs. ammonia." In the words *color average* strike out the word "color."

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The Lancaster County Agricultural and Horticultural Society met in the Athenaeum rooms on Monday, April 8. Present: Messrs. M. D. Kendig, Manor; Levi W. Groff, West Earl; H. M. Engle, Marietta; S. S. Rathvon, city; Henry Kurtz, Mount Joy; Casper Hiller, Conestoga; W. H. Brosius, Drumore; Johnson Miller, Warwick; Wm. McComsey, city; L. N. Hunsecker, Eden; Joseph F. Witmer, Paradise; Elias Becker, Warwick; John Huber, Warwick; David G. Swartz, city; Peter S. Reist, Lititz; John H. Landis, Manor; J. G. Resh, Willow Street; A. B. Groff, West Earl; J. B. Weisgarber, city; Simon A. Ilershey, Salunga; I. L. Landis, Manheim; Major Spera, Ephrata; Jacob Bollinger, Levi S. Reist, Manheim; Jacob B. Garber, E. H. Hoover, Manheim; W. W. Griest, city; F. R. Difenderffer, city; J. M. Johnston, city; C. Carpenter, city.

In the absence of the President, M. D. Kendig called the meeting to order.

The reading of the minutes of the previous meeting was dispensed with.

Mr. HENRY KURTZ stated that arrangements have been made to secure quarters in the building of the Young Men's Christian Association. Mr. S. P. Eby, who had the matter in charge, was not present, but had authorized him to make this statement.

Crop Reports.

Mr. KURTZ said that in the winter it was thought that the wheat crop would be injured to a great extent by the Hessian fly, but this fear has happily proven unfounded, as the wheat looks unusually well. In fact it never gave better promise than at present. Grass crop also favorable.

Mr. HILLER said the weather is and has been very unfavorable for fruit.

Mr. ENGLE also reported on the fruit crop. At one time during the cold snap they were in despair,

as so many huds were killed by the frost, but the prospects at present are very good. The apples have not been injured at all, and the fruit crop in general is good. The grain crop never promised better than at present, as on a trip as far up as Franklin county he did not see one poor field. The clover and grass crop are good.

MR. MILLER reported that the grain and grass crops run well, and wheat is favorable. They will also have a large crop of hay. There are very few poor grain fields, and what can be found result from no other cause than poor farming. Some potatoes have been planted. The fruit crop is good. Temperature during the cold snap, two weeks ago, 17 above zero.

MR. BROSIUS reported that the grain was in excellent condition with the exception of that sowed early.

MR. GROFF said that in his section they were frightened during the cold spell about their fruit, but it all survived, and apricots and peaches are especially fine. In regard to wheat, the prospects are good. A great many visitors had examined his wheat fields, planted and cultivated under the new plan, and he would like a committee of the society to examine it. He extended a cordial invitation to all to visit him.

MR. HOSTETTER's report was similar to those preceding it. Some of the wheat is in good condition and some is not. Some that was sowed on the 29th of September is in good condition, as is also that sowed on November 19. Grass is very promising.

MR. ENGLE wanted Mr. Hiller's reasons for saying that the weather has been unfavorable for fruit.

MR. HILLER said he based his opinion on his previous observations. Last year when everybody was predicting full crops, he said that there would not be much fruit, and there was not. The weather is too cool. Peach pollen will not ripen at the present temperature, and if it keeps this cool for a week longer we will have no peaches.

Commercial Fertilizers.

MR. CASPER HILLER, to whom had been referred the question as to the profit derived from the use of commercial fertilizers, read the following essay:

At the March meeting of this society this question was referred to me, "Have we any evidence that Commercial Fertilizers pay in this county?" In the northern and middle sections of Lancaster county the thorough experiments with them have been too few to determine their full value. The question should have been referred to one section of our enterprising farmers in the southern of the county, where they have been and are extensively used.

In my own experience, of twelve or more years ago, I had some good successes and some bad failures. The best success I then had was with Peruvian guano. Seven dollars' worth on an acre produced over twenty bushels of wheat, on land so poor that it would not have produced five bushels without the guano, and besides I got a good stand of grass. The greatest failure was with two tons of a Philadelphia superphosphate, that cost about one hundred dollars—applied five hundred weight to the acre, and never saw any effects of it.

Many of these so-called superphosphates were dug out of a bank of earth of the right color, and the proper "stink" was easily and cheaply mixed in. These so-called commercial fertilizers brought the whole list into disrepute, and our farmers ceased to use them. But during the last few years, in our tobacco growing mania (having in mind the impoverished fields of Maryland and Virginia, made so by growing tobacco) we were compelled to husband our manure resources to the fullest extent, and to experiment with various artificial fertilizers. From my own experiments and from what I could gather by corresponding with persons in different parts of the county, I would say that commercial fertilizers, as now made, are far more reliable than those formerly made. Chemical science tells us that ammonia, bone phosphate, potash, phosphoric acid, etc., must be present in certain proportions in our soil, or we will fail in producing good crops.

Prof. Ville, of Paris, Prof. Stockbridge, of the Massachusetts Agricultural College, and other eminent chemists, have given formulas for the manufacture of fertilizers, adapted to different soils and different crops, and our enterprising manufacturers have adopted those formulas and guarantee them to contain so much per cent. of phosphoric acid, etc. Legislatures have passed bills to see that the guarantee means what it says.

I give a few cases of the use of these fertilizers as reported to me by our friend J. C. Linville.

Isaac Eby, in 1876, applied nitro-phosphates on corn-stalk ground for wheat. Yield, 28 bushels per acre, a large and paying increase. C. Lapp applied a special phosphate for tobacco. He says it paid. C. Kauffman used nitro-phosphate on wheat ground last fall. The difference in favor of the phosphate ground can be seen at a distance of half a mile. He also mentions some bad failures of his own, and also of Charles Brinton. Whether these fertilizers were of the "earth bank" kind I am not able to say; one of the kinds named is, however, the same as my own great failure.

James Collins, of Quarryville, reports the "Star"

fertilizer good for wheat and grass, and says it pays.

I give a few of my own experiments of last season: Poudrette, applied at rate of \$15 per acre, producing a crop of tobacco equal to a heavy dressing of stable manure that would have cost at least \$30. A dressing of nitro-phosphate on potatoes, cost \$12 per acre, was a failure, perhaps owing to other causes than the manure. Ten dollars' worth per acre on potatoes of acidulated South Carolina Rock (Baugh's) was quite satisfactory. The nitro-phosphate, which was so signal a failure on potatoes, is fully as promising as the plot which received the heavy dressing of stable manure. An adjoining plot, on which no manure was put, is quite poor looking.

Mr. W. P. Bolton, writing from Little Britain, says:

There seems no longer to be any doubt of the practicability of applying chemical manures to fertilize the soil in this part of the county, except it be on the farms near the Susquehanna, where it does not seem to be established, that they make sufficient increase in crops to pay for their cost. On the heavier soil, extending over the whole gneissic district included in the county, the best farmers agree that phosphates pay. Our farmers have been applying it to wheat for a number of years, more recently to corn, and it is now used by many for oats, showing more marked results on the last crop, than either of the former. The usual rate per acre is 400 or 500 pounds for wheat and corn, and 100 or 200 pounds for oats. There are some now who are applying 700 or 800 pounds per acre, and think it profitable to do so. It is an unusual thing to hear farmers say that an application of 400 or 500 pounds is equal to an ordinary coating of barnyard manure. The kinds mostly used in this vicinity are superphosphates, ammoniated phosphates and dissolved South Carolina rock.

In this immediate neighborhood (Liberty Square) most of the farmers make a compound phosphate themselves by mixing dissolved bones, plaster, soda and potash; the whole to be dried with earth or sand. The cost is about \$20 per ton. This, it is claimed by many, is equal to the best commercial fertilizer, costing from \$36 to \$40 per ton. As to the method of applying them, it seems to be generally conceded that Carolina rock and ground bones should be plowed down, while the compounded articles, containing the alkaline salts, should be drilled and dropped with the seed.

From my own experience and observations I am convinced that the best results may be obtained by applying chemical fertilizers along with barnyard manure. If a farmer has, for instance, 20 acres to be planted, has barnyard manure enough to cover 10 acres, and intends putting phosphate, at the rate of 400 pounds per acre, on the other 10 acres, it will pay him well for the extra labor to spread the manure over the whole 20 acres, and then apply 200 pounds per acre of fertilizer with the seed or by working it into plowed ground before the seed is planted.

This manure question is an important one to all tillers of the soil. We in this county of Lancaster, should not rest satisfied if we raise less than 30 bushels of wheat and 100 bushels of corn per acre. Stable manure and lime judiciously and plentifully applied would bring the answer. But when we take into consideration the amount of capital, and interest, and labor, and grass, and hay, and corn, and corn-fodder that goes into the manure pile, we must admit that it is a costly article. Cipher it out and see if you can make it less than \$30 per acre. But with all this cost those that make the most manure appear to be the most prosperous. However, there is a limit on every farm beyond which it cannot be made, and that limit is generally short of the required quantity.

John L. Carter, in his paper read before this society, gives us an experiment in which acid South Carolina rock gave more corn, cornfodder, oats, wheat, hay and straw, in a rotation, than a liberal dressing of stable manure did, in a similar rotation, on an adjoining plot. It is clearly our interest to find out, by experiment, what kind of (if any) commercial fertilizer is equal or superior to stable manure. If we can arrive at a satisfactory conclusion then we can spread ourselves out in high farming. We need no longer half feed our fields, for what the manure pile lacks, can be supplied by the artificial fertilizer.

From my own experience and from information given by others, I would answer, that commercial fertilizers pay in this county. In coming to this conclusion I do not base my opinion altogether on the increase of the first crops, but also include a margin for the permanent improvement of the soil.

MR. KURTZ had tried commercial fertilizers, but he had not much confidence in them where the manure pile was good. If you take a tract of twenty acres, cover ten of it with manure and ten with fertilizer, the manure part will come out ahead. He had tried guano, costing \$60 per ton, and it was not as good as hen manure.

MR. BROSIUS had a reason for the difference of opinion in regard to fertilizers. If you apply 400 pounds of fertilizers to rich limestone land it will not have the same effect that it would have on so much poorer land.

MR. ENGLE was fully alive to the importance of the question. If he expressed his views as the result

of his former experience he would also declare fertilizers a humbug, but his land was in such a high state of cultivation that it did not matter much what was put on it. But we are now pushing our lands more strongly, and there are very few fields in the county that would not be affected for the better by some fertilizer. All fertilizers that have the necessary ingredients will answer a good purpose if properly applied. Of course, if we had plenty of manure, we would want nothing better, but we are always a little short and want something to fill its place. There is no question but that commercial fertilizers, not adulterated, will pay.

MR. MILLER thought that we ought to be able to make enough manure without buying fertilizers. He had a plan which, if successful, would be worth carrying out. He proposed to plant clover wherever possible. He had planted it in his oatsfield, and would plow it down, saving the manure for other fields. By putting out manure two or three times a year he thought it could be made to last longer.

A number of members advocated the clover plan, which led Mr. Hunsecker to say that no doubt clover was good, but it don't follow that fertilizers are useless.

MR. GROFF hadn't missed a season for the past twenty years in sowing clover in his cornfield, and the wheat planted next year did admirably.

MR. HILLER thought this talk about raising clover for manure was well enough for men who had rich farms, but how can they do this on some of the farms in the lower end of the county where if they would sow a bushel of clover they would never see a stalk of it. The best thing for an impoverished farm is fertilizers. There are farms that can be bought for \$15 per acre that can be brought to yield from 30 to 40 bushels of corn per acre. In the face of such evidence we must conclude that commercial fertilizers pay. We must make experiments if we wish to know what particular kind to use, for we may be using one whose predominant element is phosphoric acid, when our soil needs potash.

MR. GROFF said that when he talked about clover he did not mean to denounce fertilizers, and Mr. Hiller told of the success that attended some of his experiments with plaster.

MR. PETER REIST thought experiments were of great benefit, and this society could make some if it had the assistance of Uncle Sam as had the Experimental Farm, and it should receive assistance.

The discussion on the question was closed, and on motion, a committee of five, Johnson Miller, Joseph F. Witmer, Wm. Brosius, John C. Linville, Casper Hiller, were appointed to make experiments with the different fertilizers, and report to the society.

Beautifying Rural Homes.

MR. KENDIG, the President pro. tem., read a most interesting essay on "Beautifying Rural Homes."

Little did I think when I promised to prepare a short paper on this subject that the field is so broad and the task so delicate. It is one in which the greater portion, if not all, of us are more or less interested, for we no doubt all aspire to become the happy possessors of a beautiful home, to bask in the sunshine of its genial influence.

Looking around us, over this comparatively old and long-cultivated section of country, once heavily covered with timber, we see abundant evidence of improvement of every description. The lofty forest trees have been swept away, and the pioneer's rude hut of logs is no more to be seen; but fields of bountiful crops, and comfortable dwellings, surrounded by refinement and luxury cover the land. Perhaps more especially within the last ten or fifteen years, the evidence of the growing prosperity and happiness of our rural citizens has been apparent in the great improvement made in farm buildings, as also to a certain degree in the taste displayed in the ornamentation of the grounds surrounding the residence. Conceding, then, that there has been considerable progress made in rural adornments, there remains yet much to be done, especially in making our door yards or lawns more attractive. There is, perhaps, no employment or recreation which affords the mind greater or more lasting pleasure than that of beautifying our homes by a judicious planting of the surrounding grounds, and the taste once awakened or acquired, knows no bounds narrower than the estate.

In order to make our homes beautiful and attractive in the highest sense, it is not only necessary that we have a fine mansion with a garden or yard filled with choice trees and shrubs surrounding it, but that the whole estate or farm be managed under the best regulated system of husbandry, with fields regularly divided by good and durable fences, filled with luxuriant crops of even and rich growth, everywhere free from weeds of every kind, as a background or setting for our picture of our beautiful home. The borders, especially those along the roadside, should be planted with native trees, while here and there a small group scattered over the estate will have a very pleasing effect. If the house is some distance from the public road, the lane or approach should also be planted on either side, thus forming a beautiful avenue of egress and ingress to the place.

We now come to the front yard. This should be of

sufficient area to contain space enough for the vegetable garden, the finer fruits, and the lawn or pleasure ground, all inclosed by a neat and substantial fence well whitewashed or painted. There is no occasion for subdividing this ground by division fences, as is so generally done, but for which I think there can be no apology. An upright grape trellis or a green hedge, for concealment on the side of the vegetable garden, towards the house, is at the most all that is necessary. Too many fences, especially when in close proximity to the house, always give a place a mean and contracted appearance. The finer fruits, such as pears, plums, apricots, fibberts, persimmons, etc., may be planted along the side and back part of the ground; while the more immediate surroundings and the front should be devoted to ornamental planting or the pleasure ground. Here our first care will be to secure a good thick set of grass, as the groundwork of all rural beauty and adornment. Taking our front yards, as we generally find them, with a soil of a rich character, naturally productive of a good turf, all that may be necessary is to give the surface a good, thorough cleaning, filling up all the little holes and inequalities with fine earth or pieces of sod, making the surface as smooth and even as possible, and frequent clippings will give you the much-admired "velvety lawn." A liberal top-dressing of tobacco stalks in the fall and removed in the spring will help the sod surprisingly, giving it that rich, dark green appearance so pleasing to the eye. I would advise but few walks, but those well made, with sharp cut outlines. Dig a trench, eight or ten inches deep, of the desired width, fill up with small stones to within a few inches from the surface, not forgetting to set up flat stones or brick along the side to keep the grass from straggling over (which always gives a place a slovenly appearance), and dress off with gravel, and you will have a walk that will always give satisfaction and last a lifetime with very little repair. Flower-beds, like walks, should be few in number, with outlines distinctly marked and of medium size. The mixed arrangement of plants is very beautiful from its variety and constant succession of bloom, although fashion decrees to plant in masses. With a few well-made beds, planted with a batch of pansies and spring bulbs, some ever-blooming roses, and a few exotics, the showy petunias, a good admixture of geraniums, and a few other annuals, we will have a continuous display of flowers, ever-changing, giving us enjoyment and interest throughout the whole season.

Good taste and judgment should be exercised in the selection and disposition of trees for the lawn. None but the finest—those having the most desirable characteristics, and are in good keeping with the place, should be chosen. If the place is small, as most country places are, large sized trees should be entirely discarded. Among those of small and medium size, and well adapted, are the flowering ash, horse-chestnut, cork maple, Judas tree, the magnolias, salisburia, all very beautiful, and each one possessing a characteristic of its own. These should be disposed of according to nature's plan—in groups, masses and single specimens. Straight or geometrical lines in planting give a stiff and formal appearance. Shrubs should be liberally introduced, no less on account of their size than the beauty and abundance of their flowers. These may be grouped with good effect throughout the grounds; the rarer and finer ones being disposed about the dwelling. Open seats of any simple construction are among the most useful and convenient decorations for the pleasure grounds. Situated in different portions of the yard, beneath a leafy canopy, and at some distance from the house, they always offer an inviting and agreeable place for rest or repose.

Where a suitable place can be found for its display, rockwork, with its accompanying drapery of plants and foliage, has a very beautiful and picturesque effect, and will cost but little. A jet of water issuing from it will brighten the charm very much.

This may be had without incurring much expense if there is a natural source of water, or cistern on the place, somewhat higher than the jet is to rise. All that is necessary is to carry the pipes from the source (under the ground to keep from freezing) to the jet. In the absence of these sources of supply, a miniature fountain may be constructed at very little cost by placing a barrel, or other vessel, with water at the required elevation as a reservoir, in a secluded place among the bushes for concealment, from which to draw our supply. This will feed a small jet four or five hours, when it will have to be replenished. Of course this is only intended to play at intervals, as may be convenient or desirable.

In all our embellishments, by a great variety of objects of interest, we must always seek to harmonize them as a whole, in order to give that unity of taste and expression which we so much admire in any work of art.

Now, my utilitarian brethren may say these improvements, producing such interesting and beautiful results, will not only cost a great deal of labor but also a large expenditure of money. True; but are we not more than compensated in the comfort and pleasure derived, as also in the increased market value of the place? Besides, profit should not be the only consideration, at least not to those of us

who desire to unite with our pursuit something to gratify our taste, and to give a higher charm to our occupation.

In conclusion, I would say that whatever improvements in adorning our homes are undertaken, whether of the simplest kind or of a more stately character, should be well done and carefully attended to afterwards. Neatness and order should characterize every part, without which no place can in reality be called a beautiful home.

A number of members made remarks at the conclusion of the reading. Mr. Egle said it pleased him very much, and if all our farmers would copy after its suggestions, in five or ten years their homes would present a very different aspect.

Mr. BOLLINGER asked if tobacco stalks were good for a lawn dressing, and was answered that they were the best fertilizer for that purpose.

Mr. BROSIUS thought it was not necessary to have a grand home to make beautiful. Some of our most humble homes are the most attractive by reason of their beauty.

MR. SWARTZ pronounced it a fine essay, but the essayist had omitted one thing necessary to secure the beauty and comfort of a home—the location. In traveling through the country we find so many fine buildings built along streams, and in low, unhealthy places. Now it would be far better to choose an eminence on which to build, so as to escape malaria, etc.

Messrs. Engle, Reist, and other members indorsed Mr. Swartz's views, and a vote of thanks was given to the essayist.

One Hundred Bushels of Corn to an Acre.

MR. BOLLINGER, to whom had been referred the question, "How can a man raise a hundred bushels of corn to the acre?" answered as follows:

In the first place, let us see how a man can't raise a hundred bushels of corn per acre. He can't do it by sitting around the tavern or at the corner grocery talking politics; he can't do it by being away from home four or six days of each week; neither can he do it by being at home and sitting on the stool of idleness reading newspapers, not even if he reads THE LANCASTER FARMER, or any other agricultural paper. It has been asserted on this floor that every farmer should be a scientist, a chemist, and should know how to treat his land the same as a doctor does his patient; that it is time we get out of the old ruts our fathers used to wagon in. Now let us picture to our imagination one of those book farmers (or upstarts, if you please;) see him sitting on his great arm chair smoking his cigarette, with the piccadilly collar fresh starched, his shirt bosom ruffled up to his chin. And a breastpin as highly galvanized as the financial condition of his father-in-law will warrant. He is now thinking of preparing his ground for corn; he thinks he can get no better authority than Horace Greeley on "What I know about Farming." He says from six to twelve cords of manure and two hundred bushels of lime per acre is not too much. He tells his hired man so, but his hired man, being a practical farmer, tells him that quantity will not near cover all the ground he intends putting in corn. Well, he then agrees on six cords and one hundred bushels of lime. Next, as to the plowing: "Greeley says 'Plow deep and you will find something more valuable than gold, turn the sod well under at an angle of about 45 degrees.'" The book farmer is sure of a good crop of corn, because he is following the directions of one of the best authorities of the age. After he has finished hauling manure and plowing, he receives the March number of THE LANCASTER FARMER; there he sees Mr. Carter's essay, and reads that he had no better results where he applied manure than where none was applied with advice to plow shallow. What! Who is this Carter? Well, he has control of the State Experimental Farm in Chester county, and what he says ought to be good authority. He values manure at six dollars per cord, and lime at fifteen dollars per hundred. The farmer's hair begins to stand on end; he says six cords of manure costs \$36, one hundred bushels of lime cost \$15, making fifty-one dollars. Fifty bushels of corn is considered an average crop. His corn would now cost him one dollar per bushel, without counting cost for seed or labor. By this time Mr. Kennedy has the floor; he says "feeding corn into cattle don't pay; a man fed 20 head, giving 40 bushels of corn to each animal, and he got one hundred dollars more than first cost, or 12½ cents per bushel for his corn, throwing rough feed and labor in the bargain." Mr. Kurtz says "feeding corn into cattle does pay," and he goes on to prove it. Mr. Hoover thinks by going over the county he can point out all the farms that cattle are fed on. Mr. Hiller believes in commercial fertilizers. By this time all want the floor, and the curtain drops.

Next I see my book farmer on the street a bankrupt, asking the suffrages of the voters to elect him to some lucrative county office, or to the Legislature, to make laws for the people; and let me just say, that in too many such cases men are successful. Now, let me tell you, in a few words, how I think one hundred bushels of corn can be raised on an acre: First, by a judicious and liberal application of lime and manure; by a thorough cultivation of

the soil; by selecting good seed of a good variety, and having it equally distributed in rows or hills, I care not which. My plan is to give a light coat of manure and about 125 bushels of lime per acre; plow most in the fall; cultivate thoroughly before planting; plant in rows from 12 to 15 inches apart. I have not had less than 60, and as high as 93 bushels of shelled corn per acre, as hauled from the field. My opinion is, that all the rough feed and grain, except wheat, should be fed into stock and converted into manure for the farm, if we want to make farming pay. Why is it that Lancaster county stands first as an agricultural county? My answer is, because there are more steers fed here than in any other county in the State. Why do we hear the cry on every hand that farming don't pay? Is it because the earth refuses to return her increase? I answer, no! Is it because our products are worthless? No! We raise as much grain and get better prices for the same than our fathers did, and they made money and got rich. If we have nothing left at the end of the year the fault lies with us; we live too extravagantly. I have, perhaps, wearied your patience, for which I crave your indulgence.

MR. HILLER said he lived in Conestoga, the poorest part of the county, and they raised 80 bushels of corn to the acre. All that is wanted is plenty of stable manure and lime. But the trouble is that you can't buy manure at any price. If it could be bought it would cost about \$40 to manure one acre, and it would be profitable to do it; not for the corn, but for the succeeding crops. Did not see why one hundred bushels could not be raised to the acre.

MR. GROFF agreed with Mr. Hiller. If we do our duty it is easy to raise the required one hundred bushels. We should try to raise a quart of corn from every 3½ feet of ground which would make 111 bushels to the acre.

MR. LEVI S. REIST thought Lancaster was not a corn-growing county, and he did not believe there was a single farm that could produce one hundred bushels to the acre.

The question was further discussed by Messrs. Brosius, Miller and Witmer.

"Shall we continue to grow the apple, and to what extent?" was continued until next meeting.

New Business.

Mr. Levi W. Groff's invitation to the society to visit his farm was considered, and, on motion, a committee appointed to do so, as follows: M. D. Kendig, II. M. Engle, Jos. F. Witmer, Jacob Bolinger, Peter S. Reist, Wm. McCormay.

A bill for chairs amounting to \$2.30 was presented and ordered to be paid.

Business for Next Meeting.

"What is the best time to cut grass for hay?" H. M. Engle.

"Root crops," by Calvin Cooper.

American Silk Worm Moth.

Henry Kurtz presented a moth on which Prof. Rathvon delivered the following opinion:

The moth is the *Saoia cecropia*, or great "American Silkworm Moth." The larva feeds on the foliage of the apple, pear, plum, and some others, but mainly on these three; it, however, never becomes very numerous. Towards autumn the larva spins a very large, light-brown, oblong silken cocoon, usually on a twig, or the stem of tall weeds in secluded places. If we have any native silk-spinning moth that might be utilized, it is this species. Europeans have been experimenting with it, but so far with only indifferent success. Adjoined.

TOBACCO GROWERS' ASSOCIATION.

The Tobacco Growers' Association of Lancaster county met on Monday afternoon, March 17th, at 2 o'clock, in the Atheneum rooms. The following members were present: Messrs. M. D. Kendig, Manor; Webster L. Hershey, East Hempfield; Washington L. Hershey, Rapho; J. Hartman Hershey, Rohrerstown; J. Hoffman Hershey, West Hempfield; Sylvester Kennedy, Salisburia; J. M. Johnston, city; W. D. Hoar, Salisburia; Henry Shiffner, Upper Leacock; I. L. Landis, Manheim; Henry Mayer, East Hempfield; A. H. Yeager, East Lampeter; F. R. Diffenderfer, city; John Brady, Millersville; J. M. Frantz, Lancaster township; Simon Hershey, West Hempfield; Christian Shank, Salisburia; J. G. Rush, Willow Street; C. Carpenter, city.

The reading of the minutes was, on motion, dispensed with.

MR. KENNEDY announced that the Visiting Committee would be ready to report at three o'clock.

Reports on Crops.

MR. KENNEDY said that a few buyers had visited his section, all of whom had offered low prices for the tobacco, which the farmers concluded to take rather than keep their crop on hand.

MR. LANDIS said that in his section very little tobacco was selling, and what was sold brought very low prices. A neighbor told him of a lot that sold as low as 2 and 4. The highest price paid was 13 cents.

MR. J. HOFFMAN HERSHY, of Salunga, said there

was nothing stirring in that section. One lot of tobacco was sold at 16, 8 and 3.

Mr. MAYER reported tobacco sold at low figures, and Webster L. Hershey reported new crop seed beds had been sown. A number of buyers had visited them but the prices they offered were too low. At Petersburg lots were sold from 20 down to 16, 8 and 3, and even less.

Mr. WASH. L. HERSHY reported a sale of five acres of tobacco at 15, 8 and 5. Three or four buyers had been inspecting tobacco but only one of them bought, and he paid 7 cents in bulk. Another buyer bought at 10 and 3, 8 and 3, 6 and 3, and some was brought to Lancaster which sold at 6 and 3. Mr. Duffy had 60 acres of tobacco for which he had received 22, 8 and 5; 20 and 5; 18 and 5; and 15 and 5.

Mr. YEAGER reported one-third of their crop sold at prices ranging from 19 down to 16 and 3.

Mr. JOHNSTON stated that the business was pretty brisk in the city, and prices ranged from 15 and 5 to 8 and 3.

Mr. KENNEDY said he lived near a station, and saw farmers going to the city with samples every day. They found that they had to have money, and would sell at any price. There is so much of this business in Lancaster that the buyers do not find it necessary to run around the country.

Mr. LANDIS reported a lot sold in this city to Rohrer as low as 2 and 4. A lot was sold at Oregon at 3 and 2.

Referred Questions.

"What variety of tobacco should be cultivated?" had been referred to Mr. Landis, who answered that he could not answer the question very well, not having had enough experience. The Kentucky seed leaf, the Connecticut broad and narrow leaf, the Chestnut leaf, the Pennsylvania seed leaf and other varieties each have their advocates, and he did not know which was best.

In answer to a question by Mr. Kennedy, Mr. Yeager described the chestnut leaf as having the leaves very close together, and very narrow; would color dark.

Mr. SHIFFNER said the trouble was that farmers did not know how to distinguish the varieties of leaf. One man described Chestnut leaf as being wide, and another narrow; one man said Pennsylvania leaf was broad and another narrow; how are we to tell which is right? The same thing happened with Florida leaf. Broad leaf Connecticut is the only leaf on which we can rely. He described the properties of a good leaf; when opened it must be elastic and stretch; there must be no hardness; it must have a silky back, with at the same time a good body; it ought to be broad and tapered. It will never get elastic if it is not grown right, and if well grown it can be hung any place and when taken down will be better than a poorly grown plant well hung. Slow growth makes leaves thick and leathery, and rapid growth makes them silky. He recommended ashes and gypsum to make tobacco grow rapidly.

WEBSTER L. HERSHY told of a variety of tobacco that did not produce any suckers.

"What is the best method of raising plants?" had been referred to John Brady, who was not then present, but came in afterwards and said his plan was to plow deep in the fall, put on manure heavily, in the spring to rake it off, put in the seed, cover it with hog bristles, cover with laths, and he always raised the best early plants.

Mr. KENNEDY said a number of things were requisite. First was a warm situation, on the south or east side of the wall; next that the ground is not allowed to bake too hard; sow early.

MR. J. HARTMAN HERSHY had his fence very tight, so that the wind could be kept out of the yard, which had a southern exposure. He took three or four spoonfuls of seed, and mixed them with a half bushel coal screenings which he sowed over the whole bed two or three times. Then he presses the ground down with a spade. After this he puts bristles on and kept the ground moist.

"Is early plowing good for the culture of tobacco?" was referred to Harry M. Mayer, who answered in the affirmative.

Mr. WASH. L. HERSHY plowed both in spring and fall.

Mr. LANDIS thought that working and pulverizing of the soil was highly beneficial. He had heard of a good crop being raised on land from which an early crop of hay had been taken.

Mr. J. HOFFMAN HERSHY advised early plowing, as early as possible in the spring if not in the fall.

Mr. KENDIG also gave the same advice. If you wait till it gets late to plow, the ground gets rough. Plowing should be done as soon as the ground is dry enough to crumble. Mr. Yeager also gave the same advice.

Mr. J. HARTMAN HERSHY asked if he plowed now if it would be advisable to plow again about a week or two before he planted.

Mr. SHIFFNER advised him not to plow again if he plowed now.

The Visiting Committee.

J. M. FRANTZ, chairman of the Visiting Committee, reported partially, and on motion the committee was continued to make a fuller report.

Business for Next Meeting.

"When is it proper to plant tobacco?" To Harry M. Mayer.

"Should the diminution of the area now planted in tobacco be encouraged?" General discussion.

"Will it pay to pack and store tobacco at present low prices?" To Washington L. Hershey.

Adjourned.

LINNAEAN SOCIETY.

A stated meeting of the Linnean Society was held on Saturday, March 30th, the President, J. S. Stahr, in the chair. Seven members present. After attending to preliminary matters, the donations to the museum were found to consist of the mounted skeleton of a turkey (*Meleagris gallopava*) per Mr. Geo. Flick. On motion, a vote of thanks was given him. Branches of peach trees, one showing the excavations of a beetle like that of *Scolytus* or *tomicus*, per Mr. D. Smeych; the other infested with the *Lecanicum persicum* or peach tree scale insect, per Mr. Gundaker. Flowers of the *Euphorbia poinsettii*, raised by Mr. Rathvon, the Nectaries overflowing with honey so as to drip profusely; taste agreeably sweet. A large-sized oyster shell, densely incrusted with the tubular stony cases of the *Serpula*, per Mrs. Haines, of this city. Some Micaceous sand; the numerous glistening scales were deemed of mineral value by the finder, per "Charley." Two blown canary eggs, per S. M. Sener.

Proceedings of the American Philosophical Society of Philadelphia, vol. xvii., No. 100, May to December, 1877; pamphlet containing list of surviving members of said society; annual report, explorations and surveys in the Department of the Missouri, by E. H. Ruffner, 1st Lieut. of Engineers, U. S. A., sent per Henry Landis, M. D., the corresponding secretary of the "Historical Society," of Reading, Pa., with a printed card asking reciprocal exchange. On motion, a vote of thanks was unanimously given to the society through their secretary, and the request agreed to. Mrs. Gibbons laid out on the table No. 9 of the *Journal*, edited by Dr. Jos. Gibbons. THE LANCASTER FARMER, for March, 1878; January and February Nos. of *Field and Forest*; four old newspapers, list of Botanists, United States pamphlet, an old coin, and eight envelopes containing about seventy-five clippings from papers of Biographical or Historical value, per Prof. S. S. Rathvon. No papers were read; sundry verbal remarks were made on the honey dropping *Euphorbea*; query as to its use for bees; also on the insects on the peach, by S. S. Rathvon; J. Stauffer made some remarks about these parasitic *Anellidians* found on sundry shells and other substances in the sea, with their tortuous stony-cases open at the free end, tapering to a point of attachment to the shell, in dense clusters, known as the genus *Serpula*. Those are small; some of the family attain a length of three feet in the exotic oceans.

Reference was made to meeting of members at the residence of J. Stauffer, on Friday evening, March 22, to consider the propriety of a change of rooms since the removal of the Athenaeum to the rooms of the Y. M. C. A. No action was taken then. A motion was now made and carried that the former committee appointed to confer with a similar committee of the Y. M. C. A. in regard to the third floor of their building on South Queen street, have plenary power to make an arrangement mutually satisfactory, if that can be accomplished. Committee on behalf of the Linnean, S. S. Rathvon, Charles A. Heinrichs and Rev. J. S. Stahr. Four subscriptions were signed and given to circulate, granting a certificate of stock and other privileges to all who subscribe \$5, in order to raise funds to furnish proper cases for the rooms. \$40 dollars were subscribed by members present. Mrs. P. E. Gibbons being about to leave on her mission to the Paris Exhibition, asked for and received a certificate of membership of this society, signed by the President, Rev. J. S. Stahr, and countersigned by the Recording Secretary, J. Stauffer.

Under scientific miscellany various topics were discussed and suggestions offered. Adjourned to meet on the last Saturday in April.

Pennsylvania Wheat Prospects.

The later crop returns to the *Press* and the Department of Agriculture at Washington, for Pennsylvania, show in the average of winter wheat an increase of 3 per cent., or 103, as compared with last year, the results of that period being accepted at 100. Winter rye stands 101, or an increase of 1 per cent. in acreage. The county in which the greatest increase of acreage of winter wheat is reported is Elk, which stands 150 or 50 per cent. above the acreage of last year. Sullivan stands next at 125, and Fayette, Tioga, Erie and Clearfield at 120; Wayne at 115; Adams, Cameron, Cambria and York at 110; Chester at 105; Cumberland and Berks at 100. The greatest falling off in acreage of winter wheat is shown in Monroe, which stands at 40 or 60 per cent.; next is Lehigh, 75; Montour, 85, and Columbia, 90. The remaining cereal producing counties of the State range from 100 to 105. The aggregate production of last year's crop was 18,000,000 bushels.

AGRICULTURAL.

Value of Special Manures.

At the present time, when there is so much effort to legislate on special manure matters, it is well to consider fairly both sides of the question, that no injustice may be done. It is not the intrinsic cost of the materials sold that gives them their value, but the nature of the soil itself. A bushel of lime may not be worth twenty-five cents, but it might be worth a dollar in its effects on some crop, and the man who discovers this fact deserves some share in the extra seventy-five cents over and above the first cost of the lime. But the tendency is to take the market figures of the ingredients as the full measure of value, and to legislate accordingly.

There is no doubt there is much fraud in fertilizers. Some profess to give an article of great value that is only brick dust and clay. If there is any way to protect cultivators from these scandalous impositions it should by all means be done.

In regard to the difference between the practical value and the commercial value of these manures, we are glad to see that the chemist of the State Department of Agriculture of North Carolina, holds the same views with us. In a recent letter Dr. Ledoux says:

The agricultural value of a fertilizer is measured by the benefit received from its use, and depends upon its fertilizing effect, or crop-producing power. As a broad general rule it is true that Peruvian guano, superphosphates, fish scraps, dried blood, potash salts, plaster, &c., have a high agricultural value which is related to their trade value, and to a large degree determines the latter value. But the rule has many exceptions, and in particular instances the trade value cannot always be expected to fix or even indicate the agricultural value. Fertilizing effect depends largely upon soil, crop and weather, and as these vary from place to place, and from year to year, it cannot be foretold or estimated except by the result of past experience, and then only in general or probable manner.

Right Kind of Farm.

Nearly every adult in the united countries is more or less acquainted with that large property situated about six miles out of the town, on the Perth road and known as the Flint farm. It has for a number of years been owned by Mr. Samuel McCrea of this town, who has continued to rent it out from year to year, deriving from its rental quite a handsome amount. For the past four years it has been managed by Mr. Frank McCrea, formerly from Merricksville, who has put it in the best possible condition, and has reaped from it some of the best crops ever raised in this section. This spring Mr. McCrea bought the farm out and out, paying for it the handsome sum of \$25,000. Our reporter yesterday obtained from Mr. McCrea the following statistics in reference to this year's business on the farm, together with the quantity of land tilled. He has reaped and housed 125 tons of hay, 1,800 bushels of oats, 900 bushels of barley, 100 bushels of spring wheat, 900 bushels potatoes, 1,800 bushels of turnips and 100 bushels of peas. Fifty-four cows are kept on the place, the milk being sent to the factory, and during the best part of the season aggregating 650 pounds at each milking. Four hired men with seven horses do the work, and they are now engaged in putting in shape 50 acres of ground, which will this fall be sowed in rye. The farm comprises 500 acres, half of which (250 acres) is in a good state of cultivation, and has upon it some of the best farm buildings in Canada.—Rockville (Ont.) Record.

The Oats Crop.

Notwithstanding that so many consider the oats crop to be not so profitable as wheat, rye or corn, its cultivation is on the increase, and will continue so in the future, for as a rotation it possesses many advantages. Just now we do not hear much as to what there is new in oats. Latterly, since the exposure of the Ramsdell & Co. swindle and the depreciation of the famous Norway there is little change. Our own opinion—whatever it may be worth—has all along been that the best variety of oats for a general crop is that which has for a series of years been cultivated in any locality with uniform success. By selecting plump, bright, fully-matured seed, sowing it early and giving it fair cultivation, the result will invariably give satisfaction if the season is propitious. Buying new, untried, high-priced seed, we take additional care in extending to the production of the crop far more attention than that usually bestowed; and this is one of the principal reasons in most cases, why these much-lauded varieties sometimes give very large yields for the first year or two. It has, too, become a well-established fact that imported seed, whatever may be its reputation abroad, retains its reputation only for two or three years here, when it is no better than our own old varieties.

Hauling Manure.

In drawing manure, I use no wagon box; with two stout planks for the bottom, and two wide boards for

the side pieces, the rigging is complete. Arriving in the field, take off a side-board, and with a potato hook, pull off enough manure for a heap, starting the team, another heap is made from the other side, and then one from each end, making always five and sometimes six heaps from the load. I rake off in heaps, because the manure is unloaded so much more rapidly than by pitching. If I had to pitch it over a wagon box, as is usually done, I should spread as I unloaded. It is in this rapid unloading that much of the saving is made. If the distance to draw is short, or the manure inconvenient to get at, I sometimes find it better to have two men to load. It is a material waste to allow horses to be idle while the manure is being spread.—*Cor. Rural New Yorker.*

The Benefit of Lime.

Although lime is found to be most beneficial the second and third years after its application, its effects are known to last much longer. The larger the crops, however, the sooner the lime (as well as other fertilizing matter contained in the land) becomes exhausted, and therefore the greater the advantage of its frequent application in smaller quantities, than a single application on a larger scale. It must be borne in mind, however, that the application of lime on land destitute of vegetable matter will do no good. There must be vegetable matter of some kind in the land for the lime to act upon before its beneficial effects can be seen. Or, as the poet expresses it:

Lime alone without manure
Will make both land and farmer poor,
But lime applied with good manure
Makes wealth of land and farmer sure.

Coal Ashes.

Coal ashes as a fertilizer are said to be very beneficial for tomatoes and potatoes, and to a less extent peas and beans. Moreover, they improve the mechanical condition of the soil, and are therefore especially beneficial to clayey and rigid land generally. They should be worked in deeply and uniformly in the proportion of, say, one part of ashes to two of mold. As it takes a long time to decompose them, their fertilizing properties are slow in action, but continuous. To obtain the best advantage from their use, some other kind of manure should be applied in conjunction with them. As there are seldom enough for field culture, the garden is the best place in which to use them, and inasmuch as they are generally considered more inconvenient refuse, all the advantage secured from their use will be a clear gain.—*Rural New Yorker.*

Bleaching Broom Corn.

Broom corn is bleached after it has been properly dried, but before the brooms are made. It is only necessary to bleach the wrappers. In a small way this can be done in a hogshead or a dry goods box, capable of holding, say, enough for forty brooms. Punch a few holes in the bottom, place it over a depression in the earth containing an iron basin, in which is half a pound of sulphur for each bleaching. This can be readily melted by the application of a hot iron or otherwise. The corn should be wet before bleaching and spread out or hung up so as to expose a large surface, and the receptacle should be covered with a piece of old carpet to confine the fumes of the burning sulphur.—*Rural New Yorker.*

Selecting Seed Corn.

I have been improving my corn by selecting the first ears that get ripe, and this is my seventh year since I began this practice, always planting the largest and best developed ears. For the last seven years I have rejected the tips and butts of the ears, shelling off all grains that are not well developed. To-day I have as good, sound, well-developed ears as any man can raise, and filled to the very tip—so much so that there is no room for another grain. I have also made my corn much earlier by gathering the first ears that get ripe. The reason why I reject the tip grains is this—they are not so well developed and will not come up so strong and make so rank a growth.

Wheat in Australia.

The Adelaide *Observer* tells us that the Australians think they can successfully compete with America in the grain markets of the world, if they can only keep ahead of America in the invention of labor-saving machinery. In the Australian House of Deputies a member brought in a bill to award a "bonus" of \$20,000 for the invention of the best machine for reaping, cleaning and bagging wheat on the ground. Here is a chance for the Yankee—first, to make a clean \$20,000, and still get his usual sales and profit in Liverpool besides.

MORE grass and less grain, more condensing of food on the farm should be the motto now. The plan of putting more of our idle acres into grass and of raising more live stock of a better quality will be a step in the right direction.

SOAPSDUD water is an excellent liquid manure for some garden crops, especially for celery, which if applied every other day, during its growing season, the stocks will be crisp and of a mammoth size.

HORTICULTURAL.

Coal Ashes and Curculio.

I have for several years saved my plums from the ravages of the curculio by the use of coal ashes. They become so completely disgusted with it that they leave for other parts. Just so soon as blossoms fall I commence with my ashes. I take a bucketful of the ashes under my arm, and with the other hand I dash the ashes all over and through the trees, covering the plums completely with ashes, and go round every few days and give them another dose. If the rain washes it off, I renew the dose and keep at it until my plums are ripe, when I am well paid for my trouble. I had, this year, eight bushels on seven small trees, which I sold for thirty-two dollars. I have several trees of the Rheine Claude variety upon which I did not use the ashes, because the plums were so scattering. I thought it would not pay, but there was one limb of one of those trees that was close to those I put the ashes on; it got its share of ashes, and that limb ripened up all of its plums, but not a plum was there left on the other part of the tree or on any of the other trees of that variety. This was conclusive evidence to me that it was the ashes that saved my plums. When I first commenced the ashes, my brother told me that I would not succeed, that he made sure of saving his plums by placing a sheet under his trees and shaking the little Turks off his trees, and catching them on the sheet and killing them. But when plums were ripe I had plenty and he had none.—*Ohio Farmer.*

Celery.

Sow seeds in a hot-bed or in cold-frame. As soon as the plants are about three inches high, transplant to a nicely-prepared bed in the border, setting them four or five inches apart. When some eight inches high, and fine stocky plants, set them in the trenches. Earth up a little during the summer, keeping the leaf stalks close together, so the soil cannot get between them. Finish earthing up in autumn, and never hoe or earth up in moist weather, nor when plants are moistened with dew.

To preserve celery for winter, dig trenches a foot in width, and a foot higher than the tops of the plants. Stand the celery in there erect, just as they grew, roots and all, and not crowded. Cover the trench with boards, and then leaves or straw.

Turner's Incomparable Dwarf White, one of the very best varieties, growing stout, crisp and exceedingly fine nutty flavor.

Sandringham Dwarf White, a new variety, gaining much popularity in Europe; produced by the gardener to the Prince of Wales; solid, crisp, and of fine flavor.

Boston Market, of low growth, somewhat branching, white, crisp, and a favorite of the market gardeners in the vicinity of Boston.

Sealey's Leviathan, white, very large and solid, unsurpassed in flavor.

Laing's Mammoth Red, fine flavor, large; excellent keeper.

Peas.

Peas should be put in as early as the soil can be got ready. Sow in drills not less than four inches deep, about a pint to forty feet. The drills must not be nearer than two feet, except for the lowest sorts. Those growing three feet high or more should not be nearer than three or four feet, and should have brush for their support. The large, fine wrinkled varieties are not as hardy as the small sorts, and if planted very early should have a dry soil, or they are liable to rot. It is best to sow the earliest peas just as soon as possible. They are hardy, and frost will not harm them. In about two or three weeks after make another sowing, a few more early, a good lot of second early and some for late crop. The second sowing of early comes in very handy.

Vick's Extra Early, one of the best of the very early peas, of good quality, very early, productive and true.

Carter's First Crop, earliest and quite productive; height, 30 inches, and giving a large crop for so early a pea.

Keutthal Invicta, round, blue pea, and the earliest blue variety grown, as early as First Crop, excellent for family or market; two feet in height.

Blue Peter, habit like Tom Thumb, but more robust, almost as dwarf, and immensely productive. It has proved the most promising of the new peas for the American grower.

Pruning Dwarf Pears.

A lady correspondent asks: "Will some one tell me how and when to prune dwarf pear trees; if they must be washed at this time of year, and what to put round them to make them grow?" We reply that they can be pruned at any time from now up to the first of March. If any of the wood is needed for grafting it can be stuck two or three inches in the ground, where it will be found to be in good condition when the grafting season comes round. Pruning now and until spring reduces the extent of the tree and foliage and gives form; but pruning or

shortening-in in June will produce fruit-spurs for the following year. How to prune cannot always be advised. Where the growth of this year has been rampant, cut back to within two or three inches of the old wood, and thin out some of the young wood. Your own judgment must direct you as to this, trees being so different in habit and growth. As to washing the trees, it ought to be done at once, with whale-oil soap and water—a pound of soap to a bucket of water—and scraped also if they need it. A rich soil is all sufficient to make your trees grow. If not rich, give a good top-dressing of manure now, and carefully fork-in in the spring.—*Germanstown Telegraph.*

Beans.

Beans like a dry and rather light soil, though they will do well in any garden soil if not set out too early in the spring. Dwarfs are earliest and most hardy, as a general rule.

Dwarf or Snap Beans.

Early Rachel, the earliest, and very hardy; desirable as a string bean.

Long Yellow Six-Weeks, one of the earliest; an excellent and productive string bean.

Wax or Butter, a popular variety wherever known; the pods a waxy yellow, solid, very tender and almost transparent, stringless, seeds black when ripe.

White Kidney or Royal Dwarf, one of the very best for shelling, either green or dry.

Refugee, hardy abundant bearer, flesh thick and tender; one of the very best for pickling, on account of its thick flesh; not very early, will produce pods fit for eating in about eight weeks.

Broad Windsor, the celebrated Broad Bean of England, growing on a strong stalk, about two feet in height. Beans eaten shelled. Not very well adapted to our climate.

Potato Planting.

An item in a French journal, sent us by Mr. Chrystie, relates to potato planting, and we translate it, with slight condensation, as follows:

"It appears, as we read in the *Universe*, that to the present day we have never learned how to plant potatoes. We cut them in two and put them into deep trenches and fill in the earth over them. Now, the potato, being originally from Peru, needs warmth and air. To bury it in a cold, damp grave of this kind, says M. Calloigne, is to arrest its flight. Put it simply on a soil deeply plowed or spaded—say in 20-inch squares if the potato is cut, or in 30-inch squares if uncut—and cover it lightly with the hoe. It will soon pierce this slight covering, which both shelters and fertilizes it, and can then be hilled up as necessary. By following this method, by preventing sprouting until planting time, and then plunging it into lime-wash to destroy moldy principles, we may prevent the development of the disease, and raise a crop similar, if not superior, to those seen before the invasion of the rot, say eight or nine tons per acre."—*Country Gentleman.*

Beautifying the Grass Plot.

I should like to make a suggestion for the benefit of persons who purpose soon to plant their spring flower-beds. If a few seeds of the portulaca—assorted colors—be sprinkled about in the grass plot, you have no idea how the flowers will refresh the eye during the summer. I found this out by accident last year. Some seeds had blown away and distributed themselves haphazard amid the grass; and all through the hot season, when bright contrasts are so grateful to the eye of sweltering and apathetic humanity, I was refreshed and delighted with the little dots of vivid yellow, red, white and purple peeping up between the spires of my green, plush-like lawn.

Running Beans.

Large Lima, the most buttery and delicious bean grown. Plant in a warm, sandy soil, if possible, not too early.

London Horticultural, or Speckled Cranberry, a round speckled bean, tender for snap beans, and excellent for shelling.

Giant Wax, thick fleshy, creamy yellow, waxy-looking pods, very tender and excellent as a snap bean; productive, keeping in bearing a very long time; seeds red, and rather tender.

Scarlet Runner. This is the favorite snap bean of Europe, and nothing else will sell as soon as this appears in market. It is often planted in rows and allowed to run on the ground.

Asparagus.

Young asparagus shoots are fit for use in the spring, when a few inches high. Sow the seed in drills, about one inch deep, and rows about a foot apart. Keep the soil mellow and free from weeds during the summer, and in the fall or succeeding spring the plants may be set out in beds, about a foot apart each way, leaving the crown of the root about four inches below the surface. Before winter, cover the bed with a dressing of manure. Purchasing roots instead of seed will save a year in time.

DOMESTIC ECONOMY.

Preserving Fence Posts.

The *Journal of Forestry* gives some excellent instructions on this subject. It is important that the posts be very thoroughly seasoned before external paints are applied, otherwise the moisture will be confined and increase the decay. It is therefore important to season the posts as rapidly as practicable after they are cut, in an exposed windy place. Coating them then with coal tar is especially recommended. The acid in the tar is to be destroyed with fresh quicklime, and the tar thoroughly boiled to evaporate all the water. Apply it to the posts while hot. The recommendation of that journal to char the posts we cannot endorse, as the charred part will be made weaker, and will not exclude water from the inside. A thick coat of well-applied gas-tar would be far better. But baking the wood so as to turn it slightly brown, would not render it weaker, and would give it some of the durable properties of charcoal; and if the coal tar is then applied, the preparation will be nearly perfect. It must be remembered that coal tar does not do well on wood above ground, exposed to the sun and weather. A copious application of crude petroleum is the thing for such exposed surfaces.

Which is Richest, Morning's or Evening's Milk?

This subject has now been put to the test of chemical analysis, and the result is that the evening's milk is found to be the richer. Professor Boedeker analyzed the milk of a healthy cow at different periods of the day. The Professor found that the solids of the evening's milk (13 per cent.) exceeded those of the morning's milk (10 per cent.), while the water contained in the fluid was diminished from 89 per cent. to 86 per cent. The fatty matter gradually increases as the day progresses. In the morning it amounts to 2½ per cent., at noon 3¼ per cent., and in the evening 5½ per cent. The practical importance of this discovery is at once apparent; it develops the fact that while 16 oz. of morning's milk will yield only ½ oz. of butter, about double the quantity can be obtained from the evening's milk. The casein is also increased in the evening's milk from 2½ to 2¾ per cent., but the albumen is diminished from 44-100ths per cent. to 31-100ths per cent. Sugar is least abundant at midnight (4⅓ per cent.) and most plentiful at noon (4¾ per cent.). The percentage of the salt undergoes almost no change at any time of the day.—*Canada Globe*.

Profitable Butter Making.

Charles C. Knight, of Northampton, Berks county, writes to the *Doylestown Intelligencer* the following results of the production of his dairy for the year 1877: "I did not keep any account of calves. We raised one, and the others I kept until they were five and six weeks old, and then sold them to the butchers. Mine is a dairy of twelve cows, one being two years old, with her first calf. The record of butter made per month is as follows: January, 58 pounds; February, 90 pounds; March, 220 pounds; April, 222 pounds; May, 286 pounds; June, 359 pounds; July, 265 pounds; August, 350 pounds; September, 295 pounds; October, 287 pounds; November, 223 pounds; December, 158 pounds. There is no account of butter kept at home for the use of a large family, making a total for the year of 2,817 pounds sold, and averaging about 235 pounds per cow, making a total income of \$1,230.50; average per cow, \$102.50 for the butter. The cows are mixed Alderney and Durham. Fried Woodward states that if he could have sold his calves for \$50, then his cows would be a long way ahead, but now I think he is not so far ahead, though I will admit that my cows had good care."

Rats and Harness.

It is stated on good authority that a teaspoon of Cayenne pepper mixed in a quart of oil and rubbing the harness with the oil, will effectually protect it against the gnawing of rats. It is also said that an ounce of aloes to one gallon of oil will afford the same protection. Our remedy heretofore has been, and we have never known it to fail, to hang the harness up so that no rats can molest it. But as some people are careless in this respect the red pepper and the aloes and oil remedy had better be adopted. A friend at our elbow says carbonic acid is a sure remedy.

How a Water-Pipe May be Cleaned.

A correspondent of *Forrest and Stream* tells of a novel method employed to cleanse a two-inch water-pipe which had become choked up with mud. A string was passed through a hole punched in the tail of a small eel which was straightway put into the pipe. An occasional jerk reminded the eel that it was incumbent on him to advance, which he did, arriving at the lower end of the pipe with the string. A bunch of rags was tied to the string, and thus the pipe was cleansed.

Household Receipts.

SCRAMBLED EGGS.—Six eggs, one coffee cup of milk, one teaspoonful of butter, one teaspoonful of flour, and salt. Beat the eggs very light, rub the butter and flour together, add this to the milk after it has been placed on the stove and become a little warm, salt to taste, add the eggs and cook until the whites are cooked, then serve while hot, or with toast.

BLANC-MANGE.—Set on one quart of rich cream with five ounces of fine white sugar and a few drops of extract of vanilla or any other flavoring preferred. Whip it to a stiff froth. After soaking one ounce of isinglass or gelatine in one pint of cold water, for a half hour, let it simmer over embers until perfectly dissolved, stirring from time to time to prevent the gelatine from sticking to the bottom of the stewpan and burning. When lukewarm pour the cream slowly in, beating it all the time, until stiff enough to drop from a spoon, then put in molds previously dipped in cold water.

CRANBERRY WINE. taken internally and applied externally, is announced as a cure for scrofula. To make the wine take the ripe berries, mash them in a mortar to a fine pulp, put it in a stone jar, and add one quart of water to two quarts of berries; stir it well; set away and let it stand a week; then strain it through cotton, and you have a beautiful wine, which, with a little sugar, makes a wholesome drink, at once cooling and palatable. It does not ferment.

APPLE CAKE.—Two cups of stewed dried apples boiled in two cups of molasses. Drain off the molasses (for the cake) from the apples; add two eggs, two teaspoons of soda, four cups of flour, one cup of butter, one cup of sour milk. Spice of all kinds. Then add the apple (which was drained as above). The apples should be soaked the night before stewing for the cake.

CNOICE COOKIES.—Two eggs, two cupsfuls white sugar, one cupful butter, one-third cupful sweet milk, two teaspoonsful cream tartar, one teaspoonful soda, one-half nutmeg.

CREAM CRACKERS.—One pint of cream, six eggs, a little salt, flour enough to form a stiff dough. Beat the eggs very light, mix all the ingredients together, and pound the dough half an hour. Roll out thin, cut into any fancy shape, and bake in a moderate oven.

The Japanese method of cooking rice is to pour on just enough water to prevent the rice from burning at the bottom of the pot, which has a close-fitting cover, and with a moderate fire, the rice is steamed rather than boiled until it is nearly done; then the cover is taken off, the surplus steam and moisture allowed to escape, and the rice turns out a mass of snow-white kernels, each separate from the other, and as much superior to the soggy mass we usually get in the United States as a fine mealy potato is superior to the water-soaked article.

TO CLEANSE WOODWORK AROUND DOORS.—Take a pail of hot water, throw in two tablespoonsful of pulverized borax; use a good coarse house-cloth—an old coarse towel does splendidly—and wash the painting; do not use a brush; when washing places that are extra yellow or stained, soap the cloth, then sprinkle it with dry powdered borax, and rub the places well, using plenty of rinsing water; by washing the woodwork in this way you will not remove the paint, and the borax will soften and make the hand white, a fact well worth knowing. The uses of borax in domestic economy are numerous; and one of the most valuable in its employment to aid the detergent properties of soap.

TO PURIFY A SINK.—In hot weather it is impossible to prevent sinks from becoming foul, unless some chemical is used. One pound of copperas dissolved in four gallons of water, poured over a sink three or four times, will completely destroy the offensive odor. As a disinfecting agent, to scatter around the premises affected with an unpleasant odor, nothing is better than a mixture of four parts of fine charcoal, by weight. All sorts of glass vessels and other utensils may be effectually purified from offensive smells by rinsing them with charcoal powder, after the grosser impurities have been scoured off with sand and soap.

How to KEEP BACON HAMS.—Place them in some dry place until the outside becomes thoroughly dry; then put them into a stout paper sack, tie them up tight, and bury them in ashes, the deeper the better. The meat will keep sweet for an indefinite time. Some bury their bacon in oats, grain, salt, bran, etc., but ashes are far the best.

FOR CURING HAMS. a good authority, recommends the following receipt: One cup of molasses; one cup of fine salt; about a teaspoonful of saltpetre pounded fine; cloves, allspice, cinnamon to suit taste. Mix well together; place the ham in a wooden bowl or other dish and rub the mixture over the surface, repeating the process once a day for a month. Then smoke it for a few hours only.

SALT FOR BEDBUGS.—To get rid of bedbugs, wash the room and the furniture of the room they frequent with salt water, filling the cracks with salt, and you may look in vain for them. Salt seems inimical to bedbugs, and they will not trail through it. I think it preferable to all ointments, and the buyer requires no certificate as to its genuineness.

LIVE STOCK.

Lancaster County Beef.

About four or five weeks since we transferred from the Lancaster *Examiner*, to our agricultural column, an article on the above subject, which has excited a good deal of interest among our farmers, as they are now giving more attention, as is done in Lancaster county, to the feeding of cattle, than heretofore. One of these farmers is so much interested on the subject as to desire additional information, and has requested us to ask the editor of the *Examiner*, who contributed the first article, the following questions, answers to which will, doubtless, be as useful to the readers of that paper as our own:

How is corn fed—whether chopped cob and all, or shelled?

Is oats or millstuff mixed with the corn or not?

How often a day are the cattle fed? The great trouble is to get them to eat a sufficient quantity without surfeit.

Is anything fed to stimulate the appetite?

At what age are cattle the best feeders?—*Hagers-town Mail*.

Not only has the article above referred to attracted attention abroad, but to many of our own citizens the magnitude of the value and number of beefs fed in this county was a new revelation. The feeding of the present season exceeds that of any previous year by several thousand head. We shall answer the questions asked by the *Mail*, as best we may, in the hope that the information will be of interest not only to our friends in Maryland, but as well to our readers nearer home.

Corn is not fed, cob and all, by any of our farmers most extensively engaged in preparing prime cattle for Philadelphia and New York markets.

Chopped shelled corn mixed with oats or millstuff, in the proportion of one bushel of the latter to three of the former, and thoroughly wet up with warm water, is given. To make a variety of food for the cattle the dry corn, unmixed, is occasionally fed, which plan is found useful in stimulating the appetite and obviates the necessity for any artificial stimulants.

The general practice is to feed three times a day, at regular intervals—say at 6 A. M., 12 M. and 6 P. M. When cattle are first tied up four quarts are given at each feeding, with hay and corn fodder during the night and between meals. The quantity is increased from four quarts to eight during the six or eight months required for fattening. The greatest care is taken not to give an overdose of feed, as it will frequently give cattle a backset from which they will not recover for a week or ten days. Water is usually given but once a day now, the moisture in the chopped feed being taken into consideration. Many of those who feed the largest number have introduced water into their barns, and after they have tied their cattle up in the fall never turn them out till they are sold. Before stabling it is very desirable to pasture for a few weeks, giving the cattle once or twice a day a few quarts of bran and chopped corn, and salt to lick. This rests them after a long drive or ride in the ears, and gives them a good start for the strong feeding that awaits them.

The best age for fattening is from four to five years, though some three-year-olds turn out very well.

Fattening a Calf.

MR. EDITOR : My principal object in this article is to show the farmers and others that they can raise or even vean their calves without giving them the new milk fresh from the cow. The best food to fatten a calf without whole milk is oil-meal, molasses and skim-milk for the first two weeks, after which a little oat or barley meal may be used. A calf can be made to weigh one hundred and twenty to one hundred and forty pounds at four weeks old, never having had any new milk after the cow's milk was good. The oil-meal should be sealed and allowed to form a thick mucilage before being mixed with the skimmed milk. The molasses may be added directly to the milk, and the whole may be given blood-warm. The proper quantity for a young calf is a tablespoonful of oil-meal, the same of molasses, divided into three parts for one day's feed, added to the milk. After the first week it may be gradually increased, and at the commencement of the third week a spoonful of oil-meal and molasses may be given to each feed; a quart of boiling water being turned on to the meal over night, and also in the morning to form a mucilage, and a spoonful of oat or barley meal may be added, but this should be cooked. At present prices, the whole feed will not cost more than one dollar for five weeks, and an early calf of the weight mentioned will bring from ten to twelve dollars. I raised one late in the season two years ago, by the above method, that cost less than one dollar for feed, aside from the skimmed milk, that brought nearly ten dollars. Should they have scours, give them a tea made by boiling corns in water and add to the milk.

I saw this article some years ago in some paper and cut it out and pasted it in a book, and having tried it I send it to the *Germantown Telegraph*, and may its readers be benefited as well.—*Mrs. W. H. O., Yates County, N. Y.*

Wind Sucking.

Wind sucking, stump sucking and crib biting are all one and the same habit, and, in some instances, are the manifestations of a disease; in others, the habit may have been acquired from old and confirmed crib biters. Some veterinarians attribute it to a distortion of the teeth, which have become worn away on their interior edge so as to show more or less of the yellow instead of the enamel. Professor Law says: "These worn teeth are associated with the serious vice of wind sucking (swallowing) and eructation, which leads to tympany, digestive disorder and rapid loss of condition. The horse seizes the manger or other solid object with his teeth, arches and shortens the neck, and makes a grunting noise. The wind sucking may exist without crib biting. It may be learned by standing idle near a crib biter, and always goes on to disease and loss of condition." The same authority prescribes the following treatment: "Smear the front of the manger with aloes or other bitters; cover all exposed wood-work with sheet-iron; muzzle may also be put on after the horse has done feeding." Other equally good authorities recommend putting a lump of salt and one of white chalk or magnesia in a box before the horse, and keeping these constantly within reach. As we have said, the habit may be learned, but, in most instances, it may be considered as a kind of dyspepsia, and the buruing acidity of the stomach prompts the horse to get relief by sucking in cool air. The salt and magnesia or chalk afford a similar momentary relief, and frequently lean to a permanent cure.

Thoroughbred Sheep.

A farmer who has only kept the common sheep of the country can scarcely be convinced of the loss he sustains from year to year. He will tell you that they do not average much above two and a half pounds of wool per head; whereas the Merino and Cotswold, either separately or by crossing, will produce an average of from seven to nine pounds of much superior wool, and selling for a much higher price. They are more beautiful animals than the common, it costs no more to keep them, their carcasses for the market are even more valuable, and they are as prolific or more so than the common kind. Hence they are three times the profit of the ordinary sheep, and in almost every respect to be preferred; yet we see the general farmer continue from year to year to rear the animals which are of so little profit. It is true that the first cost of the thoroughbreds is much greater, but it is not recommended that a beginning be made on a large scale. Three of each of the Merinos and Cotswold would be enough to start with, as in a few years they would multiply to a considerable flock, and allow of sales that would soon cover the original expense.

Will not farmers generally consider this suggestion? We ask them, on the ground that every farmer does or ought to keep a few sheep upon his premises, as they are the best enrichers of the land that have yet been discovered.

Lice on Cattle.

Some two weeks ago an old negro on the plantation told me to tie a cotton string about the size of a very small plough line around each one's neck, and to tar it well before putting it on; but the remedy seemed so silly and nonsensical that I treated it with disdain. He, however, to convince me, caught a very lousy calf and placed the tarred string about his neck, and with an exultant shake of the head bid me await further developments. To-day he brings up the calf and bids me look for myself and see his triumph. To my surprise nearly every louse had disappeared. He says the lice travel toward the head, get to the tarred string, mount it, and then, confused or stifled, ignominiously give up the battle and tumble to the ground.—*Country Gentleman.*

Abortion in Cows.

The milkmen near Boston have found a satisfactory remedy in the use of lime. They give it to the cows by sprinkling a spoonful at a time over their food, two or three times a week; or sometimes they sprinkle lime among the hay as it is stowed away in the barn. A neighbor of mine who keeps about twenty cows, and who was formerly much troubled by abortion among his herd, informs me that for the last three years, since he has made use of lime, he has not had a case, and that very many of his acquaintance have had similar experience with their herds. Whether the well-known lack of lime in our Massachusetts soil has anything to do with this is an interesting question for the man of science.—*Massachusetts Ploughman.*

Iowa had 1,354,608 sheep in 1867, valued at \$2,000,000. In 1877 it had only 318,439 sheep, assessed at \$345,827. This is progressing backward in wool-raising. In 1867 Iowa had 77,612 head of swine, valued at \$1,483,000. In 1877 they had increased to 1,654,708, more than double the number, valued at \$3,893,301. Evidently the Hawkeyes prefer hogs to sheep.

LITERARY AND PERSONAL.

CHURCH'S MUSICAL VISITOR FOR MARCH.—Among the features of special interest in *Church's Musical Visitor* for March, the new "Life of Chopin" claims the attention of musical people, and the articles on "Expressive Piano Playing," and "Fredrich Wieck, the great Music Teacher," are no less interesting. This number also gives full particulars concerning the approaching great Cincinnati May Musical Festival, and a good description of the new organ, which will be dedicated on that occasion. The editorials, correspondence and short notes are unusually entertaining, and the music pages give a very liberal supply of late music, both easy and difficult. Among the latter the "Sketch of Festival Ode," will interest musicians. It is from the work by Otto Singer, which has been written for the opening of the new Cincinnati Music Hall, and of which the critics have been lavish with praise. The ballad entitled "Regret," by J. A. Butterfield, is also remarkably fine. This number also contains "When the Grass Grows Over Me," song and chorus, by D. C. Addison; "Golden Leaflet Schottische;" "The Last Leaf," by Jas. McGranahan, and "Ripple, Little Brooklet," quartet, by C. C. Case. This is a large quantity of good music to be in a single number of a magazine costing only 15 cents, or \$1.50 for a whole year. If bought at any music store, the same music would cost fully \$2.00. Every subscriber to the *Visitor* also receives a valuable premium, free. Send stamp to the publishers, John Church & Co., Cincinnati, O., for particulars.

The Co-operative Employment Bureau of the Bowery Branch, Y. M. C. A., 134 Bowery, New York, have opened a register of farms, offered for rent or sale, in Eastern, Middle and Southern States. No fee or commission will be charged for entry on the register, the object of which is to place within reach of those desiring farms, the means of information which shall enable them to make judicious selections without the inconvenience or expense of consulting land agents. The register will be opened to all wishing to rent or purchase farms. It is hoped by this effort, that many intelligent emigrants of means may have their attention called to cheap and desirable farms in these States, and thus be led to purchase where they may have society, schools and churches. No fee or commission will be charged for examining the register. Information of farms for sale or rent, should state number of acres, tillage, woodland and orchard, with description of soil and improvements, springs, wells and buildings, and terms of sale; also state any incumbrance. Name and post-office address should be very plainly written. Male help of any kind may be had by application at the same office. Address Rev. John Dooly, No. 134 Bowery, New York.

TOBACCO IN VIRGINIA AND NORTH CAROLINA.—Some observations in connection with the several types of tobacco now produced in these two States—including Dr. Volker's examination of our fine yellow tobacco—and on the introduction of a new type, namely, cigar tobacco. Presented by the Southern Fertilizing Company, Richmond, Va. An octavo pamphlet of 40 pages. Office, 1321 Cary street. This pamphlet contains a full and interesting discussion of the tobacco plant as an article of trade and commerce, as well as its culture, in which a high compliment is paid to the tobacco of Lancaster county. Mr. A. C. Lihhart's essay on Tobacco culture, which was published by this company last year, is reprinted in this pamphlet, which is a highly complimentary endorsement of its rare excellence. The work contains a map of the Jurassic and Triassic Rocks of Virginia.

TAKING "time by the forelock." Here we already have the Premium List, with the "Rules and Regulations of the Ninth Annual Fair of the Montana Agricultural, Mineral and Mechanical Association," to commence at Helena, Montana, on Monday, September 23rd, 1878, and to continue six days. A 12mo. pamphlet of about 50 pages, about 20 of which are devoted to the general list of premiums, 10 to special premiums, and 20 to advertisements. The general premiums are very reliable, and are equally distributed; for instance, the highest premium for a horse is \$25, and the best bushel of wheat \$15. But the most noted feature is the special list, by artizans, producers and manufacturers outside of and independent of the Society, some of which are \$40 and \$50, one hundred per cent. higher than the highest offered by the Society. This seems to be an encouraging movement.

THE ARTIFICIAL FLOWER GUIDE, conducted by J. Löwenstein. A semi-annual magazine, devoted to information on the uses of artificial flowers for the toilet, decorative and all other purposes. Price, 20 cents. Published by the Parisian Flower Company, No. 28 East Fourteenth street, New York; No. 9 Rue de Clery, Paris. A square 12mo. of fifty pages, in paper covers and most elaborately illustrated and embellished with thirty-five splendidly executed engravings. Embracing bridal appointments and veils, floral garnitures for balls and evening costumes; vases, stands, hanging groups, brackets, terra-cotta ornaments, &c., &c., together with full instructions in the art, the meaning, the sentiment and the philoso-

phy of artificial flowers and their relations to our social and conventional customs—ornamental and useful.

HIGH FARMING WITHOUT MANURE.—Six lectures on agriculture, delivered at the Experimental Farm at Vincennes, by M. George Ville, Professor of Vegetable Physiology at the Museum of Natural History, Paris, France. Published under the direction of the Massachusetts Society for the Promotion of Agriculture. Boston: A. Williams & Co., 283 Washington street, corner of School street. This is a handsome 12mo. of 108 pp., in paper covers, and between those covers is condensed a vast amount of analytical and statistical information on subjects relating to the farm and farming, embracing the fundamental principles of plant development, and the means of facilitating that development, through the aid of science; acknowledging agriculture as a scientific problem, and manipulating it on that basis. Something for progressive farmers.

REPORT OF THE SERVICES of the Centennial meetings of the "Church of God," held by authority of the General Eldership, in the Bethel of the Church of God, corner of Germantown avenue and Berks street, Philadelphia, Pa., July 1st, 2nd, 3rd and 4th, 1876. J. F. Weishemel, Jr., No. 360 West Baltimore street, under the Eutaw House, Baltimore, Md. A pamphlet, of 8 pages octavo, of interest and use. Sometimes poor "human mortals," in attempting "to take the kingdom of heaven by force," inadvertently ignore the "kingdom of earth," and through a mistaken zeal or a false aspiration, that which ought to have been done to-day is, for selfish ends, deferred until to-morrow. Through an unfortunate discussion, in which everybody was right and nobody wrong, the printing of this pamphlet was greatly delayed, but "better late than never."

SOMETHING GOOD AND TRUE.—We call the special attention of the readers of THE FARMER to the card of Mr. C. H. Anderson, in the advertising columns of this number of our journal, not only as something new, but also something "good and true." The intrinsic merits of the "Iron Stone," as a water and drain pipe, are sufficient of themselves to recommend this material to the confidence of the public. Mr. Anderson is so respectfully endorsed by those who have used the "Ardenheim Iron Stone Pipes," and is socially so highly connected in this county, that we believe our farmers may repose the utmost confidence in him, especially as through the superiority of his wares he has been enabled to build up a flourishing business.

PAMPHLETS AND CATALOGUES.—Recipes for the use of "Kingsford's Oswego Corn Starch," or prepared corn, manufactured by Kingsford & Son, Oswego, New York. Also, instructions in carving and other useful recipes. 12mo. 64 pp. Contains many gems in culinary preparations, which seem only an aggravation in the absence of the wherewithal to provide them.

The most satisfactory catalogues that have reached our table are the price lists of green-house and bedding plants, fruit and ornamental trees and plants, small fruits, bulbs, &c. (by mail). Grown and for sale by Edward J. Evans & Co., nurserymen, seedsmen and florists, York, Pa. Names in bold type, alphabetically and scientifically arranged, with specific prices attached. Large stock—great variety.

THE FIRST ANNUAL REPORT OF THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION.—From the report of the Secretary of the Board of Agriculture. A royal octavo of 108 pages. In which the subject of manures and fertilizers is most ably and elaborately discussed, showing that the State has emerged from the era of "horn gun-flints" and "wooden cucumber seeds," and is developing the practical and useful. Nothing has yet emanated from any similar organization in Pennsylvania of the same practical character.

Our readers will please notice the change of location in the advertisement of the Mendelssohn Piano Co., of New York. They have opened new and splendid warerooms for their matchless Pianos at No. 21 East Fifteenth street, between Broadway and Fifth ave, near Union Square, opposite Tiffany's, the great diamond and jewelry house, in the heart of the Piano and Music business, and amongst the most fashionable trade of the metropolis.

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A NEW BOOK FOR FARMERS.

"Carrots, Mangolds and Sugar Beets. What kinds to raise, how to raise, and how to feed." By mail, 30 cents. Also, my three works, on "Cabbages, and How to Grow Them," "Squashes, and How to Grow Them," "Onions, and How to Grow Them." Full of just such minute details as farmers want. Each, 30 cents, by mail. My large illustrated Seed Catalogue free to all.

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10-3-2m]

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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.

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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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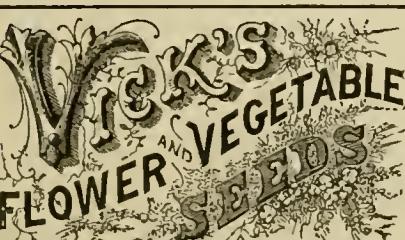
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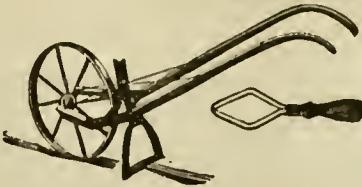
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Prices Greatly Reduced for 1878.

This is one of the greatest labor saving machines invented, it is substantial, made from the best material, is durable and light, weighing but 18 pounds. Knives to cut any width, from 6 to 15 inches. It has given perfect satisfaction wherever used.

Beecroft's Hand Weeder,
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This is an indispensable implement in a garden where a hoe cannot be used.

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The average yearly rainfall in this county is nearly 33 inches per annum, one-third greater than in the much-extolled ARKANSAS VALLEY, which has a yearly rainfall of less than 23 inches per annum in the same longitude.

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A Vegetable Preparation, invented in the 17th century by Dr. William Grace, Surgeon in King James' army. Through its agency he cured thousands of the most serious sores and wounds, and was regarded by all who knew him as a public benefactor. 25c. a box, by mail 30c. For sale by druggists generally.

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Marblehead, Mass.

10-3-2m

2500000 Strawberry, Raspberry, Blackberry, Currants, Grapes, Asparagus, Roots, Peach Trees, etc. 100 SELECTED VARIETIES. Great American Strawberries. Largest and best. Berries 2 oz. each, 9 in. around. By mail 10 for

\$1; 100 for \$5; 1,000 for \$10. Wilson Albany, Chas. Downing, Monarch of the West, Kentucky, Green Prolific, 82 per 1,000; Capt. Jack, Cumberland Triumph, Sterling, Jacunda, 85 per 1,000. ALL PURE. Catalogue free. Cut this out.

JOHN S. COLLINS,

Moorestown, New Jersey.

10-2-3m

Use The Buffalo Honest Fertilizer!**AMMONIATED BONE SUPER PHOSPHATE**

And Pure Ground Bone.

The purity of these goods is guaranteed, and their standard proved by regular analysis of Prof. G. A. Liebig, and other eminent Chemists.

No Rock Phosphate, Mineral Guano, Salt Cake, Spent or Sludge Acid, Land Plaster and other inferior materials enter into the manufacture of my I phosphate, which is solely made of Bones, Meat, Blood, Pure Acid and Potash Salts.

My works are always open for inspection to every consumer of Fertilizers.

Highest premium and medal of Honor awarded to my Fertilizers by the Centennial Commission, Philadelphia, '76.

Send for new Spring Circular containing full directions and testimonials.

L. L. CROCKER,

10-3-2m 252 Washington St., Buffalo, N. Y.

DIPHTHERIA!

Johnson's Anodyne Liniment will positively prevent this terrible disease, and will positively cure nine cases in ten. Information will save many lives sent free by mail. Don't delay a moment. Prevention is better than cure.

I. S. JOHNSON & CO., Bangor, Maine.

10-3-1m

1760. ESTABLISHED 1760.

GEO. M. STEINMAN & CO.,

26 and 28 West King-st.

HARDWARE,**BUILDING HARDWARE,**

GLASS,

PAINTS, OILS, PUMPS,

TERRA COTTA, IRON and LEADPIPE,

LEATHER BELTING,

SEEDS,

PHOSPHATES & FARM IMPLEMENTS.

Agents for the

"Ohio" Reaper and Mower,

Whann's Phosphate,

Fairbank's Scales,

Dupont's Powder,

Harrisburg Nails, &c., &c.

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.

9-1-42.



My Annual Catalogue of Vegetable and Flower Seed for 1878, rich in engravings, will be 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 seeds warranted to be fresh and true to name; so far, that should it prove otherwise I will refund the order gratis. New Vegetables a specialty. As the original introducer of the Hubbard Squash, Phinney's Melon, Marblehead Cabbages, Mexican Corn, I offer several new vegetables this season, and invite the patronage of all who are anxious to have their seed directly from the grower, fresh, true, and of the very best strain. [0-12-4m] JAMES J. H. GREGORY, Marblehead, Mass.

PREMIUM TOBACCO SEED.

Henry Kurtz's Centennial and Hartford Tobacco Seeds can be obtained by addressing the proprietor at Mount Joy, Pa., or the editor of THE FARMER, No. 101 North Queen street, Lancaster, Pa. Price, \$1.00 per package. The leaf of these Tobaccos were awarded a premium at the Centennial Exposition in 1876.

"OUT OF WORK."

SONG AND CHORUS, BY

ALICE HAWTHORNE.

Author of "Listen to the Mocking Bird," "I'll sail the seas over," "What is Home without a Mother," etc., etc.

"Out of work, without a penny,
Pleading hel before thy door,
Without friends among the many—
Look with pity on the poor."

* * * One of the most touching and beautiful ballads ever written, will give the author a more extended popularity than anything she has ever written. Price 35 cents—or, illustrated title page 40 cents.

For sale at all music stores, or will be sent postpaid on receipt of price by the publishers,

J. M. STODDART & CO.,
723 Chestnut Street, Philadelphia.

ESTABLISHED 1832.



G. SENER & SONS,

Manufacturers and dealers in all kinds of rough and finished

LUMBER,

The best Sawed SHINGLES in the country. Also Sash, Doors, Blinds, Moldings, &c.

PATENT O. G. WEATHERBOARDING

and PATENT BLINDS, which are far superior to any other. Also best COAL constantly on hand,

OFFICE AND YARD :

Northeast Corner of Prince and Walnut-sts.,
LANCASTER, PA.

[9-1-ly]

1823. SEND FOR 1878.

THE

NEW YORK OBSERVER

The Best Religious and Secular Family Newspaper. \$3.15 a Year, post-paid.
Established 1823.

37 PARK ROW, NEW YORK.
SAMPLE COPIES FREE.

[4-2-4m]

BENSON, BURPEE & CO'S ILLUSTRATED CATALOGUE FOR 1878,

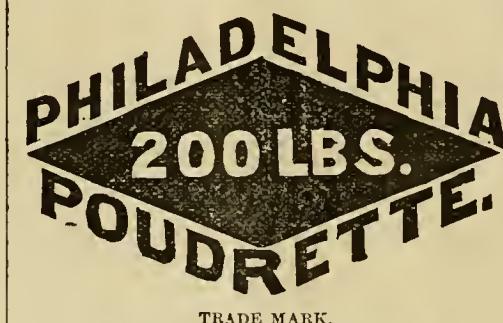
Contains full lists with descriptions, illustrations and prices of

THE BEST GARDEN, FIELD AND FLOWER SEEDS,

(all the standard varieties and many choice novelties), Summer and Autumn Bulbs, Plants, Small Fruits, Trees, Agricultural Implements, and Blooded Live Stock and Fancy Poultry. Send your address on a Postal Card and receive a copy by return mail. 10 packages Choice Flower Seeds for 25 cents.



B. B. & CO'S SURE HEAD CABBAGE, the best market variety.
BAY VIEW HYBRID & ELON and the new Tomato—Red Chief.
Send for Catalogue to
BENSON, BURPEE & CO., Seed Warehouse, 223 Church St., Philadelphia.



Philadelphia Poudrette.

The Philadelphia Poudrette is an active, energetic, natural manure, is soluble (like barn-yard manure) without the use of acids. It contains the soluble salts of plants, which have served as food. These elements are indispensable to the development of cultivated crops, and in supplying these excrements to the soil, we return to it the constituents which the crops have removed from it, and renew its capability of nourishing new crops. It is an invaluable manure for Tobacco and other plants requiring an early, healthy start, and rapid growth, maturing them from ten to fifteen days earlier. The increasing demand and uniform satisfaction it has given on all crops during the past three years proves it a reliable fertilizer. A profitable and high degree of culture requires a liberal supply of manure.

Circulars with testimonial can be had at the office of The Lancaster Farmer, and at 101 North Queen St.

Price, \$25 Per Ton,
HIRAM E. LUTZ, Manufacturer.

1136 MARKET STREET, PHILADELPHIA.

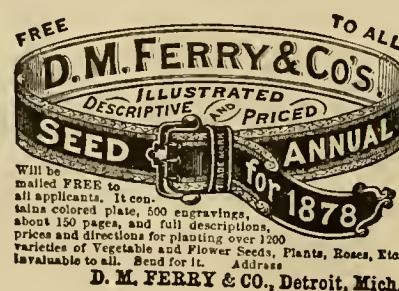
FOR REGISTER,



HENRY KURTZ,

(Subject to Republican Rules. Primary Election,
Saturday, May 25, 1878.)

TOBACCO FARMER, MOUNT JOY BOROUGH.



[10-2-4m]

HIGH GRADE

AND

Thoroughbred Short-Horn Cattle;

Bred and For Sale by the undesignated.

OF THE BEST MILKING STRAINS,

and at prices to suit the times. Herd open to inspection by strangers at all times (Sundays excepted.) I will be pleased to show my herd to visitors, and any information in regard to the cattle will cheerfully be given, by letter, as desired.

A. M. RANK,

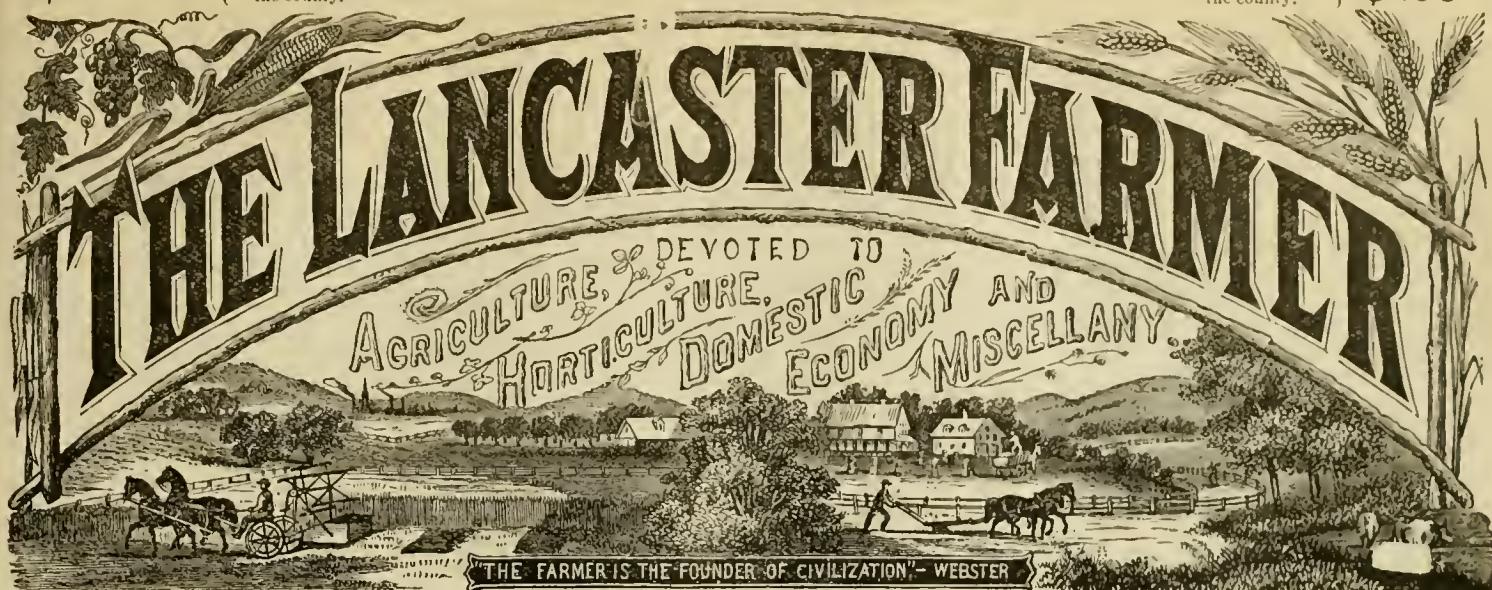
Bird-in-Hand, Lancaster co., Pa.

[10-2-1y]

\$1 a Year { To subscribers in
the county.

SINGLE COPIES 10 CENTS.

To subscribers out of
the county. \$1.00



Prof. S. S. RATHVON, Editor.

LANCASTER MAY 15 1878.

LINNÆUS RATHVON, Publisher.

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1878 SPRING AND SUMMER. 1878

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Corner North Queen and Orange Sts.,

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Good all wool Business Suits from \$12 to \$20
Fine Cloth or Worsted Dress Suits, 15 to 20
Fine Cassimere Pants, 4 to 10
Fine Vests, 3 to 6

CUSTOM WORK A SPECIALTY,
and satisfaction guaranteed.

READY MADE CLOTHING And Furnishing Goods

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Cloths, Cassimeres, Worstings, Sultings, Coatings and
Vestings in a full line, and made promptly to order.

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1878 PRACTICAL TAILORS. 1878

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THE SMOKER'S PET.

Good Live Agents Wanted Everywhere,
Novelty Dealers and the Trade supplied at reduced rates.

Address all orders to the sole manufacturers,

C. B. THOMPSON,
Bridgeport, Connecticut.

THE NOVEL UNCONSUMING CIGAR PIPE

The merits of this invention are at once appreciated by every Smoker; as by using this article (which is as light and portable as a cigar) all smokers can use the best tobacco at less than one-tenth the expense of a poor cigar, dispensing entirely with the cumbersome and unsightly pipes.

DIRECTIONS FOR USE.

Remove the mouth piece and piston, fill the tube half full of smoking tobacco, insert the piston and mouth piece, and light as you would an ordinary cigar. Sample by mail, 30 cents.

By Mail \$1.50 Per Doz. By Express \$12.00 Per Gross.

DIRECTIONS FOR CLEANING.

Clean the Interior Parts with a damp Rag when they become foul.

10-2-4m

OUR IMPROVED PEST POISON

is a safe, sure and cheap destroyer of the POTATO BUG, Currupt Worm, and all Insects that Prey on Vegetation. Warranted to kill Flea Bugs where Larv's Green kills ONE, yet it is SAFER to use, and is not injurious to plants. Costs only 25c. to the acre, 4 lb box sent free by mail for &c. Send for circular with hundreds of testimonials.

Our Cabbage Worm Destroyer

is NOT AT ALL POISONOUS, but sure death to the worm. Sample for trial sent free on receipt of 15 cents. POSTAGE STAMPS ACCEPTED. Discount to the Trade. KEARNEY CHEMICAL WORKS. J. R. DRY, Agent, P. O. Box 3139. Ozone, 66 Cortlandt St., New York

10-5-2m

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

A FARMER, a Farmer's Son or Daughter.

Taking Orders for five of NELLIS' HARPOON HAY FORKS and FIXTURES will (in addition to the profits), receive FREE a complete rig of Nellis' Fork and Patent Conveyor, for depositing Hay or Straw in mow or on stack. Also manufactures Nut Shell Hay Carrier, Pulleys and Grapples, Ag'tl Steels, Nellis' Cast Tool Steel Castings, (Plowshares from this steel can be welded, worked into chisel or edged tools.) Ornamental Fencings for public grounds, cemeteries, or farms. Pamphlets free.

10-5-1m A. J. NELLIS & CO., Pittsburg, Pa.

THE LATEST INVENTION.

THE VICTOR

NUTMEG GRATER,

A Domestic Jewel that will last a life-time.

NEEDS NO REFERENCES.

Does away with the Inconveniences connected with other Graters.

Its construction commands itself to the public, and all the leading Kitchen Furnishing Houses speak of it in the highest terms.

IT IS IN FACT THE

Most Simple, Most Durable, and Most Reliable invention ever offered to the public.

PRICE 25 CENTS.

Directions—Take the grater in the left hand, palm towards you, with your third finger through the handle place the thumb on the spring-lever, remove the feeder and insert the nut.

Price to Agents \$1.75 Per Dozen

Good Live Agents Wanted Everywhere.

All orders should be addressed to

C. B. THOMPSON,
Manufacturer's Sole Agent,

Also Dealer & Manf'r. of Patent Novelties, &c.

BRIDGEWATER CONN.

10-2-4m

PENNSYLVANIA RAILROAD SCHEDULE.

Trains LEAVE the Depot in this city, as follows:

WE TWARD.	Leave	Arrive
Pacific Express*.....	2:40 a. m.	Harrisburg. 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.	1:30 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.	\$40 p. m.
Pittsburg Express.....	9:25 p. m.	10:50 p. m.
Cincinnati Express*.....	11:30 p. m.	12:45 a. m.

EASTWARD.	Leave	Arrive
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.	12:30 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

TO AGENTS.**The Century Chart.**

A 100-year Almanac, whereby you can ascertain what day of the week any day of the month is or what day of the month any day of the week is, was, or will be, from 1799 to 1900, or in what day any event has taken place, from 1799 to 1900, and 1000 other occurrences. The greatest invention of man. Every person will buy one; also the great Egyptian Puzzle, Sport for all. Either article sent on receipt of 25c post paid, or \$1 per dozen. Agents wanted everywhere. Ladies and Gents secure your town at once. You can make \$20 per week. Send for sample.

KOONS BRO'S, Novelty Dealer;
9-12-6m] 100 and 102 Washington St., CHICAGO, Ill.

M. HABERBUSH,
MANUFACTURER OF

Plain and Fine Harness,
SADDLES,

COLLARS, WHIPS, FLY NETS, &c.,

ALSO DEALER IN

TRUNKS, TRAVELING BAGS,
BUFFALO ROBES,

Horse Covers, Lap-Rugs, Gloves, &c.,

No. 30 PENN SQUARE,

10-1-1y

LANCASTER, PA.

SHIRTS!

Half Dozen for - - - \$6.00!

SHIRT FRONTS,

Stockings, Suspenders, Handkerchiefs,

Linen and Paper Collars and Cuffs

SHIRTS MADE TO ORDER

AT

E. J. ERISMAN'S,

No. 56 North Queen Street,

OPPOSITE INQUIRER PRINTING OFFICE.

9-1-1y

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is beyond comparison the best remedy for the cure of CONSUMPTION (EVEN IN ITS MOST ADVANCED STAGES), Asthma, Bronchitis, Catarrh, and all derangements of the NERVOUS SYSTEM. A circular containing PARTICULARS OF MANY CASES SUCCESSFULLY TREATED, full advise for the treatment of the diseases above mentioned, and certificates of actual cures, will be sent free by mail to all applicants. Address OSCAR G. MOSES, Sole Proprietor, 18 Cortlandt Street, New York.

9-10-6m

THE IMPROVED

**REMINGTON
SEWING MACHINE.**

1.—Makes a perfect LOCK STITCH, alike on both sides, on all kinds of goods.

2.—RUNS LIGHT, SMOOTH, NOISELESS AND RAPID.

3.—DURABLE—Runs for years without Repair.

4.—Will do all varieties of Work and Fancy Stitching in a superior manner.

5.—Is Most Easily managed by the operator. Length of stitch may be altered while running, and machine can be threaded without passing thread through holes.

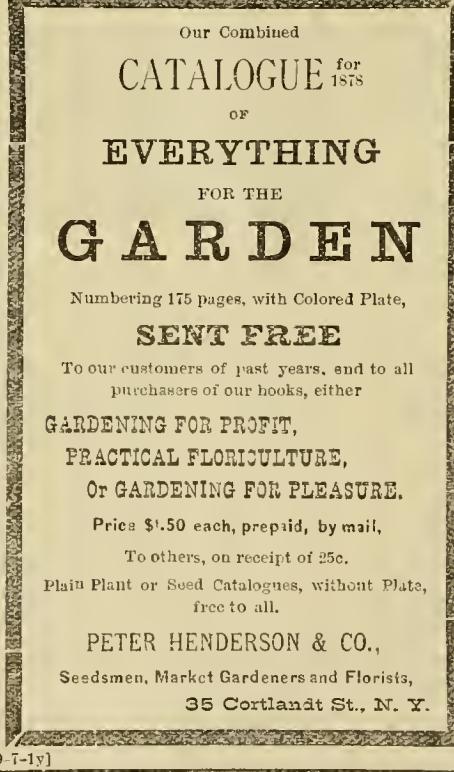
6.—DESIGN Simple, Ingenious, Elegant. Forming the stitch without the use of Cog Wheel Gears, Rotary Cams, or Lever Arms. Has the Automatic Drop Feed, which insures uniform length of stitch at any speed. Has our new Thread Controller, which allows easy movement of needle bar and prevents injury to thread.

7.—CONSTRUCTION most careful and FINISHED. It is manufactured by the most skillful and experienced mechanics, at the celebrated REMINGTON ARMORY, ILION, N.Y.

8.—The No. 2 Remington Machine for Manufacturing and Family use has been recently improved, and is offered to the public with the assurance that it will give entire satisfaction.

ARMORY: ILION, N. Y.**PRINCIPAL OFFICE:**

218 and 283 Broadway, New York
10-2-1y]



9-7-1y]

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E. N. FRESHMAN & BROS., ADVERTISING AGENTS,
186 W. Fourth St., Cincinnati, O.,
Are authorized to contract for advertising
in this paper.
Estimates furnished free.

Send for a Circular.

We Will Pay the Highest Market Price

for all of the following articles or we will sell them for you on 5% (5 per cent.) commission
CHEESE, EGGS, POULTRY, LARD, TALLOW, FEATHERS, POTATOES, APPLES,

BUTTER, GRAIN, FLOUR, FEED, FUR, HIDE, WOOL, PEANUTS, BROOM CORN, DRIED FRUIT, HAY, HOPS, &c., &c.

Liberal cash advances made on large consignments of staple articles. Farmers, shippers and dealers in general merchandise should write for reference, price current, stencil, &c. When writing us, state whether you wish to ship on consignment, or sell; if you wish to sell, name the articles, amount of each, and your

VERY LOWEST PRICE for same delivered F. O. B. (free aboard cars) at your nearest shipping point. Also, if possible, send sample by mail; if too bulky, by freight.

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GENERAL

Commission & Shipping Merchants,

221 and 346 North Water Street,

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New Pianos for \$125

Each, and all styles, including **Grand, Square and Upright**, all new and strictly first-class, at the lowest net cash wholesale factory prices, direct to the purchaser.

No Agents; no commissions; no discounts. Pianos for \$200, containing

MATHUSHEK'S

New Patent Duplex Overstrung Scale,

which is without question the greatest improvement ever put into a Square Piano, producing the most astonishing power, richness and depth of tone, and a sustaining singing quality never before attained. Our Uprights are the finest in America. Pianos sent on trial. Don't fail to write for Illustrated and Descriptive Catalogue—mailed free.

MENDELSSOHN PIANO CO.,

9-7-1y] **No. 21 East Fifteenth St., N. Y.**

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"Unquestionably the best sustained work of the kind in the world."

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ILLUSTRATED.

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The veteran Magazine, which long ago outgrew its original title of the *New Monthly Magazine*, has not in the least abated the popularity it won at the outset, but has added to it in many ways, and has kept fairly abreast of the time, thanks to the enterprise of the publishers and the tact and wisdom of its editors. For whatever is best and most readable in the literature of travel, discovery, and fiction, the average reader of to day looks to *Harper's Magazine*, just as expectantly as did the reader of a quarter of a century ago; there is the same admirable variety of contents and the same freshness and suggestiveness in its editorial departments now as then.—*Boston Journal*.

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J. JENKINS,
Grape and Seedling Nursery,
WINONA, Columbian County, Ohio.

10-2-4m]

The Lancaster Farmer.

Prof. S. S. RATHVON, Editor.

LANCASTER, PA., MAY, 1878.

Vol. X. No. 5.

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The first column indicates the regular prices of the two journals respectively, and the second column the club rates, if the two are ordered together.

ABOUT POTATOES.

"Circumstances alter cases," as a general rule, nevertheless, there are occasionally "hard cases" which no circumstances can alter. But it is not with these that we have to do in these remarks. The contribution of A. B. G., in another place in this number of THE FARMER, on early and late planting of potatoes, recalls one or two very peculiar experiences we had thirty-five or forty years ago. On one occasion we planted a lot in potatoes in the month of May—neither too early nor too late—and we realised the best crop and the largest tubers of any one in the town where we lived, in that season, and the following are the circumstances that altered the case. The seed consisted of "small potatoes," planted whole. The season was a remarkably dry one, and add to this the fact, that from certain causes, that were beyond our control, we were unable to give them much cultivation. We hired some boys to hoe and weed them, but they did the work very imperfectly, for in a short time the whole enclosure became overgrown with rank weeds, and, singular enough, the weeds seemed to be the only vegetation in the lot that showed any special thrift, and the potato tops became entirely hidden by them. The drought was so very severe, just at the period too when potatoes need moisture, that, of course, we expected no potatoes. In the fall a neighbor proposed to dig them out "on the halves," to which we readily assented. The result surprised us, it also agreeably surprised our neighbor, and everybody else who saw it. It is true the crop was only an ordinary one, but it was extraordinary when compared with the crops of others, for there was no "patch" of the same area in the town, or perhaps in the township, that produced such a yield, either in quantity or quality. The qualifying circumstances were these: The weeds overshadowed the ground and prevented the evaporation of the moisture, and that altered the case; but, of course, it would never do to let rank weeds grow, *per se*, in order to secure a crop of potatoes. On another occasion the season was an exceeding wet one, and we put the same lot in potatoes, from fine large seed, which had been brought down the Susquehanna, on an ark, from "York State." The stone-coal ashes from three shops, on the lot, were distributed pretty thickly over the lower end, where the ground was also low; indeed, in some places the seed were covered entirely with ashes. The yield in the fall was large on the whole enclosure, but the potatoes there, and also elsewhere, rotted in the ground. But on that part of the lot which received the coal ashes, there was not only an abundant yield, but also a fine and healthy one. None of the potatoes rotted, either in the ground, or after they had been taken out of it. In that part of the lot which received no ashes the potatoes were embedded in solid earth,

and they left their impressions in it as clear and distinct as if they had been enveloped in a plaster of Paris mould, and the one-third, or one-half of every tuber was black with the "rot." The modifying circumstances which altered this case, we apprehend, were these. The healthy development of the tuber of the potato requires a medium quantity of moisture at a certain period of its growth. It also requires air, but little or no light. The loose ash soil permitted the excess of moisture either to pass off by evaporation or to pass downward, and thus prevented unhealthy saturation, and it also admitted air. These conditions were neutralized by the superabundant moisture at other places, and also the want of air. Although this case may illustrate the value of coal ashes in mellowing the soil in a very wet season, yet it does not indicate their absolute necessity under other more favorable circumstances.

At best, these experiences are merely empirical, and inculcate no general principles in the cultivation of the potato; nevertheless, they may shadow forth, or faintly hint what might be, or what ought to be done under similar contingencies. The potato crop is often destroyed, or the quality of the tuber is marred by too much or too little moisture and heat at a particular period of development. In the same season it often occurs that those planted early make a good crop, both in quantity and quality, whilst those planted late may be a total failure. The reverse of this is also as frequently the case. It has also occurred that very early and very late planting have matured good crops, whilst the intermediate plantings have failed, and the converse of this has also occurred. But still, these results are by no means arbitrary, but are the effects of existing causes, which we have failed to recognize or comprehend. Of course, we can exercise no control over either a wet or a dry season—we cannot stop the rain when we have enough of it; neither can we compel it to rain when we greatly need it. We might overcome some of the evil effects of the former by drainage or absorbents, and of the latter by irrigation, if we just knew beforehand that these contingencies would supervene, but our knowledge of meteorology is yet too limited to reach any safe conclusions upon the subject, except, perhaps, in a few of the most simple cases.

AN AGED APPLE.

To-day, May 6th, Mr. L. S. Reist placed in our hands an apple of the crop of 1876, which, from all external appearance, might remain in a sound condition a year or two longer. It seemed to be a sort of "Russet," and was as solid and unspecked as when it was first gathered from the tree, and retained in a remarkable degree its apple flavor.

Mr. R. obtained it from Mr. Joseph Eby, of Rothsville, Warwick twp., in this county, who states that thirty years ago Mr. Frederick Swope, of Leacock twp., had grafts sent to him of a "lasting winter apple," but the name it was known by then has become lost, and it is now offered for a re-name.

We would respectfully refer the subject to the Agricultural and Horticultural Society; and as Mr. Swope seems to have been the first propagator of it in the county, so far as we have any positive information, we would suggest "*Swope's Lasting*." There are many varieties of the apple—and good varieties too—"laying around loose," in different parts of the county, without a name; except, perhaps, some local name not known outside the families of those who possess them. And, when these are offered "for a name" at the meetings of the local society, very often they are not even noticed in the proceedings. Now

this, to us, seems to be all wrong. In a progressive association, that which is unknown by a distinctive title ought to be as important an object of its solicitude as that which is already known. Such societies should have a competent, responsible and aggressive committee on nomenclature, and new or unknown fruits submitted to them should be recognized, and named at once, at least provisionally, "without fear, favor or affection."

ATTRACTION EXTRAORDINARY.

The Art Exhibition and Linnaean Museum, now open at the Hall of the Y. M. C. A., No. 22 South Queen street, in Lancaster city, is the finest exhibition of the kind that has ever been presented to the public of our county, and we would advise all our readers to go and see it on their visits to the city. The three stories of the building are entirely occupied by rare work of nature and art, and no one can examine them and go away without being in some way informed or benefited, for it presents a feast to the mind of man that incidentally must benefit his body also. As this exhibition in its present collective form will only be kept open for one week yet, go and see it immediately.

The Linnaean Museum on the 3d story will, however, be permanently open to the public, under such rules as may hereafter be announced.

ABOUT MAY.

The first of May, 1878, (May-day,) goes on record as marvelously fine; fully realizing the most poetic idea of our youthful days. A beautiful first of May had, of late years, so far resolved itself into a myth that the august fathers, who direct our school system, had long since entirely ignored it and changed "May-day" to the first of June, which the present year seems likely to throw into the lap of harvest—hay-harvest at least.

May is not derived from *Maia*, the mother of *Mercury—according to the usual, or common idea—because the word existed long before either Mercury or Maia had been introduced. It is from the Latin *Maius*, i. e. *Magus*, which is from the root *Mug*, the same as the Sanskrit *Mah*, to grow, and means the growing or shooting month. The Roman youths—according to Polydore Vergil—used to go into the fields and spend the Calends of May in dancing and singing, in honor of *Flora*, goddess of fruits and flowers; and from this custom the English, and our May-day, was derived, but we have seen our "youths and maidens" shivering around a stove on that day.

Kitchen-Garden Calender.

In the Middle States, during the past month, some of the hardier vegetables have been sown, and by the middle of the present one all will have been put in; hence the labor will now mainly consist of the various operations of transplanting, thinning, weeding, hoeing, &c. The following alphabetical directions will serve as a reminder to the unpracticed gardener, who is also referred to the directions for April.

Beans, Bush, plant for succession; Lima, Carolina, and other pole-beans may now be planted. *Beets*, long, sow. *Cabbage*, plant; sow seed if not done last month. *Capsicum* (pepper), plant. *Carrot*, long orange, sow. *Cauliflower*, in frames, remove glasses. *Celery*, weed; crops which have failed when first sown repeat sowings. *Cucumber*, early frame, plant. *Lettuce*, Large Cabbage, and India and Dutch-Butter, sow in drills to stand; thin out if too thick. *Melons*, plant; of the Water,

*Rev. E. Cobham Brewer.

Icing or Ice-rind is the best. *Parsneps*, thin out, if ready.

Weeds, destroy as they appear, and hoe and otherwise cultivate the advancing crops; it is needless to particularize each duty. Where the interest and taste lead to gardening, directions for every operation are necessary to but few. It is not, however, discreditable to the character of many farmers who till their own land, and should reap the reward of well-cultivated gardens, that none but the simplest vegetables may be found upon their tables, and in too many instances that scanty supply is the result of women's labor.

We have in former issues recommended a "Farmers' Kitchen-Garden," where nearly all the preparation of the land may be done by horse-power, and thus most ample supplies of vegetables be obtained in all seasons without hand labor or occupation of time, which may not be readily spared from farm duties, and the women of the household be relieved from toiling to supply household wants.—*Landreth's Rural Register*.

General Suggestions.

There are two classes of acute observers—those who see clearly through the profoundest mysteries, and those who see mysteries in the clearest and simplest things. Perhaps the latter class is the most numerous. The invalid, whose diet consists of the richest and most unwholesome viands, has been heard to wonder at the strange providence which has allotted to him painful days and sleepless nights. The man who is not diligent in his business meditates on the unfathomable decree which has assigned him to a life of poverty and disappointment. The proud mother, who has exposed her delicate little ones to the changeable weather with insufficient clothing, that white skin and dimples might be admired, wonders at the incomprehensible bereavement over which she mourns. But these differences or conditions are due mainly to a lack of some practical information on subjects of the highest vital importance. Most of the "mysteries" people puzzle themselves about would be dissolved by the study of the plain principles of physiology and phrenology. Children should be instructed in the principles of anatomy, physiology and hygiene, so that they will be enabled early in life to avoid the many agencies and occasions of sickness and disease. It is every parent's duty to see that children are set in the right way for taking care of themselves in body as well as in mind.

Some of us are not in favor of eating oysters and other shell-fish which are deemed by epicures as now out of season. Snap-beans or "German wax" make a better stew, according to our notion, than any of the mollusks or crustacea. One who knows, says that they are grand with green corn (succotash) string beans, or as a relish, with potatoes. They are good with oatmeal cake, excellent with rye and Indian bread.

Set out plenty of tomato plants; there is no danger of having too many of them.—*Phren. Health Al.*

All of which is very good advice, and to the point, although we think that the ailments and afflictions alluded to do not occur so much from a lack of knowledge as from *obedience* to the principles inculcated by sound wisdom and discretion.

THE CAT-BIRD.

One of our most familiar birds, and one which should rank in our affections along with the bluebird and robin, is the cat-bird. But unfortunately he is the subject of very general prejudice, not merely on account of his undeniable propensity to steal cherries, but also because many persons dislike the cat-like notes which he utters on certain occasions. But if he is to be condemned to persecution on account of these failings, we must also consider that he is worse than the robin and mocking-bird only from his greater abundance; and when we enlist our thoughts in his favor and consider his confident familiarity with us, his graceful form, playful manners, and interesting song, we may readily forgive all his shortcomings. Though distinguished by his song, which, notwithstanding its frequent interruptions by imitations, is eminently original in style, it

is, however, his manners which command him to our notice. There is scarcely an orchard in the land, from the Atlantic coast to the western base of the Rocky Mountains, and from the Gulf of Mexico to the British Provinces, which is not enlivened by the presence of one or more pairs of cat-birds; and very incomplete an American orchard would seem without them. At all hours of the day his cheerful song may be heard from among the green boughs of an apple tree; and when the heat of the midday sun tells him that a bath would be refreshing, he comes and splashes in the wash-basin at the back-door in the most perfect civilized style. And then when we return his familiarity, and, uninvited, intrude upon his own household, we cannot but admire the courage with which he remonstrates and defends his home. And then, too, his trim, graceful form, plain but neat dress, and bright, easy manner still further tend to win our esteem.

The song of the cat-bird is one which, though vigorous and pleasing, we cannot ourselves admire, though we admit our liability to error of judgment as of other things, and may through had taste do him injustice. But in our assumed office of critic it is our duty to speak truthfully and plainly, and disclaiming any intention of disparaging the qualities or cultivation of his voice, we will proceed in the performance of our task. His song has sufficient vigor, for he is untiring in his efforts to please us; and it has strength enough, for he is ever ambitious to make his voice conspicuous in the morning chorus; and we occasionally catch snatches of soft and sweet notes, or he even now and then manages to execute some very brilliant passage. But should the latter be the case, he seems himself astonished, though evidently well pleased, for he pauses as if awaiting for and expecting applause. In his performance there is too much deliberation, and the general effect is that he is merely practicing, during which he at times gets tired of his own voice, and substitutes other sounds which he has heard. These he imitates with tolerable success, but we must say that the squeal of a young pig, the squeaking of a hing, or the squall of a cat—sounds which he affects more than the notes of songsters—are a harsh interruption to a song which might otherwise be pleasing.—*Harper's Magazine for May.*

It is not very easy to determine whether the foregoing is an appreciation or a depreciation of the character and qualities of the cat-bird. But, perhaps, after all, it is about as much as any one can say, *pro and con*, in regard to the economies and social status of his cat-voiced birdship; only we think that, both positively and negatively, the testimony might have been more pronounced. We have heard cat-birds mimicing the notes of other birds—especially towards an early summer evening, or after a shower of rain—whose notes were only a little inferior to those of the "mocking-bird." If these mimicing efforts are admirable in a mocking-bird, they are surely none the less so in a cat-bird. But, leaving out his beneficial and neutral qualities, the cat-bird is a positive nuisance to those who cultivate the Delaware and Clinton grapes. Insectivorous they certainly are in the spring and during the brooding season, but somehow those broods, so carefully reared on worms, grubs and insects, are inoculated with a strong penchant for fruit in the after part of summer and early autumn, as we are able to unmistakably testify; and we make the record merely as a historical *fact*, and without intending anything prejudicial to the bird.

Our residence is only five blocks from the very centre of Lancaster city, and the street is built up solidly for several blocks beyond us; and yet as long as we had Clinton grapes on our premises, from the moment they began to ripen until the crop was entirely exhausted, our vines were daily visited by scores of cat-birds, and so fastidious in their gastronomical tastes, too, that they were satisfied with nothing short of the very best berries on the vines, and in this way they marred the beauty and the quality of every cluster. It was nothing to the purpose that there were plenty of other grapes in close proximity; but no, they must have the Clintons and Delawares, especially the former. They could not be frightened far away, neither, by "beating the bush," nor the discharge of firearms; they would retire about six inches or more beyond the limits of the enclosure, only to return as soon as our back was turned. On one occasion we were compelled to remove all the grapes, even before all were fully ripe, for we had fourteen cat-bird visitors daily. They

perched themselves on trees in the neighborhood and watched the process. Afterwards they returned to the vines, but when they found them minus the grapes, such a sarcastic and catlike wail of contempt no cat-birds ever uttered before, and then they left with undisguised disgust and never more returned—the vines being subsequently exterminated.

SOMETHING ABOUT EELS.

Very few eels are ever caught that, when opened, contain any eggs—even by old and experienced fishermen—and hence it is often asked: How do eels propagate? And, indeed, many people do not believe that they ever develop eggs, but that they are propagated in some manner unknown to science, and without the intervention of eggs. We confess that we never saw what we considered the well-defined eggs of an eel until to-day (April 12), although we had often been assured by competent authority that they do produce eggs. But we supposed that if ever we found them we would find them very minute—something like the spawn of an oyster.

To-day, however, Mr. John Wohr, of 526 South Queen st., Lancaster, brought us an eel, about a foot long, which he caught in the Little Conestoga yesterday, and which contained quite a number of eggs (fully 100), as large and as round as the eggs of the common shad. These eggs are enveloped in a tubular matrix, adhering to the back-bone, and extending from the liver nearly to the vent. These eggs are not enveloped in a thin, transparent ovarian membrane, through which they can be seen, as in other fishes, and also in fowls, but in a tubular receptacle, with thick, opaque, whitish muscular walls; and hence we have designated it the *matrix*, or an organ representing it. Further examination may develop further facts on the subject. Mr. W. had removed the skin of the fish, and in disemboweling it he made an accidental incision in the matrix, and to his own astonishment exposed the eggs, some of which he had broken open in the operation. Some of these eggs are translucent, and others are of that dark greenish color peculiar to the eel, seemingly approaching incubation. Although this discovery confirms an important fact, still it does not determine whether the eel is really oviparous, viviparous or ooviviparous; that is, whether the eggs are excluded, as in other fishes, and hatch out afterwards, or whether the young are excluded from the eggs within the matrix, and brought forth alive. Their appearance seems to imply the latter.

Eels, it is well known, are generally migratory in their habits, but differing from other migratory fishes as to their seasons; that is, the young ascend the streams in the spring, and the adults descend the streams in the fall, exactly the reverse of the habit of the shad. This recalls an observation we made in our boyhood, many years ago, and long before we had read Yarrel (or any other author) or knew that such authorities were in existence. On one occasion we observed millions of young eels, varying in size from two to three inches in length, ascending the Susquehanna river; and it is well known that millions of those fishes were caught in that stream, in fish-traps, as they descended it in the fall; and this was especially the case before the erection of the various dams, but it is more or less the case even down to the present time. The event itself is indelibly impressed upon our memory, but we cannot fix the date, any father than that it was in the spring, about the time boys usually "go fishing," and therefore may have been some time during the month of May, or early in June. We observed them from the outer margin of a log raft (the inner margin of which was "high and dry," lying on the sandy beach), where the water was about six inches deep and very clear. As far out into the stream as our vision could extend there was a vast multitude of young eels, coming up over a ledge of rock on the bottom of the stream, like an army of soldiers sealing the ramparts of a fort, and they continued to come from about ten o'clock.

in the morning until three or four o'clock in the evening, but how much earlier or later, or for how many days, is more than we can say. Strange to say, not even the oldest inhabitant in the town in which we lived, had ever witnessed the phenomenon (some disbelieved our report), nor have we ever met a person from that time down to the present who had "ever seen the like;" and, had we not captured about half a dozen of the "little jokers" in a net improvised out of our pocket handkerchief, and read Yarrel's description of the ascent of young eels up the river Thames, we might probably have doubted it ourselves. Yarrel says that multitudes of these young eels are captured in the Thames every spring and sold as luxuries to the rich epicures of the great metropolis.

The fact that eels migrate semi-annually up and down the Susquehanna and other rivers, does not militate against another fact, that there are varieties or distinct species which are local in our ponds, dams and interior streams, and the present subject seems to imply that they breed in the streams and other localities in which they are found. These observations illustrate how very slow and difficult is the development of all the facts of natural history, and yet we often find ourselves jumping at conclusions, based entirely upon theory, and without a single fact to sustain them. We well remember, when we were a boy, how abruptly we were "snubbed" because we stated that the vinegar we brought home was full of "worms." We could not place it in the exact position in which we saw the worms, and it was many years after before we were able, by the aid of the microscope, to demonstrate that our youthful assertion was founded on truth.

QUERY AND ANSWER.

HEMPFIELD, April 16, 1878.

MR. S. S. RATHVON—*Dear Sir:* Enclosed you will find on part of a tobacco leaf a brood, which I would like to know what it is. If you can, please let me know.—Yours respectfully, Henry M. Witmer, Hempfield P. O., Lancaster county, Pa.

The above came to hand just after our April number had gone to press, or it would have been answered in that number. It is impossible to answer the queries of our correspondents by special letter, unless it is on a matter relating to them and us alone. The answer of this inquiry is a matter of public interest, especially to tobacco growers, and as we are "set" for the instruction of the people, we speak to them through the columns of THE FARMER.

We can assure H. M. W. that he need entertain no anxiety about the "brood" which he found on a leaf of his tobacco, for they are friends and not enemies. Observant tobacco growers will have noticed during the "warming" season an occasional worm covered with small white, brown or yellow follicles, about the size and shape of an ordinary grain of rice, and from 50 to 100 in number. These have been spun with fine silk into a regularly formed cocoon by the larvae of a small clear-winged fly, known under the name of *Micropoecilus congregata*, belonging to the parasitic family of "Ichneumon flies." The little fly deposits its eggs in or on the bodies of said worms, and as soon as the little parasites are hatched from these little eggs, they immediately burrow into the bodies of these "worms," and feed on the fatty substance of their bodies. As soon as the little larvae have reached maturity they come out of the bodies of their host and spin the little white or buff cocoons first alluded to. Within the following week or ten days the young flies come forth and go through the same process; and thus they go on in the "even tenor of their way," producing a number of broods, until their further progress is ended by the cold weather of fall. Now, in order to perpetuate themselves, and bridge over the long, cold winter, the last broods do not spin their cocoons on the bodies of the tobacco worm, but on some other substance, where they hibernate until the following summer.

These little parasites, however, also infest other caterpillars than those of the tobacco worm, but the latter especially become the victims of their infestations; and here we would repeat the advice we have frequently given on former occasions, namely, that when a tobacco worm, a grape, or tomato, or any other kind of worm is found with the cocoons of this parasite upon it, it should not be disturbed, for there is no danger that it will ever be developed into a moth. This course will allow the parasites to develop, and thus increase their numbers. If there is a worm on the tobacco plant these little flies will be sure to find it, even if it should elude the notice of the tobacco cultivator. It is a matter of life or death to them, and not one of merely dollars and cents, and although we are likely enough to be vigilant where the latter is involved, yet in a matter involving the former, we may infer any subject would be still more vigilant; especially when guided by that instinct which often far surpasses the highest manifestations of human reason.

CHRISTIANA, 5th Mo. 6th, 1878.

PROF. S. S. RATHVON—*Esteemed Friend:* Please, through the medium of your excellent paper, give the name and character of the inclosed specimens.—Yours, &c., G. H. W.

The specimens came safely to hand, and consisted of three small chips of the bark of a tree or shrub, upon which had been deposited about two hundred eggs of a Hemipterous insect, apparently belonging to the family REDUVIIDÆ—a family which contains some of our most efficient insect friends. We only found time to-day to examine the contents of the box which inclosed the eggs, and when we opened it we found that about one hundred of the young insects had emerged from them. We cannot always determine the species of insects from eggs alone, nor yet from immature specimens, especially when they are only a day or two old; indeed, from such undeveloped data we cannot always determine the genus, and sometimes not even the family. Judging from the appearance, however, we should refer them to the genus *Reduvius*, and they probably are the *R. raptor*, an insect which has been known to destroy the larvae of the "Colorado potato beetle." We do not think, therefore, that you need entertain any fears about the destructive habits of these insects, for even if they are not what we think they are, they are an allied species, genus or family. If they do not devour other insects they feed on some wild species of vegetation. These little insects have a little black head and thorax, a small, red abdomen, long and slender black legs, and long, black antennæ, yellowish at the outer end; characters which also distinguish the infant state of *Lycus aulicus* and *turcicus*, which infest the *Aesculus*, or wild cotton. All of these insects hibernate in the winter and deposit on vegetation in the spring or in the previous autumn.

MR. E. K. H., Creswell.—The small, black insects on the cherry leaves you submitted to our inspection, are the "cherry aphid," or "plant louse" of the cherry (*Aphis crassii*). If the whole tree is infested the same as the few leaves you submitted to us, you have not only the *bane* but also the *antidote*, for we counted thirteen specimens of the larva of a species of *Surphus*-fly, feeding right vigorously upon them. We do not think we shall be able to develop the fly, because from the manner in which they gobble up the aphids, we do not think we shall have provender enough to last them for half a day. Some leaves had from two to three of these *Surphus* larvae upon them; therefore, we do not think a better remedy for the destruction of the aphids need be, or can be, recommended.

MR. H. M. E., Marietta, Pa.—Your peach leaves are infested by the "peach aphid," or "plant louse" of the peach (*Aphis persica*); but, unfortunately, we detected no *Surphus* larvae among them, therefore your case is

more precarious than the above. Drenching them with a tobacco decoction or a solution of whale-oil soap would be an extinguisher, but heavy rains would also destroy many of them.

The mild past winter was very friendly to the insect world, and hence, until the natural checks have an opportunity to operate against them, we may expect a redundancy of the noxious kinds. If we could only colonize the "Willow Wrens" as easily as we can the "English Sparrows," they would soon "make way" with the aphids.

MR. H. W. G., Lancaster, Pa.—In reference to the gastronomical habits of the family CANIDE, Dr. Godman (p. 168, A. N. H.) says: "Their food varies according to circumstances, and is composed wholly, or in part, of animal matter, either recently killed or in a putrid state." But they are less positive in this respect than the FELINE, and yet we know cats, in a domestic state, will feed on vegetable matter—and even fruit and pickles—but this is of rare occurrence.

CORRESPONDENCE.

MORELLS.

MR. EDITOR—*Dear Sir:* I herewith send you a box of Mushrooms (Morells) for a holiday dinner. I trust they will tickle your palate sufficient to move your pen once more in behalf of the cultivation of this delicious esculent, which may be produced in quantity to supply any demand for it.—Respectfully yours, H. M. Engle, Marietta, April 22nd, 1878.

The highly flavored "Morells" (*Morchella esculenta*), commonly called Morells, came duly to hand, and we assure our considerate friend that they were exceedingly palatable and "toothsome," and for which we acknowledge a debt of gratitude. They were the first we had eaten for twenty years, but so positive is this vegetable in its flavor that only a smell of it recalls other days long ago. We certainly wish that the "movement of our pen" would or could induce some of our farmers, gardeners or truckers to embark in the cultivation of Mushrooms, Morells and Truffles. The versatile, prolific and economical French produce these esculents in such large quantities that the revenue to the government on them alone amounts to hundreds of thousands of francs annually; and we verily believe that if they were intelligently, industriously and economically cultivated in our country they could be produced in quantity sufficient to bring their purchase and consumption within the means of the common people, and this would render them as permanent a crop as the common potato. We have given the details of their cultivation in former numbers of THE FARMER, which we will republish on some future occasion. Nothing is more grateful to the human olfactory and palate than the flavor of these healthful fungi, and we have often wondered that under the progressive impulses of our agricultural population no advance seems to have been made in this direction. Their cultivation is so simple and so artificial that any exhausted cavern, quarry, ravine or cellar, where a uniform temperature can be maintained, can be utilized for that purpose without trespassing upon other more arable lands devoted to other crops. A mean temperature of about 70°, and even a lower one, is sufficient to mature the Mushroom and Morell. "A dinner of herbs, and love therewith, is better than the stalled ox and fatred therewith;" and we believe that the temper of the crabbedest man would be mollified, on crossing the threshold of his domicile, if he encountered the flavor of a dish of Morells.

SALISBURY, N. C., April 19, 1878.

EDITOR LANCASTER FARMER: Never before have we seen, at this season of the year, in any country we have been in, a fairer prospect for a good wheat and oats crop; grass also promises well; and the present prospect for a good crop of fruit—such as apples, peaches, pears, plums, gages, grapes, &c., &c., were never so fine. Garden vegetation, such as lettuce, onions and radishes, including peas, Irish potatoes, &c., are now growing finely here in the

open air, and some farmers have planted corn, while others are busily engaged in preparing their land to plant. Tobacco growers are also preparing ground for planting. This country has been blessed with good health and bountiful crops the past year, including wheat, oats, corn, Irish and sweet potatoes; also, fruits of all kinds, such as are grown here. Everything is plentiful and cheap, except money, and that is very scarce, and business dull. The average prices of produce and provisions are as follows: Cattle (beef) 9 cents a pound; flour, \$2.75 per sack of 98 pounds; corn, 47 cents; oats, 35 cents per do.; roll butter, 20 cents per pound; eggs, 10 cents per dozen; and all other things in proportion. I would like to see some good Lancaster county farmers come down here and settle among us, in order to show people here how to farm right. I think they could render good service here, as well as promote their own interest.—Yours, &c., M. R.

[That, we think, is only a matter of time, and doubtless will come "by-and-by." The "migratory" farmers of Lancaster county are beginning to look southward at least, and some of them are debating the question in their own minds, whether it would not pay better to go South than to "go West." Stimulated by the impulse of Horace Greeley's recommendation, some have gone West, and think they have worsened their "previous condition"—some have returned dissatisfied and chop-fallen. Some might object to the low prices of farm products in the South, but we think that is only temporary; moreover, except in the vicinity of towns and railroads, the prices are no better in the West than they are in the South.—ED.]

COLUMBIA, PA., April 15th, 1878.

PROF. S. S. RATHVON.—*My Dear Friend:* At first I advised you by mail that the February number of THE FARMER failed to put in an appearance at my place. This you forgot all about. When I personally called on you then you said you will now not forget. Well, I suppose you are getting rather too much business on your mind, so that some things may be forgot as well as others. Now you send me another copy of the March number, which I had already. So I'll make another appeal—don't send me January or March number, but if you have got a spare copy of February number I will be thankful for a copy to keep my file complete. The April number is now due.

I have a lot, some three dozen, of those Japan persimmon seeds, from Mr. Loomis, of California. They are already sprouting in pots. I have an idea that when grown from seeds the trees will be more likely to accommodate themselves to our climate than trees grafted in California, where the climate is warmer. Time will tell if I am right; I may not live to carry out the experiment, still somebody may see the result. Then, too, I may not get the particular varieties; however, like other fruits from seed, there may be good varieties originate from seed.—Very respectfully, J. B. Garber.

"Now, sonny, you run to the grocery, quick, and bring a mackrel and half a pound of butter, and, 'hold on,' a six-penny loaf of bread for breakfast." Away ran the boy at the top of his speed, but lucklessly met another boy, who taunted him to play a game of marbles; and, consequently, when he returned home he had half a pound of beeswax and a plug of tobacco, and no bread at all. Evidently that boy had more business on hand than his mind could compass. We often find ourselves in that condition, and can only throw ourselves upon the indulgence of our friends and patrons.—ED.

FOR THE LANCASTER FARMER.

LATE PLANTED PEACHBLOWS.

A few years ago, a farmer living near this city came into the Agricultural Department with some remarkably large Peachblow potatoes. He had planted them early in July, in mellow soil, and, the season being favorable, they grew finely until an October frost cut down the green, luxuriant vines. They had ripened just sufficiently, and had yielded a very large crop of unusually large potatoes—hardly any small ones among them. They were so handsome, large, and of fine flavor, that he had been offered an extra price for them. His experiment was so similar to one I had tried while residing in Perry, N. Y., in 1856, that I will also give that as an instance of success in late planting.

We had had a dry spell up to July 4th, when it was broken by a shower. The next

day I planted a vacant bed of rich, mellow ground, with some badly sprouted peachblows. Some amused neighbors said I was planting them for "Jack Frost," but as only my labor could be lost, I planted them. The weather kept them steadily growing, and we had no severe frost until about the 10th of October. I hastened to harvest my crop, and was astonished at the size of my potatoes, and the quantity—although the skins slipped on a few, until exposure to the air hardened them. They also proved superior in flavor to any peachblows we had ever eaten. My neighbors were as much surprised at my success, and at the size of the tubers, as myself. I think that both quantity and quality, and the ripening of such a slow grower, was mainly owing to the fact that the growth was never checked in the least—almost every day of the season, between July 5th and October, being good growing weather. Had I opportunity and means, I would like to repeat the experiment on a small scale, by planting at a favorable time, at the close of June, or beginning of July. I planted from four to six inches deep, and hilled them when hoeing—old fashion.

I once planted early kidneys in my garden, in Marietta, on the 22d of February, in a dry, sheltered spot, and covered them well, and mulched them with potato vines. I removed the mulch late in March or early in April, and found them coming up finely. They yielded good cooking potatoes about a week earlier than those in the neighborhood planted on March 17—St. Patrick's day. These I hoed flat or level, because they were planted very deep. The season, also, was very favorable, after spring fairly opened.—A. B. G., Washington, D. C.

REVU OF APRIL NUMBER.

Kitchen Garden Calender.—Thos hu hav not foloed its directions at the proper tim can do so yet, but tha wil hav to put up with short crops or non at al.

Health Suggestions.—Thes ar gud, but wont amount to much, whil peple cater mor to ther aptitudes than to ther helth.

Milk, Cheese and Sugar.—If the ideas of A. H. W. ar corect, som ov the farmers ov yur county wud beter turn ther attention that wa, sinc the tobacco mania has somwat sub-sided. Mankind wud surly not sufer by the chang.

United States Entomologist.—Prof. R. has accomplished much, but in the U. S. Ag. Department he wud be the rit man in the rit plae. We hop he wil be apointed.

Scale Insects of the Peach.—What next? It seems that if we wish to enjoy fruts, certain we must understand the habits of insects, whic ar geting nu secrets every yer.

The Cultivation of Wheat.—We repet that this is an important question, and is destined to becom a fixed factor in whet groing. Pleas mark our predictions.

The Brighton Grape looks wel on paper, and we hav sen and tasted som that wer O. K., but having som foren blod we are not sur that it wil prov without falt.

Barnyard Manure.—Any person hu thinks that Col. J. Y. dos not no what he rits about, had beter go and se his farm, which Pres't Grant is sad to have pronounced the best managed in the country. Col. Y. don't beleve in ignorant farmers ether. With al his succses he has he lacks intelligence to conduct his bisnes as he wishes. Som ov the members ov yur county societe, hu sometimes sneer at intelligent and progressive farming, mit profit by paing a visit to Col. Y.'s farm, speciaaly yur 100 bus. corn man.

Manures and Soil Fertilizers (concluded.)—J. I. C. is another ov thos wild visionary farmers, hu has not fer ov old foges befor his I's. Altho he delivered his lectur befor yur county societe meting and which seemed to be wel received, but after al som think ther dadis new mor about farming than J. I. C., and tha prefer to follo ther dadis example. We hav only to sa that if J. I. C.'s labors ar not appreciated by the present generation of farm-

ers we hop the rising won wil profit therby. We consider his lectur an excellent won.

Various Notes.—J. B. G. seldom fails to mak gud hits. His verdict against the Italian be is not at al modifid. On dep and shalo tre planting he seems to be on both sides, but we think the dep planted orchard which he aludes to, wud hav done as wel or even beter, had it ben set shalo.

Hovey Seedling Strawberry.—This bery mit pas among the grat nu guns under a nu nam, altho it mit not yeld as many bushels per acre as potatos, speciaaly if we eud gro 700 bus., as yur member from Conestogo claims can be don. Then 32 quarts per bus., at even 10 cents, wud amount to \$2,240, which wud bet tobacco al holo, and be relished more by many.

Varieties of Fruit for Pennsylvania.—H. M. E. is considered authority on fruts, but we think he has left som gud kinds out, and som which he recommended wud be rejected by som planters.

Hard Times.—If such feeding and dresing as A. B. G. had when young wud mak such men as he, the country shud comence bisnes on a larg scal. With a majority ov such, our country wud present a very different aspect. Fraud and politiel gambling wud be at a discount.

Farm Notes.—J. G. givs gud hints. It is not tu lat yet to follo his directions.

Facts for Farmers.—Californians sem always to be boring with big augurs, and Berks county is urged to follo with one of sam siz. We think Lancaster shud order one stil larger, as she shud never be behind Berks. She shud first positively get out the 700 bushel potato crop, then follo with sam amount of strawberries, after which Califorly wud hav to luk after her laurels.

Celandine.—To which we sing mum. We no nothing about it.

Clothes moths ar a nuisance. Shud tha multiply largely it mit improv the tobacco market.

Correspondence from North Carolina.—M. R. cannot se why THE LANCASTER FARMER is not beter patronized at hom. Nether can we, unles tha lov the mite dolar mor than progres in ther caling.

Around the Farm.—Ruralist seems to hav his I's open. His saings ar short but always to the point.

Questions on Fertilizers.—A. B. K. has handled this question remarkably wel. His articl shos that he has given it a mor thoro consideration than farmers generaly do. It is worth revuing by any farmer hu has comon sens enuf to draw useful deductions therfrom.

Proceedings of Agricultural and Horticultural Society.—Thes ar always interesting, altho tha somtims bar considerable sifting. The question refered to Mr. Hiller, was wel ansered. He brot out som gud points, as he seldom fails to do. The essay of M. D. Kendig on beautifying country homs, was also excellent, and much in advanc of the sentiments ov som ov the members hu seemed to sneer a litle at such tomfulery. The mor progressive gav it ther harty endorsment. How to rais 100 bus. ov corn to the acr by Mr. B. was handled somewhat ironically, but brot out som gud points. He evidently don't beleve in fancy farming.

The groers of the weed continue to hold ther monthly metings, but the enthusiasm is not so grar as formerly.

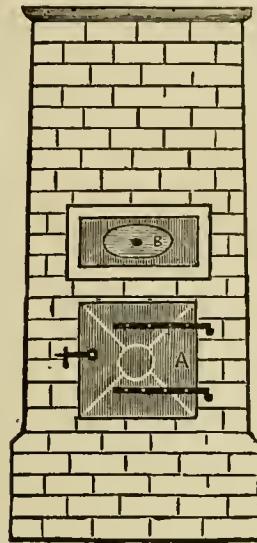
The Linnaean metings shud increas when onc held in ther nu hal. It wud do som ov yur farmers gud to atend thos metings. A little mor siens wud not blo them up.—*Von Humboldt.*

THE publisher of THE FARMER having in his possession a collection of all the pennies coined, with the exception of 1793, 1799 and 1804, and being desirous to procure these three dates, to complete his collection, would ask the patrons of THE FARMER to look over their old coins and see if they have any of such dates, for which I would be willing to pay them a hundred times their commercial value, by sending or bringing them in person to the publisher, at the *Examiner and Express* office, No. 9 North Queen street, Lancaster.

THE MENNONITE GRASS-BURNER.

BY PROF. J. D. BUTLER.

No house in Washington is such a Japanese gem as the home of General Horace Capron. This gentleman, going to Japan in 1871, took with him his carriage and horses. He was soon requested to lend his turn-out to the Emperor, and then invited to the palace, where his majesty said to him: "Sir! I have sent for you to thank you personally for intro-

END VIEW OF THE
"MENNOMITE GRASS BURNER."

EXPLANATIONS:

- (A) Furnace Door to Fire-Box.
- (B) Cooking place or Oven. This opening sometimes omitted.

ducing such animals into my country. I never knew before that they existed on the face of the earth." The General was then employed to put up a flouring mill—as bread was no less unknown than horses to the Japanese. Nor were his rolls less welcome than his roadsters. He also built a saw-mill which cut twelve thousand feet daily—which was all that six hundred sawyers could do. Among other services he showed how to can salmon, and so rendered their fishery ten times more valuable than it had been.

He had his reward. Everything rich and rare that had been garnered up in the imperial treasure-house was lavished upon him, and he came home laden with the spoils of the farthest East.

If Republicans were as rich as the Mikado, the Nebraskans would bestow a similar testimonial on the Mennonites who have settled among them. Those Russian exiles have introduced a variety of fuel which will prove as great a boon to prairie States as horses or mills to Japan. They have demonstrated that every farmer may find on his own homestead, if not a coal mine, yet whatever he needs to burn on his hearth.

Russian Reports.

Though I was long ago a traveler in Russia, my attention was never called to the Russian style of heating until 1873. In that year, being on a western tour, I fell in with seven Mennonite deputies in quest of a new home for their people, who for conscience's sake were forced to leave their old one on the Black Sea. We were together in various parts of Nebraska. Along the Republican and smaller streams we found a good growth of timber, but every acre it stood on had been snapped up either by settlers or speculators.

Much to my astonishment I discovered that my companions liked the country. In talking with German squatters whom we had called upon, they had ascertained that the crop was twice as large as that where they came from. When I asked, "what will you do for fuel?" their answer was: "Look around. We see it ready to our hands in every straw stack and on every prairie. Grass and straw are what we, and our fathers before us, have always used." We passed one evening by a brick kiln in Crete, which was fired up with coal. They remarked to me that they could burn brick without either coal or wood.

Personal Observations.

Their report on their return to Europe was such as to bring a thousand of their co-religionists into Nebraska. And while a large number of these people have gone into Manitoba, Minnesota, Kansas and Dakota, it is true, I think, that the best class have made their homes in Nebraska, and in that State are to be found the most prosperous colonies. Two of their settlements there I chanced to visit last autumn—one near Beatrice, on the Big Blue, and the other farther west in York county. Mindful of my conversations four years before, my first inquiry was regarding fuel, and the mode of using it. In every house I entered, my curiosity was gratified. The first dinner I ate cooked with grass, I set down as a novelty in my experience. A few words of mine concerning the Mennonite device for cooking and heating were inserted in a letter which appeared in the Chicago *Times* last October, and in a pamphlet entitled a "September Scamper." This notice has overwhelmed me with letters begging for further particulars, not only from various States but from abroad, and even from New Zealand. These letters I could not answer, even with a manifold letter-writer, and I have, therefore, prepared the present circular, which the post office can scatter like snow-flakes.

The Mennonite Heater.

The grass furnace or stove is nothing costly, or complicated, or likely to get out of order. On the other hand it is a contrivance so simple that many will say of it as "one man did when he first saw a railroad track: 'Nobody but a fool could have thought of so simple a thing!'" In a word, as the Irishman made a cannon by taking a large hole and pouring iron around it, so the Mennonite mother of food and warmth is developed by piling brick or stones round a hollow.

Aware that such generalities are too vague, I will make my description more specific, and since the eye catches in an instant what the ear cannot learn in an hour, I have also had a

SIDE VIEW OF THE

"MENNOMITE GRASS - BURNER."

EXPLANATIONS:

- (A) Furnace Door to Fire-Box.
- (B) Draft.
- (C) Pipe.
- (F) Chamber with Iron Shutter (hinged) to let on heat. This Chamber has doors on both sides of Furnace.
- (G) Oven or cooking place on Kitchen side of Furnace.

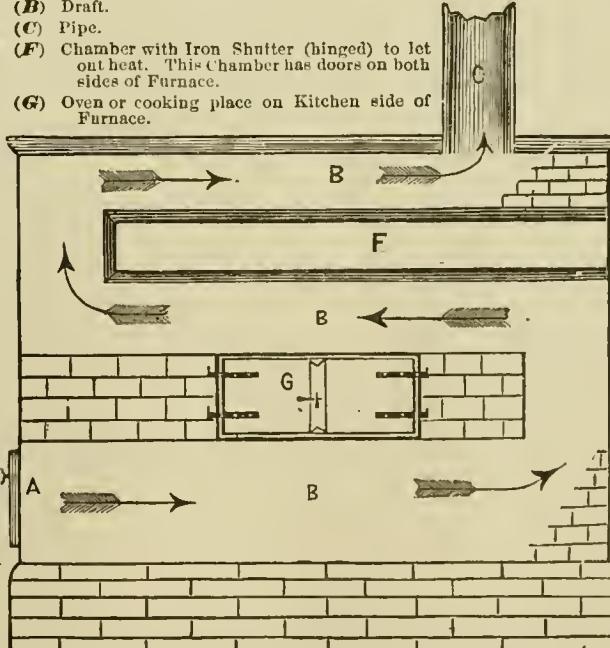


diagram prepared which will render the whole mystery plain and level to the lowest capacity. (See diagrams.)

Construction.

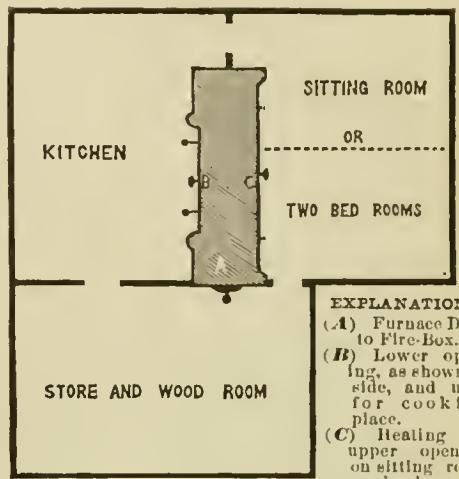
The material used for the Russian furnace seems unimportant. Some employ common brick, others stone; one builder told me he preferred to mix one part of sand with two of clay. In his judgment this mixture retained heat longest for radiation through a house. The position of the furnace is naturally as

central as possible, because heat tends to diffuse itself on all sides alike.

Furnaces will, of course, vary in size with the size of houses. A good model is that shown in the diagram. Its length is five feet, its height six, and its width two and a half. The bricks employed are about six hundred, unless the walls be of extraordinary thickness. The structure may be said to have six stories. 1, the ash-box; 2, the fire-box; 3, the oven; 4, smoke passage; 5, hot air chamber; 6,

GROUND PLAN OF HOUSE,

Showing Location of Furnace.



smoke passage either to a chimney or to a drum in an upper room.

Many questions have been asked me as to the size of the fire or fuel-box. Its length is about four feet, its width and height each about a foot and a half. It is asked, "How is the grass pressed or prepared for the fire-box?" It is not prepared at all, but is thrust in with a fork as one would throw fodder into a rack. People suppose they must be putting

in this fuel all the time. This is not the fact. At the house of Bishop Peters, (48x27 feet,) which is a large one for a new country, the grass or straw is pitched in for about twenty minutes twice, or at most three times, in twenty-four hours. That amount of firing up suffices both for cooking and comfort.

It will be observed that the heated air strikes the oven, and also the reservoir of hot air both above and below, and that no particle of hot air reaches the chimney till after turning four corners. It works its passage. The iron plates, doors and shutters are such as any foundry can furnish. They are inexpensive. In a case where I inquired the cost, it was five dollars.

Present Use—Prospective Utility.

Near a score of years ago, when I first pushed west of the Missouri, my feeling was, "What a corn-and-wheat-growing capability here runs to waste! What myriads of buffaloes, too, have been shot merely for the petty dainty of their tongues!" So now in the light of Mennonite experience, many a Yankee in Nebraska sees that he has thrown away a cooking and warming power that had millions in it. He long ago laughed at his father smothering bees in order to secure their honey, and at his neighbor who put into his stove the corn which he might have sold, the same year, for fifty cents a bushel. He now laughs with the other side of his mouth at himself for burning out doors that prairie produce which, if burned in doors, would have saved him, too, many a dollar. He who thus laughs will need no preaching to make him square his practice in the matter of cookery and house-warming according to the Mennonite plan. His faith will be stronger than ever, that the Providence which erected quinine where chills prevail, as well as perfumes where negroes are most numerous, and provided buffalo-chips for the

Indian in the far west, has there also furnished fuel for the civilized settler—"grass of the field, which to-day is, and to-morrow is cast into the oven"—a gift which, if he makes full proof of it, will be sufficient for all his needs.

Straw and old prairie grass have been thought as useless as grave stones after the resurrection. But the recent utilizing of them is in keeping with the spirit of the age—with developing patent flour best suited to human uses from that part of wheat which had been the food of hogs, and with planing mills so contrived that they feed their boilers with their own shavings. Indeed, it surpasses all witty inventions in its line, unless it be the proposal, just now started, for turning even tramps to account, by elapping them into the regular army, and sending them among Indians to scalp, or to be scalped, no matter which.

Many Nebraska Yankees were made happy last winter, thanks to the Mennonite stove. More will be next winter. That household blessing to an outsider seems capable of little improvement. But the Yankee will improve it, for he has improved everything else he has borrowed—everything from watches to steam engines, ships, and even religion. In fact, his betterments in the last article are said to be as manifold

"As if religion were intended

For nothing else but to be mended."

Thus Yankee cuteness may render the Russian stove simpler, smaller, cheaper—of better material—of more elegant design—of more economical combustion. But as now used by Nebraska Mennonites, it is worthy of all acceptance by every prairie pioneer. A Hibernian, hearing of a stove that would save half his wood, said he would buy two and save the whole. The save-all that he was after, he would have found in a Mennonite grass-burner.

FOR THE LANCASTER FARMER.
PROPOGATING BY NATURAL SELECTION.

There is a great deal published in THE FARMER about grafting fruit trees, and also how to plant, prune and cultivate trees, and especially so in the March number, and I am in perfect agreement with them, so far as they go, but it seems to me that none of them commenced at the bottom of the foundation. I will try to give a hint of my ideas on the subject if I can. We all are aware that trees are started from a seed. We will take the apple as an instance. When I was a boy we used to go to the cider mill of a neighbor to make our cider. A nurseryman lived close by, and he usually visited the mill with a sieve, to sieve the seeds out of the pomace, and probably that is the way that most nurserymen get their seed; and in that way they get all kinds of seed, and generally of the poorest fruit, for the poorest fruit is always made into cider. But to my mind, this is not the right way. If we select any kind of grain seed, we always select the very best, and why not the same in fruit?

I prefer to select seed from good, nice, large apples, and from such trees as are hardy and vigorous growers. Plant such seed, and on the stock raised from it graft with scions from equally vigorous trees. For early apples the seed from early apples should be planted; for fall, the seed from fall apples, and for hard or late keeping apples, the seed from the same. For sweet apples plant the seed from sweet apples, and they will be sweeter when they are grafted on a sweet stalk than on a sour one. I would advise farmers and planters to raise their own trees and start them in this manner. There are some medium-sized apples—and even small apples—that are very good, and that we don't like to be without. If these are grafted on stock raised from the larger varieties, we may expect larger fruit than usual. This is natural; if we want to raise large horses, we must not only have a large horse, but we must have both the horse and the mare large, and why not the same with the apple, or any other kind of fruit?

We often hear people who have bought apple trees complain that they were not what they were recommended to be. About twenty-

three years ago I went to a nursery to get some apple trees for my father. Among them were two trees that they called "Spoonflower," and the apples from them were almost worthless. Although the trees had been grafted I don't think they had been grafted with that fruit.

Now, another thing, some apple trees are from nature slow growers; I would plant none of them. For instance, the Rambo is a slow grower, but I would not forget or ignore it on that account, as Mr. L. S. R. did in the March number of THE FARMER, page 42. I would plant a vigorous grower of a late winter apple, either wild or grafted, and let it grow about ten years, and then graft the Rambo on its limbs, and in fifteen years from planting it will produce as much fruit as two trees that are planted Rambo in the beginning. The same with other fruits.

These remarks may not prove satisfactory, and these results may not be realized fully on the first trial. I often hear people say, if they plant small potatoes they get just as nice potatoes as when they plant large ones; but if we try the thing aright we will soon perceive the difference. If we plant small potatoes in one row and large ones in another, side by side, there will be little difference, if any, the first year. But if we plant small potatoes, year after year, they will gradually degenerate, and we can raise no nice large potatoes after several years of this kind of culture, and I have no doubt it will be the same with fruit.

[The above involves a rational application of the system of "natural selection;" but it is not pretended thereby that an apple will be ultimately changed to a pear or quince; a cherry to a plum or peach; or a common potato to a sweet potato or a yam; but that by always selecting the best seeds, each variety will be improved in quality.—ED.]

The most pressing work is now almost over, for a short time at least. Now is a good time to prepare for hay-making and harvest. Get out the mower and reaper, the hay-tedder and the rake on the threshing floor or some other convenient place to put everything in order; tighten up the bolts, and see that everything is properly adjusted and repaired. This can be done on rainy days with every implement. If new implements are needed, purchase them in time. Clean out the barn, put up the hay-hook. Get all things ready as far as possible. Just before hay-making is generally a busy time. In cultivating the corn, if the machines are not looked after until they are wanted to go to the fields, it sometimes takes a whole day before we can get them successfully in motion, and much valuable time is lost. Also, have a lot of bolts on hand of different sizes. If anything breaks it can often be soon mended with a few bolts. If hay or grain is intended to be stacked, haul the rails needed for the foundation to the places where they will cause no delay when hay or grain is ready to be hauled away.—J. G., Warwick.

[These things are all very essential, although they may seem to be small affairs. It is "procrastination" in these matters which always proves such a "thief of time," and arrests the progress of the most skillful laborers. Progress involves the activity of every kind of farm labor; and it is often wise to give heed to that "stitch in time which saves nine."—ED.]

FOR THE LANCASTER FARMER.
AROUND THE FARM.—No. 8.

Caterpillars.

From present indications our fruit and ornamental trees will be denuded extensively of their foliage by the caterpillars this summer. Every reflecting mind will at once determine what to do, but as there are some minds that are not reflecting a little caution may benefit them. Every man, woman and child should at once wage a vigorous war of extermination against them, not stopping short of complete annihilation, for by this means only will our trees be saved. They may not be as numerous in other parts of the county as in this (Manor twp.) but if they are,

shade trees in August will be as scarce as politicians after May 25th. The remedy most easily applied is burning. Take an old tin funnel or fruit can, fasten to a pole, and put therein cotton saturated with coal oil, set fire to this and hold it under the nest long enough to completely destroy it. This is the best way I know beside hand picking, though a severe remedy to the caterpillar. But on the principle of "half a loaf better than no bread," so is a severe remedy better than none at all.

Propagating Gardens.

Few persons can be more fond of a ramble through the country, peeping "around the farm" of others of my fellow-farmers, to see their methods of "running the business." I can always learn something new, as no two farmers run a farm exactly alike.

A few days ago I took such a ramble amongst the farmers and found much to commend, but also some things to condemn. I am a great lover of flowers and ornamental foliage plants, and I think they should be cultivated to a considerable extent. In my rambles I met several farmers whose tastes also run in that direction, but I think they overdo the business and make regular propagating gardens of their farms. For instance, one friend raises large quantities of the **Convolvulus arvensis*. As he does not sell any plants; he raises merely for show! Along the fence he also has large beds of *Saponaria officinalis*. With extra success he cultivates the *Cirsium arvense*, a very beautiful plant, with fragrant pinkish blossoms. As the plant is armed with spines it is not likely to be molested by either man or beast, and on that account is a desirable (?) field plant. It is readily propagated by seeds and by extensions of the root. He also has one field in the "Lancaster County Century plant," the *Verbascum thapsus*, with its long spike of beautiful yellow flowers.

Another farmer I saw cultivating the *Sambucus canadensis*, a shrub six or eight feet high with beautiful foliage. He says it thrives best along the fences, and is readily propagated by pieces of root. He has a great demand for the stems from boys for pop-guns and whistles. Close by, also, along the fences he cultivates the *Lappa major*, raising seeds for next year; this is an introduced European plant, and has large tropical looking leaves. It is perfectly hardy, will grow in any rich soil, and the full-grown heads are often used to decorate the tails of cows and horses. On another farm I noticed preparations going on for a full supply of seed for next year's gratuitous distribution among neighboring farmers of the *Rumex crispus*, the beautiful broad-leaved *Plantago major*, *Asclepias Syriaca*, *Taraxacum*, *Polygonum Malva rotundifolia*, *Triticum repens*, *Linum vulgare*, *Hypericum perforatum* and also the *Ambrosia artemisiifolia* to seed after the wheat is cut. In my homeward journey I came across a gardener that had complete success in growing the *Portulaca oleracea*; some call it "pussley." He cultivates it as a pot herb in spring. Nearly all these plants will flourish along fences and stone walls and odd corners of the fields, are all easily raised, and save a heap of trouble to the cultivator. But I seriously doubt if it pays a man to devote more of his farm than a good-sized lawn to floral embellishment.

If the farmers referred to above, continue to raise these plants they will, in a few years, be so common as to be vulgar, and we advise them to cultivate more sparingly. They give a certain wild, "free and easy" look to a place which is ornamental, if your taste runs in that direction.—Ruralist, Creswell, Pa.

*Perhaps it would be well to explain to my non-botanical readers what is meant by the above names in *italics*. The *Convolvulus* is the common bind weed, too difficult to destroy; *Saponaria*, Bouncing Bet; *Cirsium*, Canada Thistle; *Verbascum*, Mullein; *Sambucus*, Elder; *Lappa*, Burdock; *Rumex*, the docks and sorrels; *Plantago*, plantains; *Asclepias*, milkweed; *Taraxacum*, Dandelion; *Polygonum*, Smart Weed; *Malva*, Mallow; *Triticum*, Couch Grass; *Hypericum*, St. John's Wort; *Ambrosia*, Rag Weed; *Portulaca*, Purslane; *Sinum vulgare*, Toad Flax. After reading this note no doubt you will understand the above.

EUREKA TREE AND POST HOLE DIGGER.

This tool has been thoroughly tested during the past three years, and as yet no place has been found where it has failed to do its work satisfactorily. The principal on which it works prevents adhesion in sticky soils, hence it always works free and easy; no clogging, no knee work, no backache. It is far superior to all plungers, augers and boring machines, as it works equally well in stony, sandy and clay soils. Quicksand under water is as certainly handled and removed as though no water existed. Hundreds have used them for setting curbs in wells where there was quicksand. For setting out trees and transplanting it is unequalled, also for cleansing out wells and for tiling.

One man with this digger can do five times as much work in the same time as can be done in any other way.

One great advantage in using the Eureka Digger is, that you need make the post hole only a little larger than the post, thus causing it to set firmer than where a large hole is dug.

The size of the hole dug is bounded only by the requirements of its purpose and can be made of any inclination or shape, and anything that can be reduced or loosened to five inches or less in diameter can be easily removed. As constructed for ordinary use it will dig readily four feet deep. Its durability will equal any tool made for any purpose, the material being best cast-steel. But should any part fail from use or accident duplicate parts can be furnished; in this way it can be kept good for a generation.

Every tool is warranted and guaranteed that any person can do what is claimed for it, and do not hesitate to say that it stands without a rival, and is not only a practical but an indispensable tool for every man who has land to fence, trees to set out and desires to practice economy.

The Grand Medal of the Centennial Exhibition has been awarded this digger for "distinguished merit" and "great excellence." It has also received the prize at six State and twenty County Fairs, and has always received the premium wherever it has been exhibited.

Directions.

Cut B represents the digger ready for dropping or throwing into the soil.

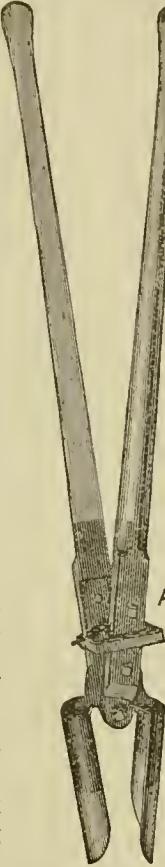
Cut A represents it as used in lifting the dirt from the hole.

The length of the steel blade is nine inches, and the extreme length of the tool five feet; weight only nine pounds.

Throw the digger into the ground as you would a bar or drill, and when the soil is loosened spread the handle to hold the dirt in the digger while drawing from the hole. Press the dirt in the digger before drawing from the hole as you will find it unload easier. When the soil is sand or gravel, out of, or under water, remove the guard, letting the blades come together at the bottom, and you will find no soil it will not draw, even through two or three feet of water. Keep all but the hinge-bolt tight.

For sale by Israel L. Landis, at Northern Market, Lancaster city, Pa., and at hardware and agricultural stores throughout the United States and Canada.

During the Centennial thousands of them were sold throughout the country, from Maine to California. Large numbers have also been exported to Canada, West Indies, South America, England, France, Germany and Australia.

**GARDEN VEGETABLES.**

For the successful cultivation of garden vegetables, the use of chemicals and minerals is much better adapted than that of animal excrements or stable manure to supply in sufficient abundance and in the most available form those necessary constituents found wanting in soils, or abstracted slowly from those long under cultivation by successive crops.

There is a marked difference to be observed between vegetables grown upon soil where chemicals and minerals are used and those where stable manure is employed, the former being less watery, more solid, of better quality, texture and flavor.

Pig's dung is characterized by an exceedingly unpleasant odor, which when applied to the land it imparts to the crops, and especially to the root-crops which are manured with it; even tobacco when manured with pig's dung is so much tainted that the leaves subsequently collected are unfit for smoking.

Sickness, resembling typhoid fever, has been caused in horses and cattle pastured on land where sewage was used, and may not vegetables grown in soil where effete matter is used, be one reason for the prevalence of this disease? If so it is at once prevented by removing the cause; while by the use of the necessary chemicals and minerals adapted to the various crops, no loss is sustained by the market gardens; rather are they helped to a strong and more vigorous-producing capacity of larger and better crops, and at less cost than the use of stable manure entails.

Pastures, a portion being dressed with barn manure, and a portion with chemicals and minerals and some left undressed, and cattle turned in, they will seek the portion dressed with chemicals, to the exclusion of other parts, that portion dressed with barn manure being entirely neglected. Animals are subject to all the dangers which affect the health of human beings; thus, disease among cattle may spread unchecked through an extensive district from one seed-bed of pestilence and contagion, as we have seen in pastures on which cattle from Texas had been kept. The dreaded disease diphtheria springs from the growth of a nauseous fungi caused by offensive surroundings, a defective drain or badly conducted privy, and may not the milk of cows that are kept on such fields be contaminated, and thus rendered unfit for food, and be one cause of the mortality among children?—*And. H. Ward, Bridgewater, Mass.*

LETTER FROM IOWA.

HOLLAND, Grundy co., Iowa, }

May 10th, 1878. }

Editor Farmer: According to promise ere I left the quiet city of Lancaster, I will give you a farmer's opinion of Central Iowa. I arrived at this place somewhat over a week ago, and find it a "smart" little town; it is but an infant, being only a year old, yet vies with towns of an older growth; there are two drug stores, three grocery stores, two dry good stores, one hardware store, one furniture store, bank, three lumber and coal yards, one four-story steam grist mill, two agricultural implement stores, hotel, as fine as any in your city, newspaper, *Holland Journal*, and is situated at the termini of the Pacific division of the Burlington, Cedar Rapids and Northern Railroad, in as fine a farming country as can be found anywhere. The land is of a rich, sandy loam, as black as soot, to the depth of two to ten feet, rolling, affording splendid surface drainage, well watered by brooks and small streams, (here called rivers). There is also considerable wood throughout this country, both from natural and artificial groves. Fruits of all

kinds seem to flourish here; small fruits, such as wild strawberries, raspberries, blackberries, gooseberries and crab apples; the cultivated sorts seem to flourish wherever planted. A farm southwest of this place, owned and occupied by Judge Marble, the lands adjoining the village, has an orchard of 6,000 apple trees, (how is that for apples?) the major part in bearing condition; besides all kinds of small fruits in bearing condition. His farm consists of 1,250 acres of fine land

as can be seen anywhere, well watered and splendid groves. The whole of the land is under cultivation, and presents the appearance of a "farm well tilled." I wish, Mr. Editor, you could be here to see this beautiful spot; lay by your editorial pen and come see us. Possibly you think this an extensive farm, so it is in the eyes of your correspondent, but here we must become accustomed to see the cattle upon a "thousand hills," and those hills owned by the Judge; a day spent with him will not shortly be forgotten. There is plenty of land here just as good as his, and the mystery to us is that this beautiful part of Central Iowa has been overlooked by Pennsylvania farmers seeking homes in the west. Small grains, such as wheat and oats, grow to perfection; about two-fifths of the county is in those cereals. Corn is also abundantly grown. The only drawback to this county is that the farms are too large and farmed on the shares, the owner receiving one-third and the farmer two-thirds; thus the land is robbed and very indifferently cared for, which would not be the case if the farms were smaller and cultivated by the owners.

The population consists largely of foreign Germans, principally Hollanders, and are good citizens. The live stock consists of thoroughbred cattle, short-horns, as fine as reared anywhere; of hogs, the Poland China are made a specialty, and none but pure bloods are raised. Anthony Fraser, formerly of Lincoln, in your county, seems to take the lead in raising this breed to perfection; his stock is sought for breeding purposes, and commands almost fabulous prices.

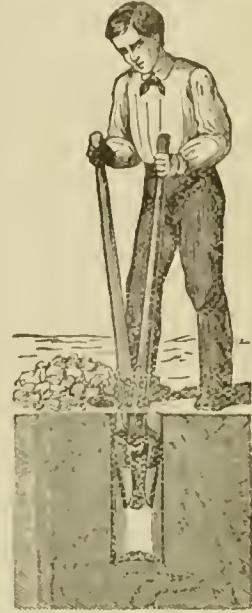
Farmers are about through with their spring planting, and for the past few days grain has commenced coming in large quantities, bringing reasonably good prices, considering the times.—*W. H. Spera.*

HOW CAN POULTRY BE MADE PROFITABLE TO THE FARMER?*

In the limited time necessarily allotted for an essay before our association, only general rules can be stated. It follows, therefore, that there may be other methods of treating poultry with profit besides those about to be mentioned. Neither can it be expected that the farmer, who has other important duties to attend to upon his farm, and with whom poultry generally forms but a secondary branch of industry, will devote the same minute attention to the subject as would one who makes it a specialty, and raises chickens by artificial means all the year round. The present essay is, therefore, intended for the farmer, and the rules and suggestions such as may be carried out upon the farm, along with the other duties necessary on same.

The question how to make poultry profit-

*Read before the Lancaster County Agricultural and Horticultural Society, by Simon P. Eby, Esq.



able, may be answered: By such treatment of the fowls as will produce the largest yield both in *quantity* and *quality* of meat and eggs from a given number.

While it is, without doubt, an advantage to start with a *good breed*, still more will depend upon the proper treatment of the fowls. In fact, continuous good treatment, with careful and judicious selection in breeding, will, in the course of time, greatly improve, if not altogether change a *breed*, while indifference and neglect in this respect will deteriorate and often destroy the special good qualities of the fowls.

In support of this assertion I need only refer to the fact well known to those who have given the subject their attention, that many of those now considered distinct breeds, are only the result of careful selection and breeding with a definite object for successive generations.

The destiny of a chicken, like the misfortunes of "Tristram Shandy," may be said to begin before it is born. It is quite important at what time in the year it leaves the shell to begin its breathing life. The beginning of April I consider a favorable season. That is as early as it can be comfortably raised without artificial heat. It will then be sufficiently advanced to forage the fields after harvest; fatten on grasshoppers and crickets, and begin to furnish eggs before Christmas.

In selecting eggs for setting, take those that are well formed and perfect, rejecting such as are under or over size, or oddly shaped, and preferring those newly laid to old ones. An egg a week or two old will require a day or two longer hatching. There is an old notion entertained by some people that pointed eggs will produce males, and round ones females. I will not undertake to vouch for the correctness of this theory, but in selecting mostly rounded eggs for setting have succeeded in obtaining about three to one of pullets.

There seems to be a difference of opinion as to the proper manner of preserving eggs for hatching, some contending that they should be placed in an upright position, small end down. I prefer to let them take their natural or side position, keeping them in a moderately cool place, and turning them gently once a day. The turning is to prevent the yolk and air bubble getting out of place. While turning may not be absolutely necessary it is but little trouble and may as well be done out of abundant caution, particularly if the eggs are to be kept for any length of time. It is well known that the hen turns her eggs frequently while hatching.

No more eggs should be given than the hen can easily cover, nine or ten for an ordinary sized bird are enough. To give more is a penny-wise and pound-foolish act, and like greed, in most cases, defeats its own ends. A few more chicks may be brought out from a larger setting, but they will, all of them, be weaker from lack of animal heat and insufficient covering during incubation, and unless the weather is favorable and extra care be taken some are certain to die.

In selecting your hens for hatching take such as are gentle, healthy and well feathered, in preference to the heavy, awkward or wild ones.

When sufficient determination is manifested by the bird to keep the nest, give her enough of clean, soft straw or hay, meadow hay being best; remove what may be soiled or filthy, and it will be well to cover the bottom of the nest box with an inch or two of moderately dry earth or sand before putting the hay into place. It is contended by some, and not without some show of reason, that contact with the ground or earth adds strength to the chicks. The nest, of course, should be under a roof, and protected as much as possible against the intrusion of other fowls or animals; a screen of some kind should be placed in front so that the process of incubation may go on without interruption or disturbance, leaving an open passage for the hen to get off and on at pleasure, to get her meals and take a run over the grass, or a roll in the sand.

Feed and water should be kept at a convenient place not far from the nest, where she will be sure to find it.

Hens while hatching generally feed in the morning. Then, while they are off, is the proper time to examine the nest, and see that it is all right. If new eggs have been laid in it, or any of them have been broken, as sometimes happens, they should be removed, and any soiled portion of the nest be renewed with clean material. Should any of the eggs be soiled, they can be washed in moderately warm water.

Sometimes a hen becomes so attached to the nest as to neglect feed and drink, and would starve herself unless cared for. In such case she should be gently lifted off and carried to where feed and water are kept. Always handle gently and treat kindly if you expect good returns. This is one of the great secrets of success in the treatment of all animals. In lifting a hen from the nest the hands should be inserted between the wings and body, as some of the eggs are often held in that position, and if lifted without this precaution will be dropped and broken.

By marking the eggs that comprise the setting, with a lead pencil, they can be more readily told from such as may be laid in the nest afterwards, and facilitate their removal.

A record should be kept of the time of the setting; a convenient mode for this purpose is to attach a label with date to the nest box.

We all know, ever since we have been old enough to hunt for eggs, that the usual time required to hatch chickens is three weeks; under favorable circumstances twenty days. A day or two previous to their putting in an appearance the hen and nest should be dusted with some insect destroying powder; this will drive off any lice or other parasites that may be present, and give the young a clean start in life.

I am decidedly opposed to the application of grease or salves. The bath of a fowl is literally a dry one. They make their toilet without soap or water, and all the ointment they need nature provides for them through a small gland on the rump.

During the time the chicks are leaving the eggs but little assistance can be given besides the removal of the empty shells, and such of the eggs as prove bad. Occasionally, when the shell appears too strong for the chick to break through, its cracking may be assisted by a gentle pressure of the hand, but no part of the inside lining can be removed without great risk of bad results, and would better not be attempted by an inexperienced person. The coop that is to receive the young brood should be ready by May 1st. Its shape and construction is of little importance so that it is clean and dry. It should be placed under some roof, where it is protected from rain storms and the hot rays of the sun, and where cattle are not likely to trample the young. The wagon shed is generally a good place. The ground should be raked clean; hay-seed to the depth of a few inches scattered over it and the coop placed upon it.

The use of hay seed I consider quite important; it answers several good purposes—as a suitable nestling place for the young; as a means of diversion and contentment, in which they can amuse themselves by scratching; and, lastly, it forms a part of their food. It is astonishing how much hay seed a brood of young chickens will pick up during the course of a day, and it serves them a good purpose, when eaten with other more solid food, and prevents their being surfeited. Young chickens are injured as often by overfeeding as by the want of food, and when they have hay-seed they are not so likely to overeat themselves. Of course the hay-seed should be kept clean and should not be allowed to remain after it has become mixed with the droppings of the chicks. My rule is to give it to them clean every morning the first four weeks of their lives. This can be managed without much trouble to yourself or disturbance of the hen and her family, if you have room on the ground twice the size of the bot-

tom of the coop. In the morning prepare a bed of clean hay-seed alongside of the coop, then move it over upon it, keeping the hen in the coop, which should have no floor. Remove last night's bed, raking the ground clean and even; next morning prepare a bed of new hay-seed in the old place and move the coop back. Make this change once a day, or at least once every two days, and you will be surprised what a happy, thriving and contented family you will have. Every change of the coop will invest both sites with new interest; they will peck and scratch among the fresh seed, and roll, stretch and dust themselves where last night's bed has been removed.

It may be suggested to do all this will take more attention than can well be spared from other necessary duties on the farm. If the adult members have not the time I see no reason why the care of the young chickens, after they are once in the coop, should not be entrusted to the younger members of the family, under the supervision of the master or mistress. Children from ten years upwards can, with a little assistance now and then, do all the work; and it will be a benefit to them at the same time. Keep them employed and out of mischief; cause them to feel that they are a help instead of a burden to their parents; cultivate in them habits of industry, usefulness and self-respect, with kind encouragement, pointing out to them the habits or peculiarities of the brood in their charge, instructing them how to contrive coops and other appliances; they will become interested in the matter, and their duties will be a pleasure and satisfaction. Then they should be allowed to own some of them, or they should be rewarded by some of the fruits of their labor, and the duties faithfully performed in the shape of a new hat, dress, or some other desirable juvenile article, purchased out of the proceeds of the flock raised by their care.

The most suitable food for young chickens, during the first two or three weeks of their lives, is hard-boiled eggs mixed with corn-meal, and cornmeal slightly moistened with milk. The first day chicks need little or no feed; but the hen should be allowed a good portion to recruit after a three weeks' hatching. They should be fed at least three times a day, and not too much at a time; allow no sour or mouldy feed to remain about the coop; and above all things avoid giving them bread soaked in water, or feed that is very wet. It will purge them to death. Table scraps, and boiled meat cut fine is greatly relished, and if allowed to be eaten out of the hand will tend to make them tame and tractable. They are *tid bits*, however, and should be fed sparingly; earth worms, grasshoppers and the young out of wasp nests are equally beneficial, and the person having charge of the chickens can employ his leisure hours with profit and satisfaction by procuring a limited quantity of either for them occasionally. When the chicks are two or three weeks old, some fine afternoon when the grass is dry, the coop may be lifted off and the hen allowed a run with them until evening. Then, also, wheat screenings and cracked corn can be given along with other food.

Things to be Avoided.

Do not place your coops in the open field, yard, or orchard, where rains will soak and the rays of the sun beat down upon them.

Do not give them more soft or moistened feed at one time than they will eat; nor allow them, if possible, access to impure water. And remember that *wet* and *filth* are the greatest enemies to fowls, whether old or young.

Do not allow the young to run through the wet grass or be caught in a shower.

When the young chickens are about to leave their mother, or what amounts to the same thing, she is about to leave them, decide for them their future roosting place and train them to go there in the evening.

If you want any for table use take those of inferior quality, and keep your best to stock your yard. Take them quietly from the roost

the evening before, and do not capture them after a long chase over the farm with boys and dogs after them. Their roosting place should be dry all the year round, cool and airy in the summer, and closed up and warm in winter. I do not believe in glass houses for chickens any more than for human beings to live in. If fowls can be allowed to roost in the stables the warmth of the cattle will be beneficial and the yield of eggs increased during the winter months. This will be a question of expediency with the owner, as the presence of poultry in the stables is in some respects objectionable.

When they are kept over night in a separate chicken house the floor under the roosts should be covered with dry earth or sifted coal ashes, and be cleaned out and renewed once a week, or not less than once in two weeks, according to the number of fowls it accommodates. If you keep the roost poles and inside of the hen house dusty your fowls will not be troubled with lice, and the droppings mixed with the earth or ashes form an excellent manure, a source of profit generally neglected.

There ought also be kept a dusting box, containing several bushels of dry earth, to accommodate the fowls with a dust-bath during the winter season. A few cart loads of dust gathered off the road in the summer time and housed away, is the best that can be used for both purposes.

Do not keep your poultry confined in small pens; give them the run of the farmyard and orchard whenever the creps allow.

As to diseases of fowls, time will not allow me to say much on the subject. If you have observed the rules already given, the chances are your poultry will not be much troubled by disease. If, however, sickness shows itself, notwithstanding, separate the sick ones immediately from the rest; and, unless a valuable fowl, the cheapest remedy will be to take off its head and bury both the fowl and the malady deep enough under the ground to prevent the others from catching it. I will say this, that most of the diseases to which fowls are subject can be successfully treated if taken in time; such is my experience, and this includes both cholera and roup.

Breeds.

I will not undertake to discuss the relative merits of the different breeds of fowls—all of them have their admirers—more than to say, as a general rule, that the *quality* of the meat and eggs should be considered as well as size; that the meat and eggs of the large breeds are coarser and less nutritious than that of the smaller or medium-sized breeds; and that any unnecessary appendage to a fowl should be discouraged; and enormous combs or crests, feathers on the legs and extra toes on the feet should be bred out. A clean-headed, clean-limbed, compactly built fowl will necessarily have the advantage over others in all respects while living, and will sell more readily when dead.

It may be thought that as poultry is often times sold by weight, the larger and heavier breeds will be the most profitable. As far as my observation goes respecting the sale of dressed poultry in the Lancaster market, this does not hold true; the medium-sized fowls are the first selected by purchasers for home use.

If I am mistaken in this, I hope I may be corrected by some of those present who have experience in the selling of poultry in our market.

FOR THE LANCASTER FARMER. THE IMPROVING OF VARIETIES OF FARM CROPS.

The improvement of farm crops is a subject which has often been pressed upon the attention of farmers, and if a little care and thought would be bestowed upon it I have no doubt but what many farmers would increase their crops as much in this way as in trying to improve their soils.

The soil must, of course, be kept in the best condition possible to raise large crops, for it is the very foundation of all successful

agriculture, but this alone will not insure success if inferior varieties are planted.

There are two methods that can be adopted in trying to improve the different varieties under cultivation:

1st. By originating new varieties until one has been produced better than any previous ones; and, 2nd. By selection of the more vigorous individuals of varieties already in existence.

The latter mode is the best suited to the situation of the regular farmer, and is one which is entirely practicable to every one who keeps his eyes open and lets nothing escape his attention while at the regular routine of farm work.

Corn is one of the crops in which this is most easily done, for in passing through the field when ripe, or in cutting off, or in husking, if any stalks are found with extra sized ears, and well filled, or if a stalk is found with two good sized ears, that is the kind to keep for seed, for, as like produces like, it is very probable that the offspring of such seed will be like its parent. Calves from the best cows are thus saved, with the expectation that they will inherit the good qualities of the mothers, and it is not unreasonable to expect that vegetables will deviate from this generally accepted theory. The *American Agriculturist* gives some good hints on the selection of corn, and goes to the root of the matter by recommending that all stalks that show no signs of ears should have their tassels removed, so that the ears of good stalks would be fertilized only by pollen from productive stalks. I have no doubt at all but that this view is correct as in this, like in animals, the male (the tassel) should be of as good and prolific an origin as the female (ear) part of the stalk.

In wheat, rye, oats, &c., the selection is somewhat more difficult and requires more judgment, but when any part of the field is better than the remainder that, of course, should be saved for seed. It does not matter that such part may have received a little more manure, or the soil may be naturally better adapted for that crop, that the yield is better is apparent, and we have more reason to believe that the seed from such part would be likely to have a good bearing on the next crop than if we selected the seed from the poorest part of the field. We would not say that a very great, or even a very perceptible difference would be seen the very first year, but let this course be followed for five or ten years, and the difference will then be plain enough.

Root crops that are raised from *seed* can be changed very easily as regards shape, and in many cases the yield greatly increased; but root crops that are raised from *cuttings*, such as potatoes and sweet potatoes, are by many supposed to yield equally well from large or small tubers, and that neither quality nor quantity will be unfavorably affected by using the smaller specimens for seed. This is, I believe, on the theory, that as the cuttings are parts of the plants the new plants will, of course, be like the parent plant, and that the small sized tubers have not deteriorated, but are simply not matured or fully grown. In England an immature (not fully grown) potato is generally preferred for seed to one that has thoroughly ripened, as the former is thought to make cuttings that are more certain to grow.

The question of using large potatoes, or small ones, for planting is an old one, and has never been settled, and for this reason I would infer that it makes very little difference which kind is used, for if any difference existed in favor of the larger tubers it would have long ago been settled to the satisfaction of all intelligent agriculturists.

We now come to the other part of the subject—the raising of new varieties.

In order to understand and practice this mode intelligently, it must be distinctly understood that there are two sexes in plants as well as in animals, sometimes on different plants, sometimes on the same plant, in most cases in the same flower. In order that seed

may be produced, pollen, a yellowish dust, from the anther of the stamen (the male part of the plant) must fall on the pistil (the female part of the plant,) and this is called fertilizing the flower. There are three different phases of fertilizing:

1st. When the plants are only distantly related to each other, as wheat and rye; this has been accomplished, but in this case, as in all similar cases, the result was a *male*, or a plant that was incapable of reproducing itself from seed. The natural law by which mules from horses are produced, holds in plants and birds as well as in animals. These crosses are successful only in a limited number of cases, and very rarely in the vegetable kingdom.

2d. When the plants are more nearly related. This has occurred naturally in the oak, and is much employed by florists to produce new varieties of flowers; among the most familiar examples are begonias, fuchsias and roses of *different species*, many of these having now become so mixed as to make it difficult to determine from what species they have sprung.

The crossing of species is more common than that of the first case, but is not always successful, and would, in the latter case, probably only produce a mule. When successful the cross constitutes the true *hybrid*.

The best known hybrids in fruit are the grapes, many of our best table grapes being supposed, and claimed to be, crosses between the European wine grape and the American (fox and other) wild grapes.

3d. When the plants are varieties of the same species and results from the fertilizing of a variety of one species by that of another variety of the *same* species. This is what is technically known as "a cross," and is the only one that is of account to the farmer.

When two varieties, or two species, are crossed, it looks very reasonable to suppose that the offspring would partake of the qualities of both parents in about an equal degree, but this is not always the case, sometimes the cross taking after one and sometimes after the other of the parents in a greater or less degree. When two varieties are crossed, other things being equal, the one selected as the mother should be the more robust of the two.

The crossing of corn is the easiest and surest of any of the farm crops. All that is necessary is to plant a row (or even only a few grains,) of the kind selected as the mother and cut off the tassels as soon as they appear and *before* they shed any pollen. This makes a sure cross for the pistils, (the silk of the ear) can only be fertilized by the pollen of the other variety of corn. If the two varieties bloom at different times, as in yellow Canada and large white, plantings must be made at different periods, so that some of the stalks will bloom at the same time.

New varieties of potatoes and fruits are easily raised by merely planting the seeds produced, for all these have been so often crossed that to spirit (change from the parent) seems to have become a second nature. No sanguine expectations, however, must be indulged in over any seedling until it has perfected fruit, for probably not one in a hundred, when the seed is from a good variety, will be as good as the parent, and to surpass a really good parent variety may take thousands of seedlings. It is very often the case that a good seedling may be raised which will surpass the parent in one or two points, but fall far short in others.

The crossing of varieties has been made a business or a pleasure by some, the most noted among which are in strawberries, Seth Boyden; in cherries, Dr. Kirtland; in grapes, Mr. Rogers; in potatoes, Mr. Pringle, who has now turned his attention to spring wheat.

These men have all been successful, and no doubt owe their success to giving their undivided attention to producing a certain result and not scattering their efforts.

The producing of new varieties by crosses is exceedingly difficult in wheat, oats and similar grains, as also in turnip, carrot, beet

and similar roots, and must be left to the professional hybridizer, who is generally well known to the seed trade, and who can dispose to advantage anything new that is an improvement over old varieties; the common farmer very likely would not be able to dispose seeds of such improved varieties at a higher price than the regular price ruling, and thus would have only the pleasure of knowing that he has done some good and be out of pocket by the operation, for it takes time and money to raise improved varieties, by crosses of the crops last mentioned.

The proper sphere of the regular farmer is to get the best variety he can find, and then keep it up or improve it by selection.—A. B. K.

THE DAIRY SITUATION.

Importance and Rapid Development of Dairying in America—Danger Ahead—Over-production Possible Only from Making Poor Cheese, Poor Butter, and Then Certain Advice to Milk Producers and Dairy Butter Makers, Which, if Heeded, Great Loss Will be Saved This Year—Importance of Marketing Goods While Fresh—Encourage Home Consumption and Sale at Home Whenever Possible, Etc.

BY J. H. REALL, OF PHILADELPHIA.

The dairy industry is now commanding a degree of attention commensurate with its importance, from both consumers and producers. The superior merits of American cheese and butter, and the profitableness of their production, where given especial attention, have set all interested in the subject to thinking, while commerce begins to recognize their value to the trade of the country, the magnitude of which few realize. And yet the most intelligent observers, and those best informed on the subject, regard the development of the dairy industry as but yet in its infancy. A careful consideration of the question, in all its relations, will lead any one to the same conclusion. In less than thirty years the factory system of cheese making has grown from one establishment to three thousand. In that brief period the production has grown from 25,000,000 lbs. per annum to over 300,000,000 pounds, and the exports have increased proportionately. Instead of a decline in prices, an advance of nearly one hundred per cent. has resulted, and they are now relatively higher than ever before. Ten years ago there were no cheese factories west of Central New York, except on the Western Reserve in Ohio. Now a large district in the comparatively new territory of Western New York contains hundreds of factories, one firm managing over forty. Northwestern Ohio has a number. Southern Michigan is blessed with a score. Indiana has a baker's dozen. Northern Illinois abounds in them. Wisconsin boasts her hundreds, which turn out an article that almost makes good, old New York State blush for her laurels. Infant Iowa contains a score, producing a fine article. Missouri has built a number, and Kansas, not to be outdone, makes cheese for New York and Europe. California vies with all and produces an article which commands twenty cents per pound at home, and recently I received a letter from a friend who had sought new fields for his enterprise as a cheese manufacturer in far-off Australia. The idea so generally entertained, and which I was once committed to, that the territory adapted to dairying was confined within certain narrow geographical limits, is most erroneous. Our western friends have disproved it, as they have many other fallacies, by their greater enterprise, and I may say skill. True, if certain mountain grasses and mountain streams and peculiar climate were requisite, the limits would be prescribed, but the west has shown us through a superior product of butter that her prairie grasses, cheap corn and oats, and the adaptation of windmill power to underground springs, produces both quality and quantity. She has shown a pecuniary profit to her milk producers that our eastern dairymen never dreamed of. The practical intelligence of her

people is revolutionizing the dairy business. Instead of waiting for the opening of spring to supply feed for their cows, and with heart burnings allowing the hoary frosts of autumn to dictate a stoppage of their grateful duty, after the manner of the east, they respect no season more than an other, unless it be the very one which the eastern dairymen derives no benefit from. To the Illinois dairymen the cow is a never-failing spring. I have seen cheese factories in that State in which the cheese vat has not seen a holiday for three years.

The low price of corn, oats and pork this season has proven very discouraging to the great body of farmers in the west. This, together with the great prosperity of their neighbors in the dairying business, is leading to a change from grain production, in whole or part, to dairying, and I am free to encourage it. Hundreds of new factories will be started this season, and I hope the suffering farmers of all sections will take advantage of an industry that contains less drudgery, produces greater profit and enriches the land. The change will benefit those who make it, and leave a better chance of profit to those who continue general farming. As I have already indicated, if we give the people fine cheese they will eat all they can make, because it is cheaper, better, and more wholesome than meat. True, the home demand has not increased proportionately with that from abroad, but the necessities of the case are compelling greater attention to that outlet, and I believe it within the range of possibilities to make such a demand for cheese at home, while paying strict attention to the foreign trade, that will enable a double production over the present.

There is no question about a demand for fine butter. Even at 38 and 40 cents per pound at home, manufacturers were unable to supply the demand for fine creamery. The export outlet for this kind of butter is upon the increase, and at reasonable prices I do not believe can be over-supplied. The most intelligent receivers of butter in the east agree in this view.

Though creamery butter is doing so well, inferior qualities of dairy made are a drug at less than one-quarter the price, and millions of pounds of this class now lie in the cellars of the east, unsaleable above prices for sheep grease. A few years ago much of this butter would have been accepted as good enough for table butter. This shows a very great change in the public taste. Hundreds of thousands of dollars were lost to dealers and producers last year, from the production of inferior butter. The lesson to the dealers has been so severe that I apprehend none will be found unwise enough to buy inferior qualities of butter this year, except at prices that will not pay for the labor of churning it, even if done by the small boy. If the farmer cannot make good butter and cannot sell his milk, he had better feed it to his hogs than to make it into poor butter. The dealer would much rather pay a good price for fine butter than purchase common stuff at any figure.

An important point for all to consider is the necessity for marketing butter while fresh. Both producer and shipper must pursue this plan hereafter to avoid loss. Stale butter is a thing of the past, so far as its consumption is concerned. The people won't eat it, and therefore it is folly to have it. Thousands of packages of the stock now on hand would have brought fair prices if it had been sold when fresh.

The creamery system of making butter is compelling attention everywhere. Its advantages are many and varied. The product commands upon the average over one hundred per cent. more than that of the private dairy, and twenty-five to fifty per cent. more than selected dairy. It saves labor to the farmer's wife and waste of material. The strongest point in its favor I can give is from the speech of Dr. Cummings, at the Manchester, Iowa, Dairymen's Convention. He said he was realizing 40 cents per pound for the butter product of his cows, by having his milk man-

factured at the creamery. The butter used in his family he bought from his neighbors, at 14 cents per pound, realizing a clean profit of twenty to twenty-five cents on every pound by the operation.

The system of making butter must become more general, and in every neighborhood where even one or two hundred cows are kept within a radius of three or four miles, a small creamery or cheese factory should be built. The larger the number of cows the better, and the cheaper the manufacturing can be done, but however small the number the adoption of this plan will in most sections increase the returns to the producer fully one hundred per cent.

As the dairy industry extends the tendency will be to curtail the cultivation of corn, thereby decreasing the supply and advancing the price, and for this there seems an actual necessity from this season's experience. The price of pork, which up to this year has favored the producer, but is now against him, would advance sufficiently to make its production remunerative; and with other causes I shall mention, would make it more profitable to feed skimmed milk than to manufacture it into cheese. In short, I believe the extension of the dairy industry and this particular branch, will prove beneficial to every agricultural interest as well as to those directly concerned.

There is, however, serious danger of ruin to the whole enterprise, and it is my duty to point out the rock, which, if not avoided, will shatter the entire dairy structure, and that very soon. It is the production of an inferior article of either cheese or butter. The large increase, which is absolutely certain this year in both articles, will make poor qualities valueless, and scale down the price of fine goods. It is, therefore, the direct personal interest of every dairyman and of every manufacturer to discourage the production of any but the best cheese and the best butter. This fact cannot be too strongly emphasized. I foresee the most disastrous results from indifference to the dangers I am pointing out. This year will either witness a check to dairying, from which it will take years to recover, or a forward movement that will eclipse its brilliant record of the past. Which it shall be, rests with the producer and manufacturer to decide by the course they pursue. If the manufacture of skimmed and inferior cheese continues ruin will follow. If poor butter is still made where good might be, all will suffer, but the chief danger is in the cheese department, as it has not suffered to the extent that butter has. The present almost valuelessness of inferior butter will decrease its production materially the present year, while a fine article is apt to be made at the expense of our cheese. The latter, therefore, is in the greatest danger. The milk producer is the one who will solve this question of rise and fall. It is out of the manufacturer's hands. He is but the instrument of the dairymen, whose greed and shortsightedness has caused the markets to be flooded with skimmed and half skimmed cheese, and improperly manufactured full creams. First, through a desire to get more than the value of his milk; second, by refusing to pay the worth of skilled labor, and the use of unfit ingredients; third, by the supply of impure or damaged milk. And he will suffer the consequence of continuing all or either of these practices. In pointing to the cause of danger I have indicated the course that must be adopted for their avoidance, but I will be specific. First. Greater attention must be given to the production of pure, rich milk. To this end proper kinds of cows, proper feed for them and their proper care are necessary. The milk must then be properly taken care of to keep it sweet and pure until it reaches the factory or creamery. Then the intelligence and enterprise that has produced the proper kind of milk will have provided a suitable place for its manufacture and a skilled workman to convert it into cheese or butter. Self-interest should result in its manufacture into one article or the other exclusively. The at-

tempted production of both from the same milk will sooner or later place the cheese part of it exactly where inferior butter stands today, bankrupt. Leading buyers from New York predict that they will buy skinned cheese at fifty cents per box this season. I think that should be argument enough to prevent its manufacture.

Now, I urge further, that fine full cream cheese be made, so that the home trade can be increased, and it can not be otherwise. If possible, and it is in many sections, make an article so good that you can sell it to your neighbors or to local points, and thereby save freights, commission and loss from exposure in transportation. I conversed recently with a gentleman who started a cheese factory in Indiana a year or two ago, and by making a fine article he succeeded in selling every pound at home, realizing one cent per gallon to his patrons above the average price for milk. This can be done in thousands of places in the United States, and it is what I recommend. The following, from an address of Hon. Harris Lewis, of New York State, illustrates what I mean:

"I have in mind two lots of cheese purchased for the retail trade, one of which contained 64 cheese and was all retailed out in the village of Illion within the short space of three weeks from the time the first one was cut. The other lot consisted of five cheese, one of which lasted the villagers of Frankfort all winter, and the place of the sepulture of the other four cheese no man knoweth unto this day.

"By letter to and conversation with a great many retail dealers in butter and cheese, I have asked the question, 'what are your relative sales of good and poor butter and cheese?' These men, from practical experience, (some of it bitter), have answered all the way from one to four, and from one to twenty. They all affirm that the difference in the consumption between good and poor cheese is much greater than between good and poor butter."

Practice the same with your butter. Sell it at home whenever you can. The dealers in all parts of the country who have worn themselves out and sacrificed their capital in handling the product deserve success, and I recommend to them careful selection of goods, speedy disposition of their purchases, and home sales and home markets to as large an extent as possible. The risks to both shipper and receiver must be lessened the business conducted more safely, economically and intelligently; so that the producer, shipper and receiver may realize better results from their toil and investments. The time for guess work, blundering and rascality in handling dairy produce has gone by, and the business must be conducted upon intelligent business principles hereafter, and with the production of fine goods, proper understanding and relationship between producer, shipper and receiver, the dairy interest will outrank every other in this glorious country, so surely as to-morrow's sun will rise.

THE STATE MILLERS' ASSOCIATION.

The movement for the organization of the Pennsylvania Millers' association was inaugurated at a preliminary meeting held at the Central Hotel, Sunbury, January 8th. In response to a resolution adopted at the meeting, a general convention of millers was held at the Lochiel Hotel, Harrisburg, January 22d. This meeting was largely attended, harmonious in its action, and resulted in the permanent organization of the Millers' State Association. A second meeting of the association was held at Harrisburg, on Tuesday, April 9th, and at that time the officers reported that the organization was well established and enjoying excellent prosperity. The association has already attained a very large membership, and

Its Wholesome Influence and Power

has begun to manifest itself in various important ways, in the flour milling districts of the State, which are principally located in Lancaster, Columbia, York, Dauphin, Franklin, Montour, Lebanon, Luzerne, Lycoming, Snyder, Northumberland, Sebuckkill, Clinton, Berks and Lehigh counties. The association embraces in its membership the most prominent, wealthy and influential merchant millers in Pennsylvania, who represent millions of capital,

and whose mills furnish employment to a large number of workmen. This combination of millers is destined to correct, and eventually remove, many evils that have jeopardized the flour milling interest of the State for some years, and every friend of the flour manufacturing trade, who is not already a member of the organization, should become connected with it. Millers' associations have existed in the western States for some time past, and have proved of

Incalculable Value in Protection

to the miller and the milling interest, and the originators of the Pennsylvania State Millers' Association can confidently look forward to having the same beneficial results attend the organization they were instrumental in conceiving and successfully establishing. That the flour manufacturers have suffered a great deal of unnecessary and unjust freight discriminations is undeniable, and this being one of the chief blocks to what should be a more profitable business than it is—the flour trade—it behoves all lovers of justice, square dealings, fair profits and "home trade," to bear a strong and willing hand in the elevation of the Pennsylvania State Millers' Association, which must become, in a comparatively short time, a powerful and active lever to the milling industry of the State.

In calling the attention of the Pennsylvania millers to the features of the association, and the benefits to be derived therefrom by becoming a member, the secretary, A. Z. Schoch, of Selinsgrove, in his circular says:

Features of the Association.

"The disadvantages under which Pennsylvania millers have been laboring, in consequence of the unjust discriminations in freights by the various carrying companies favoring western millers, has been severely felt for a number of years, so seriously, indeed, in many sections as to almost paralyze that branch of industry in the State.

"To correct, if possible, this disastrous state of affairs, to effectually combat with patent right swindlers, as well as to promote the milling interests generally, it has been found a vital necessity to combine the efforts of all interested to attain these ends. The efforts made to accomplish the ends and secure necessary reforms will be unselfishly devoted to further the best interests of all, carefully avoiding any measures that might inure to the advantage of one section and be to the detriment of another. These ends can be accomplished only by effectual organization and earnest co-operation. You are, therefore, respectfully appealed to join in this undertaking, by becoming a member, and giving your advice and aid. It is hoped that you will not permit others, unaided by you, to devote their efforts to a work of which, if accomplished, you will enjoy the same benefits.

"The hearty, persevering efforts of the millers, generally, in this cause, cannot fail to exert a power and influence that will be respected and accomplish general good. It is sincerely hoped that you will appreciate the importance of the undertaking, be ready and willing to give it your support, and not delay in becoming a member. Send your name to the Secretary and have it enrolled. Membership fee three (\$3) dollars."

The Officers.

The officers of the Pennsylvania Millers' State Association are: President, Chas. A. Miner, Wilkes-Barre; First Vice President, M. S. Stine, Pottsville; Second Vice President, J. W. Shriner, Lewisburg; Secretary and Treasurer, A. Z. Schoch, Selinsgrove.

Executive Committee: E. A. Haneock, Wilkes-Barre; John McFarlan, Watsontown; N. C. Freek, Millersburg; Thomas Saeger, Allentown; D. Shoff, Tamaqua; and the President and Secretary *ex-officio*. The regular semi-annual meeting of the association will be held at Reading on the second Tuesday of July. The merchant millers generally throughout the State are invited to be present at the conference.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The Lancaster County Agricultural and Horticultural Society met Monday afternoon, May 6th, in the room lately occupied by the Linnean Society—the third story of the city hall.

The following members and visitors were present:

Calvin Cooper, president, Bird-in-Hand; J. H. Witmer, secretary, Paradise; Levi W. Groff, treasurer, West Earl; H. M. Engle, Marietta; Henry Kurtz, Mount Joy; Peter Hiller, Conestoga; W. H. Brosius, Drumore; S. P. Eby, city; A. B. Groff, West Earl; Hostetter, Eden; Wm. McComsey, city; Jacob B. Garber, Columbia; Jacob Bollinger, Warwick; J. C. Linville, Salisbury; Casper Hiller, Conestoga; J. G. Rush, Willow Street; John Miller, Oregon; Sylvester Kennedy, Salisbury; Johnson Miller, Warwick; C. L. Munsecker, Manheim; P. S. Reist, Manheim; Levi S. Reist, Manheim.

Crop reports being called for, Casper Hiller, of

Conestoga, said the fruit crop is not promising; cherries will be scarce; apples average. There has been no rain in his district for a month.

J. C. Linville, of Salisbury, reported grain looking well; the apple crop will be half an average; so will pears; cherries scarce. There was a heavy rain and hail storm on Sunday, which washed and otherwise injured some fields. Three inches of rain fell in three quarters of an hour.

Henry Kurtz, of Mount Joy, said wheat and grass look well, but the wheat is too heavy to stand up—some has already gone down, but the crop will be good. Pears look well.

Henry M. Engle, of Marietta, had nothing new to report; things are growing a little too rank. The fruit crop is dropping off somewhat; cherries will be scarce. The rainfall for the month of April, 3 3-16 inches.

Martin Kendig, of Manor said the rainfall at his place during the past month had been 3 4-10 inches. Grass, wheat and crops generally look very promising, though the wheat is perhaps growing too rank; pears, peaches and cherries are thinly set; corn planting is about one-half done; every kind of vegetation is from ten days to two weeks earlier than usual.

W. H. Brosius, of Drumore, said that Mr. Kendig's report will answer very well for his section of the county also.

Jacob Bollinger, of Warwick, reported all kinds of growing crops favorable.

H. M. Engle said he might, perhaps, be allowed to say that Marietta this spring has the biggest crop of lumber she has had for many years.

Mr. Engle read the following essay:

Best Time to Cut Grass for Hay.

Grass is grass and hay is hay, in the general acceptance of the terms, and farmers and others generally value them as such. Of course, there are timothy, clover, meadow and mixed hay, which are valued according to the opinion or fancy of the feeder. The purchaser after ascertaining what kind of hay asks no other question, except, may be, whether it was made without rain. At what period of growth the grass was cut, is hardly a consideration. In view of such apathy, the object of the farmer is to procure the greatest bulk of hay possible, consequently he delays the cutting of grass until the wheat harvest causes him to bestir himself with his hay crop. To the above rule there are exceptions of course; for some farmers commence early, simply to be ahead of their neighbors; others for the purpose of having more time in order to avoid the expense of hired labor; but only the very few who take into consideration at what period of growth the grasses contain their greatest amount of nutritive elements.

Chemical analysis may be the most accurate test of the respective elements contained in plants, but yet not strictly correct when applied to the animal economy, as the object sought should be the period when the plant contains the largest amount of available nutriment. Such knowledge can easily be obtained by any farmer or dairyman, sufficiently accurate for practical purposes, by weighing the milk or butter, or both, during the pasturing season. Any ordinary observer knows that the greatest flow of milk is (in clover pasture) when the clover is in full bloom and before the heads turn brown. At that period we find the saec in which the seed is formed contain a substance sweet as honey, and which changes rapidly and is entirely absent when the blossoms turn brown; then the greatest flow of milk for the season is over. This is, of course, always modified by the weather, as all pastures are richer in nutriment in dry than in wet weather, for clover is possibly more affected than most other grasses. That there is a period when all grasses respectively contain their greatest amount of available nutriment, there is no doubt, but there is quite a difference of opinion among practical men on this point. The great majority would not eat timothy until after it has bloomed, claiming that to eat it while in bloom it makes dusty hay, and to eat it before that period it loses both in weight and nutritive powers. Some will even let it get so ripe as to make tolerable seed, and claim that the hay is just about as good as when cut earlier.

I do not see why such an erroneous notion should be so common, that horses and cattle will at times eat such hay and even straw in preference to the best feed placed into their mangers; but this proves nothing in favor of such hay or straw as regular provender, but simply that a change of feed is required for a brief period. Horses sometimes eat up their rakes and mangers, but this by no means proves that they would flourish a great while on exclusively such food. It is not denied that all grasses will make a larger bulk of hay, if ripe when cut, than if cut when more tender, but the difference in weight (if any) is very little compared with the difference in bulk, while the latter is as much superior as hay as it had been for pasture or sowing. This applies emphatically to milk cows. Not only will they give more milk from hay made from tender grass, but the butter will be higher colored. We often hear the argument that grasses are more difficult to cure for hay when cut in an unripe state, which is not denied, but is held as a strong argument that they should be cut for hay before the rich juices

are lost and the plant assumes the appearance of woody fibre. None of the grasses change more rapidly or show a greater contrast between early and late cutting than Hungarian.

And I am confident that the prejudice against and possibly unfavorable results from Hungarian hay are caused by this error, as there is a wider difference of opinion on this than on any other grass grown in this section. One of the principal causes of so much inferior hay being made is the custom of sowing clover and timothy together, which do not ripen at the same time; therefore cutting is put off until the timothy has bloomed; meanwhile the clover has become so ripe that it can by no method be cured into good hay. If cut in such advanced stage and get a few soaking rains while curing, it will smell and taste much like cloverseed straw, and not be much better as hay. On the other hand, when clover is cut when it contains the largest amount of sweet juices, although more difficult to cure, it will bear more rain, and at the same time will not sustain the damage that it will when cut over ripe. I have for years made it a rule to cut grass earlier than my neighbors, and have frequently wished I had been a little earlier. I am also quite confident that any reasonable farmer that will cut part of his grass quite early, and some quite late, and feed it separate to milk cows, week about, his hay crop will not suffer afterward by getting too ripe on the stem if he can avoid it. What I have said refers more emphatically to clover, but have no doubt will to a great degree apply to all grasses for hay. A word with reference to curing. When the haying period arrives the general anxiety is for a clear sky and hot sun, which will of course facilitate haymaking, but invariably at the expense of much of the best qualities of hay.

This will no doubt be considered heterodox doctrine, but only because it is unpopular. I do not wish to be understood as recommending damp or wet weather for curing hay, but if it were possible to dry it in the shade, it would vastly improve its quality. Another serious mistake is that of housing hay too dry, which leaves it brittle and dusty always, while, when put away just sufficiently dry so as not to mould or mowburn, it is far superior.

Over-ripe and over-dry hay will, however, be much improved by cutting and steaming or scalding, which will make it to be easier digested, and the nutrient which it contains more available; but no artificial preparation can restore the saccharine elements that had been lost by over-ripening or over-drying. The hay-tedder plays an important part in curing hay properly, as by no other method can grass be so evenly cured with the same expense.

It seems strange that our farmers of this section are so far behind with this almost indispensable implement.

In conclusion I would say, in order to secure hay of the best quality, such as will make most milk and butter and keep animals in best condition, cut grasses when they contain the largest amount of saccharine matter; cure, if possible, without too much hot sun; get it dry as evenly as possible, and gather it as damp as it will allow without mow-burning, and you will have all that can reasonably be desired for good hay.

J. C. Linville said he agreed with the essayist in every particular. It is very necessary to cut timothy early, as by doing so a second crop will immediately spring up, which will not be the case if it is cut later; the ground is thus well covered with a second crop and protected from drying out. It is bad policy to have the ground bare in July, as it will become baked and burn out the roots of the grass.

William McComsey spoke of the subject as being a very important one; he agreed with the views expressed by the essayist.

S. P. Eby, esq., city, asked the essayist if he approved of salting the hay before putting it in the mow.

Mr. Engle said he did not; salting was sometimes done by persons who eat their hay too late, to make it more palatable to the stock.

Henry Kurtz did not believe in cutting hay too early. If clover is cut too green it is apt to mould; it won't dry right. Early cut hay may be best for milk cows, but it is not so good for horses or other stock. Besides, by cutting later a much larger quantity of hay is obtained.

Levi W. Groff, of West Earl, differed from Mr. Kurtz. For cattle he is very sure the grass should be cut young. As to salting hay, he had done it to his sorrow some forty years ago; the result being that his horses coughed all winter.

Mr. Kurtz said perhaps the hay was dusty, or perhaps the horses ate too much of it because of the salt.

Mr. McComsey said if grass be allowed to mature it will yield more hay. If he was making hay for market he would allow it to mature and thus get greater weight.

Wm. H. Brosius, of Drumore, asked if timothy should be cut as soon as the heads are in bloom.

Mr. Engle answered that he sometimes cut timothy before it was in full bloom. When timothy and clover are sown together it is impossible to cut them when both are at their best, because the clover matures before the timothy. He would, however,

cut the hay before the clover heads begin to fade. He does not think that salt in hay causes horses to cough; it is more likely caused by the dust from over-ripe hay. Landlords often prefer over-ripe hay because horses eat less of it.

The Place of Meeting.

S. P. Eby, esq., from the committee appointed at a former meeting to procure a room for the permanent meetings of the association, reported that the hall of the Young Men's Christian Association could be secured for \$25 dollars per annum, including furniture, fuel, janitor, &c. The room in City Hall, lately vacated by the Athenaeum, could be had at a nominal rent of \$5 per year, but the association would have to repair and furnish it, and find fuel and janitor.

After a long debate, in which some of the members strongly favored going to the Y. M. A. Hall, and others as strongly advised remaining in City Hall, the matter was recommitted to the committee, to ascertain whether one or the other of the proposed rooms cannot be leased for four or five years.

A vote of thanks was extended to Mr. Engle for his interesting essay.

"How to make chickens profitable," was the subject of a lengthy essay read by S. P. Eby, esq., who gave minute and elaborate instructions, from the selecting of the eggs and the hatching of the chicks up to the time the full-grown fowls are marketed. (See page 71.)

The essay was followed by a debate, in which several members participated, most of them agreeing with the essayist, to whom a vote of thanks was extended.

The Visit to Groff's Farm.

The committee appointed at last meeting to visit the farm of Levi W. Groff, West Earl township, to examine and report upon his new mode of cultivating wheat, reported that they had set four different days upon which to make the visit and were as often prevented from going by heavy storms of rain. As it was now getting late in the season, the committee suggested that it would be well to defer the visit until just before harvest time. The committee sincerely regretted the untoward circumstances that prevented the intended visit.

Mr. Groff said he did not censure the committee for not calling upon him, for he knew the weather was unfit on the several days they had set for their visit; he hoped they would have better success next time. He would suggest that a good time would be a few days before the wheat was cut. He would then be pleased to see as many of the association as chose to call. He extended a general invitation to all. Mr. Engle said there were a good many farmers in his section who would like to see his cultivated wheat, and that Mr. Groff had better make preparations for a big crowd.

Mr. Groff replied that he would be glad to accommodate all that might come.

Mr. Groff's mode of cultivating wheat was discussed and approved by several members, those who had seen it growing describing it as being far better than that sown or drilled in the ordinary way. While the latter is much lodged, Mr. Groff's grain is standing straight.

Levi S. Reist, by permission, presented a circular descriptive of a farm in Rockingham county, Va., now owned by Jackson Myers, formerly of Lancaster county.

The Bee-Keepers.

Notice was given that a meeting of the Bee-Keepers' Society will meet in this city on next Monday afternoon, at 1½ o'clock.

Business for Next Meeting.

Mr. Kendig, from the Business Committee, proposed the following business for next meeting:

"When is the best time to harvest wheat?" Referred to Peter S. Reist.

"Root crop culture." Referred to Calvin Cooper.

Mr. McComsey moved that Mr. Groff's invitation to the society to visit his farm be accepted, and that at next meeting the time for making the visit be fixed, so that the society may go in a body. Agreed to.

Levi S. Reist presented for a name an apple from the farm of Joseph Eby, Rothsville, Warwick township. The history of the apple is that some thirty years ago Frederick Swope, of Leacock, had some apple grafts sent him, which were said to produce apples that would keep from two to three years. He used the grafts and grew a tree, from which the apple here presented was taken. The apple is below the medium size, with smooth glossy skin, of a reddish golden hue, fine flavor and solid flesh.

There being no further business offered, the association adjourned.

TOBACCO GROWERS' ASSOCIATION.

The regular monthly meeting of the Tobacco Growers' Association was held on Monday afternoon, April 15th. In consequence of the preparations for removal to the Y. M. C. A. rooms, in South Queen street, the Athenaeum rooms were not in a condition for use, and the association met in the Common Council chamber instead.

In consequence of its being court week, of many members being compelled to attend to their political arrangements, and perhaps because of the demoralized condition of the market, the attendance of members was unusually small.

In the absence of the President, M. D. Kendig, Israel L. Landis was, on motion, elected temporary chairman.

The regular secretary being absent, Washington L. Hershey was elected to take his place pro tem.

The following members and visitors were present: Jacob M. Frantz, Wabank; Henry Shiffner, Upper Leacock; Israel L. Landis, Manheim; Winfield S. Kennedy, Salisbury; Washington L. Hershey, Rapho; J. M. Johnston, city; Clare Carpenter, city; Frank R. Diffenderfer, city; Andrew Lane, Manheim; Ephraim Hoover, Manheim; Christian Musser, Pequea, and Mr. Denlinger.

Report of Visiting Committee.

J. M. Frantz, the chairman of the Visiting Committee, appointed during the winter, made the following report:

MR. CHAIRMAN: The committee appointed by you to visit some of the tobacco growers in different parts of the county and report the result of their observations to this association, attended to the business assigned them sometime during the month of January, by visiting the eastern portion of the tobacco-growing area, along the line of the P. R. R. and north and south of it. While the committee do not propose to make any invidious distinction between any of the producers, they nevertheless must report that they found a great difference in the crops of the same locality, for which they could only account upon the principle of a difference in the management, as only a rail fence or a public road divided the good and bad fields. They found crops that gave evidence of careful as well as skillful and intelligent attention, some leaf that was stripped being well assort as to quality, length, &c., and others that showed the want of proper attention in cultivation and handling.

Your committee next visited parts of the county west and north, taking in the range in the localities of the early pioneers in the production of the weed. Here, by reason of a long period of experiments and practice, we found a more advanced state of the various details in the production and handling than elsewhere; particularly is this the case in the appliances for handling, housing and storing the crop. Sheds of the most approved kind, with basement and cellar under all, and many other contrivances and devices for the cultivation, spearing, hanging up to wither, removing to the shed, transferring from the wagon to the upper and different parts of the shed, creating and maintaining proper ventilation and moisture in the crop after curing and during and during the stripping process, and all the way through all the stages of its passage from the field to the ease—all of which must be seen to be appreciated. The committee could not be too strong in their recommendations to all interested in this industry to make a visit through this section of the country and observe for themselves. It is only in this way and by these means that we can save ourselves many annoying and expensive experiments, and save ourselves years of time in attaining that state of improvement (I will not say perfection) which we must attain if we expect to make and continue the business profitably. If there is any one thing over and above another that came to the notice of your committee, it was the apparent greedy effort made by too many to overdo the good thing, and thereby destroy, as it were, the whole business. Endeavoring to grow too much is the great evil with too many of our farmers. For reasons not necessary to mention to the intelligent producers, short and imperfect crops, coarse and rough, indifferently assorted and carelessly put up, are found almost everywhere, and furnish the best evidence of over-production and careless farming.

Your committee are of opinion that some benefit may result from their visit, observations and report, if they refer to errors of omission as well as commission on the part of producers, as we sometimes profit from the errors of others more than from their virtues. We do not think that there are as great differences in the soil or kinds of tobacco planted that some ascribe to them; but that any of the different kinds in cultivation in the county, if planted at the proper time and in soil properly prepared, will produce a desirable quality of tobacco.

If the farmer will put the same quantity of manure on one acre that he generally puts on two (and we have no doubt barnyard manure is preferable to any other,) and applies the same labor to one acre that he applies two, tops his plants down to 12 and none over 14 leaves, he will raise a quality of tobacco that will astonish him. The leaves will be long and regular, and have that lively elastic body and regular color that constitute a first-class article, and the only kind that will make money for him. He will then have no three-cents-a-pound stuff, but will find eager buyers at 20 cents and upwards all the time. There will be no over-production of this kind of tobacco—never.

While barnyard manure is preferable to any other, gypsum, wood ashes, hen droppings and various

composts are beneficial, and can be used as auxiliaries.

With all our boasted attainments, the culture of tobacco is yet in its infancy with us; and the committee are well convinced from their observations that unless the hints above given are observed by us the tobacco interest, upon which we so much rely, will pass (as it has passed elsewhere heretofore) into other localities equally well adapted to its culture, and where producers will act more prudently.

We must learn to please the purchaser in quality, and this can only be done by observing the means noticed. One reason in withholding this report thus late was to observe whether the opinions arrived at by your committee would be sustained by the action of the purchasers of the crop; and we would now only add that with all the large area planted, and the large crop of '77, the quantity of first-class tobacco is exceedingly small, scarce and high in price, selling at 18, 20 and even 25 cents per pound.

Then let us profit by our past errors, and endeavor to pursue a course that will bring about more favorable results in the future.

J. M. FRANTZ, Chairman.

On motion, the report was received and the committee discharged.

Reports on Crops.

Henry Shiffner said there was still some tobacco in his section and selling at 2-6, 2-8, 2-10, 2-12. There has been no lack of buyers.

W. S. Kennedy reported about one-third of the crop in his district sold—some as high as 5 and 15.

W. L. Hershey reported sales at 5-18 and down to 2-10.

J. M. Frantz reported sales as high as 17 and 19 cents for wrappers.

I. L. Landis knew of sales in Manheim at 14-16, and some even higher, but these were choice lots.

For General Discussion.

J. M. Frantz related the case of a man who realized \$900 from two acres of tobacco, while he knows men who did not realize that sum from five acres. All depends on the superior cultivation and handling of the crop. There are ten poor crops to one really good one.

Henry Shiffner said the indifference of tobacco growers is surprising. They seem to care little how they grow their crops, and the result is an inferior article which buyers do not want. They must learn to grow better than they do now. They raise more than they can attend to, and the consequence is, the whole tobacco growing fraternity suffers.

Deferred Questions.

"When is the proper time to plant tobacco?"

Henry Shiffner thought it was best to plant early. Nine out of ten good lots are planted early. Early planted tobacco is always better in quality. It seems to be slightly lighter in color, but not much. May 10th to June 1st he thought a very good time. He does not approve of using water at planting time; better wait for a favorable season; have your ground ready and then take advantage of the season. The Connecticut tobacco can be planted later and will do equally well.

"Will it pay to pack and store tobacco at the present low prices?" was answered by Washington L. Hershey, as follows:

This question was referred to me, and although I am not able to answer it satisfactorily, I will make an effort in that direction. I am decidedly of the opinion that it will pay farmers having a good quality of leaf to pack and hold it, and also that the prices now paid by buyers do not give any profit to the farmer, as tobacco is sold for less than the cost of production. This being the case, the production of this commodity must eventually cease, as the farmer cannot afford to raise a crop and sell it for less than its cost. In my experience as a grower and packer, I have never seen a drugged tobacco market and the prevalence of low prices that was not followed in the second or third year by high prices and a buoyant market. In 1861 tobacco was a drug in the market at 5 and 6 cents a pound, and in 1863 and 1864 the same goods sold at from 20 to 35 cents a pound. In 1865 and 1866 the prices fell, and farmers did not realize more than 5 or 6 cents a pound; in 1872 and 1873 the prices fell to 6 and 7, and so on till the present time, when tobacco of a good quality commands a good price.

Since 1861 the prices have fluctuated very much. For a few years the farmer would receive paying prices for his crops, and then for two or three years the crops would not pay the cost of production. This being the case farmers should hold their tobacco until prices have again advanced. Packing tobacco is a fine art, and the man who undertakes it should understand how to select and grade tobacco. Regular tobacco cases should always be used, and tobacco when put in should be moistened, not dried out. If it has become dry, moisture can be imparted by the agency of sprinkling straw, which is piled around the tobacco. No two grades of tobacco should be packed in the same case; rather allow the case to be partly empty. It is allowable, however, to pack remnants of several grades into one case and mark the quantity of each on the case or on the book. To keep tobacco, the cases should, when packed, be

laid on their sides; they should also be stored in a warm, dry place. Tobacco after being packed will get very hot, and the inexperienced may take alarm when they find it so; but no matter how hot it gets it will, when cooled off, be all right again. Farmers make a great mistake by tearing tobacco apart when it gets heated; it is not proper to do so. Tobacco should never be kept over the year unpacked, because it is not possible for it to cure thoroughly, and an imperfectly cured tobacco will not sell for the same money that a thoroughly cured article will.

W. S. Kennedy thought this was an unusual season in which to sell tobacco. Buyers have had it all their own way. Some fine tobacco was sold as low as 2 and 10. Some bought their tobacco almost for nothing. He thought, therefore, it would pay to pack the present crop and keep it for a higher market.

Henry Shiffner thought this association had merely to do with the growing of the goods, and nothing with the packing. The indications are that not half has been sold, and perhaps much will not be. The crop as a whole is inferior, and he advised holders to sell, not to pack. It will pay at 3 and 10 cents, and if that price can be got, let it go. He knows little about growing the weed, but in eight years he has never sold his crop at less than twelve cents. He did not approve of packing the crop by the farmers themselves. The complaint that no buyers came about is because in some sections there are but few good lots, and it don't pay buyers to travel far out of their way to hunt up a single lot. He did not believe the charge that a combination among the buyers was made to beat down the prices.

Mr. Frantz thought there was no use in packing an inferior article. A good article sells for as much to-day as ever it did. Why then encourage the packing of inferior tobacco? It is not worth the trouble. It is a costly experiment, and the expense falls on the packer. Besides, packing is a trade that is not easily learned, and the packer may not improve his crop thereby. Sell your tobacco at the best price you can get, and then go to work and raise a better article the next time, such as you can sell. Much of the present crop of tobacco is dear at even the low prices paid.

W. S. Kennedy could not see how, if one man was forced to sell his tobacco at a small price, why other men who have good tobacco should not pack it. Why shall men sell their tobacco at current low prices when they are able to hold it? Packers often persuade men not to undertake packing their crop. He thought they can do better by packing than by selling it at prevailing prices.

W. L. Hershey had been fortunate enough to double his money on the tobacco he has packed. He has it inspected by regular inspectors, and it is always up to sample.

J. M. Frantz thought those who came into this city to sell were over-anxious or necessitated to sell, and for that reason took what they could get without much regard to the value of the goods.

New Business.

F. R. Diffenderfer asked whether the association had secured a place for its future meetings, and offered on behalf of the Young Men's Christian Association, the second-story room of their building at the low price of \$25 per annum. The Agricultural Society has already secured the same room for its monthly meetings, and at the same price. The room was commodious, handsomely fitted up, and desirable in every way; it was in fact the best room in which the association had ever met.

J. M. Johnston moved that a committee be appointed to make arrangements, provisionally, for the next meeting of the society, and this, in all probability, will be in the room just spoken of. The committee consists of J. M. Johnston and J. M. Frantz.

A bill was presented by the janitor for services, which, on motion, was referred to the finance committee, with instructions to pay it if found correct.

There being no further business the association adjourned until the third Monday in May, when we hope there will be a better attendance than there was yesterday.

BEE-KEEPERS' ASSOCIATION.

Monday afternoon, May 13, at 2 o'clock, the Lancaster County Bee-Keepers' Association met in what were formerly the Atheneum rooms, the following members being present: Peter S. Reist, Lititz, President; John Huber, Treasurer, Pequea; Daniel Kriider, West Lampeter; J. G. Martin, Earl; Ellis Hershey, Paradise; J. F. Hershey, Mount Joy; J. B. Eshleman, Ephrata; J. G. Rush, Pequea; John H. Mellinger, Strasburg; E. H. Mellinger, Strasburg.

On motion F. R. Diffenderfer was elected temporary secretary.

Reports.

Mr. E. Hershey said, last fall he disposed of all his bees but fifteen swarms, which came through the winter all right. Had no swarms so far.

Mr. Rush reported that out of seven hives he had lost one; one colony has swarmed twice and both are doing well. The prospects for a honey crop are good.

Mr. Mellinger reported that all of his hives came through the winter very well; has had five new

swarms, one swarm has sent out three colonies and another will send out two colonies.

Mr. Martin reported that he had wintered sixteen colonies; he packed the hives in chaff, and they came through well. He had no swarms yet.

Mr. E. Hershey went into winter quarters with sixty-two swarms. He built a bee house, and brought all his swarms through. So far nine have swarmed; some of his neighbors have new colonies. The season has up to this time been unfavorable to the production of honey.

Mr. Eshleman read a letter from W. J. Davis, of Warren county, who was expected to be present. He had wintered one hundred and fifty-three colonies and lost nine. The letter further stated that the bees were hard at work, and the prospects for a large honey crop were very good. The speaker stated, in reference to his own bees, that he had wintered twenty-two colonies last fall, and all had come out. There was no trouble in keeping them this winter as it was so mild. He only knew of one swarm in the neighborhood.

Mr. J. F. Hershey stated that W. B. Detweiler, a neighbor of his, had put up seventy-two hives last fall, and lost none. Mr. Myers's bees also came out well, but none have swarmed.

President Reist said that he started with four hives, which gradually increased to fifty or sixty. These he disposed of by selling or by placing them with neighbors. Of those put out in shares, all the swarms are doing well. One hive swarmed three times. He wintered on sunner stands. Bees, everywhere, are doing well, and gathering honey rapidly. He used the Longstreth hive.

Questions Discussed.

Mr. Hershey asked in what condition a hive should be to be divided; and at what time it should be done. On this question he gave his own views. He thought the hive ought to be strong in bees and honey. If the hive is divided in the honey season, the old colony does not get strong enough to gather a stock of honey large enough to enable them to pass the winter, but if you wait until the hives are full, they can be divided safely. About three weeks from the present time they should be divided. The young swarm should have three weeks to gather its winter stock of honey. He preferred artificial to natural swarming; has lost a colony which he did not attribute to artificial swarming but to cold weather. After the 15th of June it is unsafe to divide a swarm; however, this season the limit should be placed about two weeks before that time, as the season is so forward.

Mr. Rush would rather depend on a natural swarm than upon Mr. Hershey's plan; he saw no advantage in that method.

Mr. Martin used a good deal of artificial foundation, and likes it very much. He has found as many bees to hatch out of them as when they are not used, although it is stated that the product is much less.

Mr. Eshleman's question was, "will a natural swarm accept immediately a strange queen without mating?"

Mr. Hershey said if an artificial swarm was divided it would not accept a strange queen; what a natural swarm would do he did not know.

Mr. Martin had no experience in the matter, but had read that the strange queen would be accepted.

Mr. Eshleman said his reason for putting the question was to ascertain whether a colony could in that way be Italianized.

"Will it pay to feed between the blowing of apple blossoms and white clover blossoms?" was asked by Mr. J. F. Hershey.

Mr. Martin thought that if they were fed until clover comes in bloom, they could then go to work in earnest.

Mr. Hershey was of the same opinion. But if the swarm has an abundance of old honey he would let them consume that; then there is no advantage in feeding them. He fed them through a tin trough about one inch wide, which is filled through a tube from the outside. The best thing to feed to them is honey; the next best sugar and water in equal proportion. Best brown sugar should be used. Honey stimulates the bees to breed more than did sugar.

President Reist asked whether bees can get into swarms without the moth laying eggs there.

Mr. J. F. Hershey said that moths do not lay eggs in the hives. They lay them on the outside, and the bees carry them in themselves. Moths will go into a weak colony, but not into a strong one.

Mr. Reist said he had heard that moths would not go into strong hives; but it was not true. They would go into any hive.

Mr. Eshleman had discovered that the moth would, if it could, deposit its eggs under the honey board, and the worm would then work its way into the hive.

Mr. Mulligan said you could not keep worms out of the comb. He had placed some in an exposed place on one of the coldest days in winter, but worms came out nevertheless.

Mr. J. F. Hershey proposed the question, "How soon should the second swarm appear after the first?" and it was briefly discussed. He thought it should be nine days after, as did other members, but Mr.

Mulligan said that under certain conditions it could appear seven days after.

Mr. Diffenderffer, when the question of the time of next meeting arose, said he hoped that it would be just in the fruit season so that they could discuss the question, "Do bees destroy Fruit?"

Mr. Eshleman said he did not believe a bee could eat the skin of a grape, though they might eat through paper; grape skin is almost as tough as leather.

Mr. Rush asked if any one could propose a plan by which it could be tested, and it was proposed to put molasses on a bunch of grapes and eat the skin of one grape. If the bee sucks the inside of the cut grape out, and does not touch the others, it is a reasonably sure sign that they cannot pierce the skin.

Mr. Eshleman said he would put a bunch of grapes at the opening of a hive, and then the bees could not get out without cutting the skin of the grape. If this did not test the matter thoroughly, he did not know what would.

The society now adjourned to meet the second Monday in August.

LINNAEAN SOCIETY.

The Linnaean Society met on Saturday, April 27th, 1878, in the parlor of the Y. M. C. A., Vice-President Rev. J. H. Dubbs in the chair. Seven members present. After attending to the preliminary matters the

Donations to the Museum

were examined. A bottle containing a moderate sized eel, cut open to show the egg tube along the spinal column, and the eggs, which was caught in the Little Conestoga by Mr. John Wohr, of South Queen street, on the 12th inst. This proves that eels have eggs, whether matured into small fish before spawning or after being spawned, is still a question. That immense shoals of the minute fry, from two to three inches long, are occasionally seen along the banks of streams in late spring is testified to by many.

Mr. Wm. L. Gill donated two *fac-similes* of the Washington cent. Mr. Linnaeus Rathvon also deposited nine rare coins for exchange for a duplicate cent of 1799, supposed to be in our collection. It is doubtful.

To the Library.

The proceedings of the Academy of Natural Sciences, Philadelphia, part III., September to December, 1877. Book catalogues, etc. The LANCASTER FARMER for April.

Papers Read.

No. 494, S. S. Rathvon, all about the eel and its relations and habits; this will appear at length in the May number of the LANCASTER FARMER.

A letter was read from the President, Rev. J. S. Stahr, stating cause of absence; it also contained a specimen and description of a cruciferous plant new to the county—the *Lipidium campestris*, found by Mr. C. H. Herbert, of Franklin and Marshall College, along the Reading railroad, north of Lancaster. We have the plant in our collection, No. 194. According to Dr. Gray, it is found in fields from Massachusetts to Delaware, introduced from Europe; rather rare, however. Dr. Darlington found it in the great valley, Chester county. Prof. Porter does not include it among the flora of Lancaster county.

J. Stauffer here mentioned a crucifer found by Mr. Gilbert, of the High School, the *Turritis glabra*; Tower-mustard; in Gray's edition of 1856, he describes three species, and says the glabra is common northward among rocks and in fields. Yet strange that it is neither in the *Floral Cestrica* nor Porter's list of Lancaster county plants; nor do I find the genus in Man's extensive catalogue, nor in our collection of plants. This led to

Scientific Miscellany,

and the question also came up, is "Jasper right or wrong?" considering the late lecture on the motion of the planets and the stationary earth, as set forth by Dr. Shepfer, of Berlin.

The President, Rev. J. S. Stahr, now came in, when Mr. Dubbs insisted upon him taking the chair.

New Business

was called, when the chairman, S. S. Rathvon, from the committee appointed to negotiate with a committee of the Y. M. C. A., reported an agreement entered into with them in behalf of the society; also the ordering and having made additional cases for the museum—asking that the action of the committee be confirmed and the committee discharged. On motion, the report was accepted and adopted as the action of the society.

On motion, the committee nominally appointed at the last meeting to raise funds to pay expenses—namely, Messrs. S. S. Rathvon, J. Stauffer, Rev. J. S. Stahr and Dr. Baker, of Millersville, be the duly authorized collectors, to obtain

Contributions for Stock at \$5 a Share,

and the rights of members, and appeal to the liberal-minded citizens for contribution, as such a museum will be a credit to the city, and useful to the youth as object lessons, and hence an object worthy of public patronage among useful institutions.

A committee for classifying, arranging and label-

ing the specimens was appointed, viz.: S. S. Rathvon, J. Stauffer, John B. Kevinski, Wm. L. Gill, Chas. A. Heinrich and Samuel Sener, to meet on Tuesday at 8 o'clock, a. m., in the room, with power to employ assistance at the expense of the society.

After an expression of thanks for the comfortable room furnished on this occasion, the society adjourned to meet on the last Saturday in May, 1878.

AGRICULTURAL.

Corn Growing.

Much is said at the present time about corn raising, the manure in which it is raised, and the expense and profit accruing from its culture. For the benefit of those of your readers engaged in it, I will give you the time required last season to plant and hoe thirty acres of corn. The ground being prepared, two men each with a horse and planter, marked out and planted the whole field in 15½ hours each.

	Hours.	Horse. Man.
Planting.....	31	31
The first hoeing was done with hand wheel-hoe, by a man without a horse, in.....	—	60
The second hoeing was done with horse and man.....	30	30
The third hoeing was done by a man and horse 60	—	60
	121	181
Equal to 12 1-10 days for horse and 18 1-10 days for man. The man was paid \$13 per month, or about 58 cents a day, which equals.....	\$10.50	
Horse 12 1-10 days at same price.....	7.02	
	\$17.52	

The crop was heavy, no manure being used. 287 bushels of ashes and \$58 worth of Bay State phosphate were spread on the field and cultivated in before planting, and there was not less than 1,500 bushels of shelled corn and sixty to seventy-five tons of fodder. When men can raise corn with such small expense for labor, there is no reason why there should not be enough raised in the Eastern States to nearly supply home consumption. One man can easily raise thirty acres. The crop was raised by the use of the Ross's implements and after the Ross system of cultivation.—Correspondent N. E. Farmer.

How to Plow.

In his address on "Plowing" before the State Board of Agriculture of Connecticut, Prof. Stockbridge said: "There are two kinds of soil on every man's farm—the agricultural soil and the subsoil. The agricultural soil may be two inches deep, or it may be nine, but it is not twenty feet. It is no deeper than the air can penetrate. If the agricultural soil is too shallow it may be gradually deepened by lifting an inch of the subsoil at each plowing, bringing it up to the air and enriching it with manure. Our agricultural society committees, by their premiums for smooth, shiny, flat furrows, have done the community great harm. Such plowing as oftenest takes the premium is the very poorest kind of plowing. The soil is best plowed when it is most thoroughly crushed, twisted and broken, with the sod well covered. On some kinds of land I would have the furrows lapped an inch, as the Canada farmers plow. Let the air and water have a chance to circulate underneath the surface. Light lands, however, should have a flat furrow; we wish to make such lands more compact."

Pop Corn as a Leading Crop.

A writer in the New York *Sun* says that no city in the country of any pretensions is without its pop corn manufactory, large or small, and that one at Lowell, Mass., uses upwards of three thousand barrels a year, and another at Boston is not less extensive—together selling nearly 100,000 barrels a year, since it is declared to increase in bulk under the process about sixteen times. The varieties used are the Siberian flint corn, rice corn and Connecticut seed corn. Pop corn is grown from New England and Prince Edward Island as far south as Texas. In the West and South these varieties degenerate rapidly by running into the large kinds of field corn, and the seed has to be procured from the Eastern States often. It thrives best throughout the region bordering on the 44th parallel of latitude, and sells at the manufactory at two to three cents a pound on the cob, and frequently yields one hundred bushels of ears to the acre. The white flint corn is the variety preferred by the manufacturers, and is well adapted to cultivate in our latitude. Would it not prove profitable for our farmers to cultivate this variety more extensively?

ANOTHER fifty per cent. more of wheat has been sown in Iowa this spring than last, and the season of sowing is at least one month earlier this year than last. And the same is true of the State of Minnesota.

THE white oil corn of Indiana is claimed to be the earliest matured, the largest grain, the smallest cob and the most productive corn in the world.

UP to March 9, the total receipts of wheat at lake and river ports, since Sept. 1, aggregate 54,355,000 bushels, against 32,651,000 last year.

HORTICULTURAL.

The Culture of Cantaloupes.

The culture of this fruit, unequalled we think by any other grown, we are glad to see is becoming more general. Almost every person having a garden of any size, is beginning to try his hand at it, and it can be done with almost as much success as raising a crop of corn. The ground should have a warm exposure and be friable—clay mold not being adapted—the hill should be dug out eight or ten inches, two feet in diameter and filled with well rotted manure, rich soil and sand—turnpike dirt is excellent as a substitute for the latter. Five or six seeds should be put at equal distances, about an inch in depth, and the "hill" should be even with the other soil, except when the season is wet, when they should be raised. They should be about six feet apart each way, and the plants when they have passed all danger, should be thinned out to two or three in a hill. The beds must be kept clear of all weeds and grass, and when the vines commence running they should not be disturbed, as the roots connected with the vine, and by which it is largely supplied with nourishment, will be broken. The ground, as the vines begin to extend, should be gone over with an iron rake, especially after a heavy shower, to loosen it and give these rootlets a chance to take hold. The seed should be planted at the time of corn planting.

Sowing round the hill, a few inches distant, early radish seed will generally protect the young plants from the bugs, and always will be more or less beneficial. Should bugs appear a sprinkling of weak whale oil soap and water, or of carbolic acid soap and water, will soon send them adrift.

The best varieties of cantaloupes to plant in this section are the "Citron," the "Jenny Lind," the "White Japan," and the "Casaba." The "Nutmeg" is too late for us.

There is no reason why all our farmers should not have a patch of cantaloupes for family use. A plot of ground 40 by 20 feet would be enough for a moderate sized family. They can raise far superior fruit to any found in the city markets.—Germantown Telegraph.

Excessive Stimulation of Strawberries.

Here let me caution cultivators of strawberries against the excessive use of all stimulating matter, such as contains a great amount of ammonia or nitrogen in its various combinations. Among such fertilizers are guano, bone dust, phosphates, hen manure, night soil, poudrette and urine; all materials of this character, although very useful in their proper place, are detrimental when out of it, and may even become deleterious when used to excess. They are found very useful in heavy compact soils, cold and slow in action, and especially those well impregnated with carbon in any form, such as black muck or peat, or old manure that has lost a great proportion of its stimulating property, as is often the case with that which is not composted. It is well, in any event, before using freely, to be sure you have sufficient carbon in some form in the soil to keep pace with the growth of plant produced. The invariable effect of excess of stimulants (when the plant is able to endure them) is foliage without fruit, or fruit only in such proportion as fruit-producing material may accompany the stimulants.

Care of Young Fruit Trees.

Young fruit trees, for the first two or three years after transplanting, should before hard winter sets in be protected against any undue quantity of water, especially in low situations. This can be best done by making a small hillock of dirt around the stems sufficient to throw off the water and not let it settle about the roots. We have known young trees to be killed by constant immersion in water through most of the winter, and have frequently known them to be stunted, from which many of them never entirely recovered. On the other hand, in summer these trees should have the soil lightly bowled out around them, in order that they may have a more abundant supply of water than they would otherwise obtain. If we expect to be successful in fruit-raising we must adopt all the means attainable to insure it.—Germantown Telegraph.

How to Make Trees Fruit Early.

The *Vineyard Gazette* reports cases where the removal of earth over the roots of trees hastened the period of ripening of the fruit several weeks. In one instance earth was removed from an early pear tree eight weeks before the normal period of ripening, for the space of thirteen to fifteen feet in diameter, and to such an extent as to leave depth of earth over the roots of only about two or four inches, so they could be thoroughly warmed by the sun. The experimenter was surprised not only by the ripening of the fruit in the middle of July, but also by its superior juiciness and flavor. In another experiment the removal of the earth from the north side of a tree alone caused the fruit on that side to ripen several days earlier than on the south side.

DOMESTIC ECONOMY.

Things Useful to Know.

A tumbler usually holds about	- - - - -	10 ounces.
A teacup	" "	6 "
A wine glass	" "	2 "
A tablespoon	" "	1/2 "
A dessert	" "	1/4 "
A teaspoon	" "	1 drachm, or 60 drops.

Weight of a Bushel in Pounds.

Wheat	- - - - -	60
Rye	- - - - -	59
Oats	- - - - -	32
Barley	- - - - -	47
Corn in the ear	- - - - -	70
Corn, shelled	- - - - -	56
Cloverseed	- - - - -	60
Timothy Seed	- - - - -	41
Blue Grass Seed	- - - - -	45
Flaxseed	- - - - -	56
White Beans	- - - - -	60
Irish Potatoes	- - - - -	60
Sweet Potatoes	- - - - -	60
Dried Apples	- - - - -	24
Onions	- - - - -	57
Turnips	- - - - -	55
Cornmeal	- - - - -	48
Brau	- - - - -	20
Salt	- - - - -	50
Coal, (Ohio)	- - - - -	80
(Penn'a)	- - - - -	72

Household Hints.

Hang pictures with copper or silver wire.

Better untidy rooms than ill-cooked food.

Eat Graham pudding and milk for breakfast.

Mend coal scuttles with flour paste and Canton flannel.

A cement of ashes and salt will stop cracks in a stove.

Wicks must be changed frequently to insure a good light.

Bonnets with strings are worn, even by very young ladies.

Don't use good sheets to iron upon, taking a fresh one every week.

Pour cold tea, that otherwise would be thrown away, into the vinegar barrel.

A cup of water in the oven, while baking, will prevent meats, bread, etc., from burning.

Potato Salad.

Potato salad is a regular dish at the German restaurants, and Americans who become acquainted with it are not slow to adopt it. We find it very acceptable at lunch; and in warm weather, with a cold meat dinner, all the family prefer it to hot potatoes in any form. There is no regular rule for making it; the needed articles are cold boiled potatoes, chives (or a small onion), parsley, salt, pepper, vinegar and oil. Slice the potatoes thin; chop the chives (or onion) and parsley fine. Put a layer of sliced potatoes in a dish; sprinkle on chives, parsley, salt and pepper; pour over vinegar and oil enough thoroughly to moisten the whole; lay on another layer of potatoes, and so on. It is better to make it an hour or two before serving, and carefully turn once or twice, or stir in such a manner as not to break the slices.

Flat Irons.

In damp weather flat irons, unless kept on the stove, are apt to gather moisture, get rough, and sometimes rusty; and it is not well to keep them hot all the time, for a good many reasons—they are liable to get knocked off and broken, and after a while do not retain the heat as well, and they are in the way. If you occasionally rub the smooth surfaces with a bit of beeswax, and then rub on a piece of cloth they will always keep bright and smooth. If they do ever happen to get wet, and so rust, lay a little fine salt upon a smooth board and rub them over it quickly while hot.

Renovating Black Silk.

Do not iron black silk. Peel two potatoes, slice them thin, pour one pint of boiling water on them, and let them stand four hours. When ready for immediate use, put about a quarter of a teacupful of alcohol into the liquor. Sponge the silk well on the worn side, rubbing the shiny spots with care; and then roll it tightly around a thick pole. This renewes its freshness, and cleans it well.

How to Banish Rats.

Rats may be banished by covering the floor near the rat hole with a thin layer of moist caustic potash. When the rats walk on this it makes their feet sore; these they lick with their tongues, which makes their mouth sore, and the result is that they not only shun this locality, but appear to tell all the neighboring rats about it, and eventually the house is entirely abandoned of them.

HARD waters are rendered very soft and pure, rivaling distilled water, by merely boiling a two-ounce phial, say in a kettleful of water. The carbonate of lime and any impurities will be found adhering to the vial. The water boils very much quicker at the same time.

WHEN the eyes become inflamed from any cause do not rub them at all—such irritation is dangerous—but bathe them in tepid milk; keep the bowels open by some gentle medicine, and eat little meat. The eyes are very sensitive to the state of the stomach. Avoid the glare of strong light.

LIVE STOCK.

Percentage of Cream and Butter.

In speaking of the percentage of cream from a given quantity of milk an exchange says: "There is no necessary relationship between the percentage of the cream and butter production of the milk, and experiments have proved that of two milks one with the smallest quantity of cream, as indicated by the percentage glass, yielded the most butter. Indeed, the per cent. of cream indicated by the narrow cream gauge is a fallacious guide. There is only one way at present known to test the butter quality of milk, and this is the making of butter from a known quantity of milk. It may be satisfactory to claim forty per cent. of cream from milk, but it is useful? The quantity of cream a milk will yield is of importance to the seller of cream. It does not indicate the butter yield of a cow. Per cent. of cream and per cent. of butter are two entirely different matters when used to express the richness of a cow's milk. A quart of milk which throws up four per cent. of cream may make more butter than a quart of milk which throws up ten per cent. of cream. It is probable that the percentage glass may give indication of the quality of the butter from a cow, and tell something of the churning quality of the cream, but it does not and can not tell the butter richness of the milk."

To Relieve Choked Cattle.

"I used to be a Cheshire (England) dairyman, and had a stock of nearly one hundred cattle. Growing many acres of turnips, choking of the cows was very frequent, and the simple remedy was a stick of hard wood about a foot long and an inch and a half square, put in the mouth as a bridle-bit—a string from each end tied to each horn to keep in place. Placing the stick instantly releases the imprisoned foul air from the distended stomach, and prevents more swelling. Whatever root sticks in the throat will in time soften and go down, and no bad effects can follow unless force is used. Until this summer I had never seen a case of bloat from eating grass or clover. In June my next neighbor had a case and asked my assistance. I placed the stick and she was relieved in a few minutes. The same day my cows (through a board being down in my neighbor's fence) got into clover, &c., before I knew it one had died. Numbers were looking on while she was struggling and dying, but knew no remedy. To-day another neighbor had a similar case, and effected a cure by the means described."

Hints for Horse Owners.

If a colt is never allowed to get an advantage, it will never know that it possesses a power that man cannot control; and if made familiar with strange objects, it will not be skittish and nervous. If a horse is made accustomed, from his early days, to have objects hit him on the heels, back and hips, he will pay no attention to the giving out of harness, or of wagons running against him at an unexpected moment. We once saw an aged lady drive a high-spirited horse, attached to a carriage down a steep hill, with no hold-back straps upon the harness; and she assured us that there was no danger, for her son accustomed his horses to all kinds of usage and sights, that commonly drive the animal into a frenzy of fear and excitement. A gun can be fired from the back of a horse, an umbrella held over his head, a buffalo robe thrown over his neck, a railroad engine pass close by, his heels be bumped with sticks, and the animal take it all as a natural condition of things, if only taught by careful management that he will not be injured thereby.

Exterminating Lice.

Dr. W. J. B. Kingsley, of Oneida county, New York, uses aloes to kill lice on all animals and gives the following directions for its use:

Fill a large common pepper box with the powder and sprinkle thoroughly into the hair, on the neck, back, sides and rump of the creature infested, and rub it thoroughly through the hair and on the skin with the ends of the fingers. Leave it undisturbed for a week; then card and curry thoroughly, and apply as before, and so continue, at intervals of a week, until there is not a living parasite.

Heaves.

Dr. Horn, the distinguished veterinary surgeon, in replying to an inquiry relative to a mare affected with this disease, says: "Give no clover, hay or musty feed of any kind; dampen all her food; feed no corn excepting ground, and dampened; then about one-third only. Keep a tub of lime water for her drink; put a piece of quick lime as large as a lemon to each pailful. This will be about a proper quantity. She may refuse to drink at first, but will soon drink freely of the water."

IT is the opinion of an intelligent dairyman that there is a difference of two quarts of milk a day between a cow comfortably housed and the same one exposed to the cold for half the day, as we see them.

POULTRY.

Hens That Eat Eggs.

The best way to break hens of egg eating is to break their necks and restock with birds that have not acquired the habit. Fowls that are expert in egg eating first attack the shell with their bill. If it is a thin shell a few strokes will break it, and the rest is an easy job. If, however, the shell is a thick one they generally fail to break it with their beaks; they then begin to scratch in the nest, and with their feet throw the egg against the hard side of the box until it is broken. First of all, make hens lay hard shelled eggs, so hard that they cannot be readily broken by a hen's bill. This can be done by feeding freely with slacked lime, ground or broken bones, oyster shells, etc. To prevent breaking against the sides of the box the nests should be high and lined upon the sides with cushions filled with hay or other soft material. Their only chance then is that they may throw two eggs forcibly against each other. To prevent this take the nest egg away and gather the eggs several times a day. It is a good plan to leave a few china eggs near the nest for them to work at, which will make their bills so sore that they will strike the real eggs with less force.

Leghorn Fowls.

My experience is in favor of the whites. I have bred them for breeding, exhibition and laying purposes, and find the whites give the largest profit in every case. It is impossible to breed as many standard birds as to color of the brown variety. There is always more or less dissatisfaction, especially when eggs are sold. The breeder is blamed many times through ignorance, yet the dissatisfaction is the same. In all my sales of whites I never have had any complaints made, and I can certainly sell off stock closer for exhibition and breeding purposes. I find them as hardy, early in maturing, and they lay better and larger eggs and more of them in a given time. On a whole, I think the browns have been overrated and the whites neglected.

Cooked Meat for Fowls.

Fowls, as well as dogs, become quarrelsome if fed on raw meat. Besides, cooking makes it more nutritious. When raw, it is rather harsh and crude, compared with the mild, natural diet of worms and grubs, which are for the most part soft, and easily dissolved by digestion.

Occasionally, for variety, a little meat may be given raw. Fish, when plenty, is more conveniently given boiled, because in that state the fowls easily pick every morsel from the bones, and no mincing is required. Chandlers' scraps have the advantage of being already cooked, and on that account, as well as many others, they are excellent.—*The Poultry World*.

Charcoal for Poultry.

The benefit which fowls derive from eating charcoal is, I believe, acknowledged. The method of putting it before them is, however, not well understood. Pounded charcoal is not in the shape in which fowls usually find their food, and consequently is not very enticing to them. I have found that corn burnt on the cob, and the refuse—which consists almost entirely of the grains reduced to charcoal, and still retaining their perfect shape—placed before them, is greedily eaten by them, with a marked improvement in their health, as is shown by the brighter color of their combs, and their sooner producing a greater average of eggs to the flock than before.—*S. Rufus Mason in the Poultry World*.

A \$1.02 Rooster.

That famous \$50,000 cow which was so much talked about in this country a few years ago has found a rival in point of proportionate pecuniary worth in a \$502 chicken. The *English Agricultural Gazette* says that a gamecock was recently sold for the above excessive price, and suggests that in the future the raising of such chickens would prove a very lucrative source of income. The same journal, we notice, says that over \$13,000,000 worth of eggs were imported into England in 1876, and yet the supply was short of the demand. Here is an opening for poultry men and wider field for inventors of egg-preserving processes and egg-carrying devices.

Tarred Paper for Poultry Houses.

A correspondent of the *Poultry World* says: I read your recommendation to use tarred paper as a preventive of lice in the last number of your magazine, and your request to those interested to report. I have lined my buildings throughout with it for two years, putting it between every piece of board or timber, and even into my nests, and, so far, have not seen a louse about. I had a house overrun with lice two years ago, but upon lining it with tarred paper, they disappeared and have not been seen since.

LITERARY AND PERSONAL.

HARPER'S MAGAZINE FOR JUNE, 1878.—Harper's Magazine for June, while it has that largeness in the character of the subjects treated which usually distinguishes this periodical, is exceedingly beautiful in its numerous illustrations and surprising in its variety. Lovers of the picturesque will read with interest the exquisitely illustrated paper, contributed by S. G. W. Benjamin, "Along the South Shore," showing charming bits of coast and rural scenery between Hull and Plymouth; also Miss Mitchell's animated description of Heligoland, the "Enchanted Isle." Mr. Benjamin's article opens with a fine picture by Bricher, illustrating the gathering of Irish moss in the salt marshes by Scituate Harbor. Another illustration, by Eytinge, represents the old well on the Woodworth place—the original of the "Old Oaken Bucket;" another, by Moran, illustrates the wilderness of lakes in the vicinity of Plymouth; another, by Abbey, is a very effective picture, illustrating an incident in the war of 1812.

Those interested in ceramics will be delighted with Mr. Sikes' paper on the celebrated delft ware, with thirty fine illustrations.

For those interested in art and music, the paper on J. Q. A. Ward, and his methods of work, by G. W. Sheldon, Mrs. Despard's entertaining reminiscences of music in New York thirty years ago, and the "Easy Chair's" defence of the artist against undiscriminating and ignorant critics, will have special attractions. The article on Mr. Ward contains five effective illustrations, one of which is a portrait, while another represents the sculptor at work modelling a horse's head.

To the distinctly literary field belong the Rev. Mr. Baldwin's contribution, in which is published for the first time a pleasant correspondence in verse between Fitz-Greene Halleck and a young lady of Guilford, Connecticut; General James S. Brisbin's interesting paper on the poetry of Indians; and Charlotte Adams's eloquent review of the vicissitudes of Russian literature.

Science is duly recognized not only in the "Editor's Scientific Record"—the only authentic monthly summary of scientific progress which is published—but also a paper by George W. Beaman, entitled "How shall our Boys be fitted for the Scientific School?" and in Simon Newcomb's story of "A Manufactured Comet."

Of larger and more national interest is Mr. Lossing's able paper on the battle of Monmouth, with fifteen illustrations, one of which—"The Carnival in Philadelphia," by Mr. Pyle—is a very remarkable picture, the engraving of which is as wonderful as the artist's design.

In another field—that of religious biography—we have a concise but graphic portraiture of Hugh Latimer, the "Paladin of the Reformation"—from the pen of Charles D. Deshler.

In fiction we have further instalments of the two great novels of the season—William Black's "Mac-leod of Dare" and Thomas Hardy's "The Return of the Native;" also three excellent short stories. Of these, the longest and most striking is "The Drinkwater House," by Mrs. C. V. Hamilton, with three remarkable illustrations by Abbey. Mrs. Spofford contributes "In a Storm," and Henrietta Hardy "Greta's Boys."

Bret Harte contributes a brilliant society poem, "Telemachus versus Mentor," which is effectively illustrated by Reinhardt. George Lunt contributes a poem, "A Trio;" Miss Mary A. Barr another, entitled "Captive Queens in the Market." "Song of the Clay," is the title of a peculiar, but very striking poem by Z. D.

The Editorial Departments are full of interesting and entertaining matter in their several fields.

TWO BEAUTIFUL PICTURES, by George Stinson & Co.'s, Fine Art and Publishing House, Portland, Maine. These pictures are respectively entitled, "The Morning of Light," and "Purity." Of course people differ very much in their ideas of beauty, and therefore to say that these pictures are handsome, or magnificent, or majestic would only be bandying words which might measure the mind of nobody. Hence, we simply say they are *beautiful*, and when we say this we mean that beauty involved in the invocation of the Psalmist, when he utters, "Let the beauty of the Lord our God be upon us;" because that beauty, we apprehend, is impressed with the innocence and purity which the artist illustrates so calmly and peacefully in these pictures. True, it is innocence and purity of ignorance, as contradistinguished from that of wisdom or intelligence, but it emits a spiritual fragrance almost infinitely surpassing any condition attainable in the most advanced state of adult life. In "Purity" the artist has represented, in the dream of a little orphan, her angel mother watching over her and ministering to her during her unconscious sleep, with powerful effect—a sleep so profound, so confiding and so self-possessed, that we imagine we can almost hear her breath and see her bosom heave.

In the "Morning of Life" the artist has portrayed a wonderfully natural expression of affection and tenderness in the face of a young little girl for an elder sister, who has evidently been away from home

all day, and the little pet has been lonesome and is now so glad to see her return. Both of these pictures plainly tell their own beautiful stories, and as we gaze upon them we become inspired with the subject, and if we are not totally depraved they recall those sinless periods of our lives which have long been buried in the graves of the past. Both the conception and the execution of these pictures are creditable as illustrations of high art, which are rarely, if ever, excelled. Indeed we have seen nothing yet issued by this house that was not excellent of its kind. The plates are about 18 by 14, with wide margins, and printed on fine, heavy paper, and will be an ornament to any dwelling, and wherever they may be domiciled they cannot but have an elevating and purifying effect upon the minds and hearts of all who look upon them, for whole volumes of letter-press might fail to leave an impression as indelibly as they. Pictures, and their particular kinds, are generally indicative of the ultimate character of those who, from choice, patronise and possess them, and these must surely help any one to be better for having them about them.

PAMPHLETS RECEIVED.—Fiftieth Anniversary of the Pennsylvania Horticultural Society, held in Horticultural Hall, Broad and Westmoreland streets, Philadelphia, Friday, December 21st, 1877. This is a beautiful octavo pamphlet of 24 pages, on fine calendered paper, a complimentary copy of which was sent us by the President of the society. But if it had been printed on the commonest of brown wrapping paper, the grand old association and the occasion would have dignified it with a value of no ordinary consideration to us; for its career, in the measure of time, has run parallel with our own. In 1827, when fifteen years old, we left the parental roof to benefit the world entirely upon our own responsibility, and never was an inmate of that home again, the fiftieth year of which had its anniversary on the 9th of July, 1877. In every respect this is an interesting pamphlet, and especially so in an historical sense, for it records the first organization of the society, half a century ago, and the preliminary meetings and measures which led to that organization, from which we learn that the late Hon. Horace Binney was the first President of the society. Six years subsequently we had the pleasure of a seven months' residence in the city of "Brotherly Love," the recollections of which are the most pleasant of our whole life. Horace Binney then represented the city in Congress, and occupied a conspicuous portion of the public mind, for he was pitted against the "Veto" and "Removal of the Deposits" measures of President Jackson. The career of the Horticultural Society since then has been glorious and progressive, (more so, we wot, than ours) and we hope that those who may witness its next semi-centennial anniversary may be able to make as glorious a record.

MR. W. ATLEE BURPEE, the well-known breeder and shipper of fine stock, has withdrawn from the late firm with which he has been connected for the past two years, and will hereafter conduct business only as W. Atlee Burpee & Co. He has opened a new and commodious warehouse, No. 221 Church street, Philadelphia. Mr. Burpee has for many years been extensively engaged in breeding and shipping thoroughbred stock, consisting of Ayrshire and Jersey cattle, Cotswold and Southdown sheep, Chester White, Yorkshire, Berkshire, Essex and Poland-China pigs, and high class Land and Water Fowls of all varieties. He has paid special attention to choice thoroughbred swine and poultry, and his sales in this line have been very extended and have gained for his stock a wide reputation. His aim has always been to breed from none but the very best stock, but to breed so largely as to be able to offer the choicest animals and fowls at prices within the reach of farmers who can appreciate choice blooded stock. Mr. Burpee has now a larger and finer stock than ever to offer his patrons, and will give special inducements on early orders. Their new catalogue of thoroughbred live stock of all kinds is just issued, elegantly illustrated with numerous engravings, descriptions, etc., and will be sent free upon application. We call attention to their advertisement in another column.

FARMING near home, or State legislation against hard times, being suggestions for an "act" to facilitate the settlement of land, the promotion of agriculture, civilization and co-operation, and for the relief of labor and capital within the boundaries of the older States, and especially within the Commonwealth. Published by R. J. Wright, Philadelphia; an octavo pamphlet of 16 pages. From which it appears that there are within the limits of the State of Pennsylvania 10,122 square miles of unused lands, and that within the States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Rhode Island, Vermont and West Virginia, not counting irreclaimable marshes, 37½ per cent., or 57,445 square miles in these States that might be brought under culture and use, while multitudes of agriculturists and working men are driven by force of circumstances to far distant and uncongenial territories.

MAP of the water-front of the port of Philadelphia, and one of the International Exposition

Grounds, Paris, 1878, illustrating the photo-electro engraving of Shelmire & Brono, No. 110 South Fourth street, Philadelphia, Pa.

It is perfectly astonishing with what facility, excellence of execution and cheapness the art of photo-electro engraving has become invested. For the trifling sum of \$4.00 an electrotype plate, 7½ by 9½ inches, can be furnished, giving a view of the city of Paris and its surroundings, the exposition grounds, the river Seine, its numerous bridges, and a multitude of other details, plainly and accurately sketched. It seems that photo-engraving has ceased to be a mere experiment, and is destined to entirely supersede the more expensive and laborious wood engraving, and the above company professes to produce cuts of any subject and size at one-half the cost of wood.

L. B. CASE'S BOTANICAL INDEX to the new, rare and beautiful plants, grown and for sale at his commercial green house, Richmond, Indiana, for April, 1878. An octavo periodical (vol. 1, No. 5,) very handsomely gotten up, (something in the style of "Vick's Floral Guide") finely embellished, and containing copious price lists—a matter of very great importance to those who desire to make purchases in any line of goods. We observe that Mr. Case advertises 102 distinctly named varieties of the *Begonia*, 34 of which are of the shrubbery kind; 72 varieties of *Fuchsias*, all named; and 132 varieties of *Geraniums*. If there is not "a distinction without a difference," then we should suppose the most fastidious taste among floral connoisseurs might here be amply gratified. Such results are not the work of a day, and must be based on merit.

SOMETHING GOOD AND TRUE.—We call the special attention of the readers of THE FARMER to the card of Mr. C. H. Anderson, in the advertising columns of this number of our journal, not only as something new, but also something "good and true." The intrinsic merits of the "Iron Stone," as a water and drain pipe, are sufficient of themselves to recommend this material to the confidence of the public. Mr. Anderson is so respectfully endorsed by those who have used the "Ardenheim Iron Stone Pipes," and is socially so highly connected in this county, that we believe our farmers may repose the utmost confidence in him, especially as through the superiority of his wares he has been enabled to build up a flourishing business.

THE RAILROADS, THE STOCK YARDS, THE EVERERS!—Expose of the Great Railroad Ring that robs the laborer of the east and the producer of the west of \$5,000,000 a year. By J. F. Rnsling, Washington, 1878. An octavo pamphlet of thirty-two pages, purporting to be based upon principles of justice and humanity, no doubt containing much that is true, and also much that is imaginary or unavoidable. As we have not yet had time to peruse it carefully we must refer the subject to the consideration of our readers to form their own conclusions.

SOME OBSERVATIONS on the analysis and value of commercial fertilizers, warmly recommendatory of the Southern Fertilizing Company's Richmond, Va., "Anchor Brand." Office 1321 Cary street, Richmond, Va.; 16 pages octavo. These fertilizers are highly spoken of by those who have been using them ever since 1866, but this is a matter which each farmer must test for himself. Much depends upon what his land may need.

SMITHSONIAN MISCELLANEOUS COLLECTIONS—316—a circular in reference to American archaeology. Giving a "special memoranda" in describing, recording, observing and collecting objects from shell-heaps, eave and cliff-dwellings, masonry, sculptured seals, rock painting, graves and cemeteries, mounds, quarries and workshops, &c., &c., of the aborigines of our country, and especially their localities and surroundings, &c., &c., 16 pages octavo. Very useful.

NINETEENTH annual edition of the "Sorgo Hand-Book." A treatise on the Chinese and African sugar canes; varieties, culture and manufacture. By the Blymyer Manufacturing Company, Cincinnati, Ohio, 1878. A handsome octavo pamphlet of 20 pages, illustrated with ten fine photo-electro pictures relating to the subject. If any of our readers desire to engage in this branch of culture and production we opine this pamphlet contains the information they need.

CATALOGUE of Cane Mills and Evaporators, Steam Engines, etc. Manufactured by the Blymyer Manufacturing Company, Cincinnati, Ohio, U. S. A. A royal octavo pamphlet of 28 pages, with 28 illustrations of the different machines it manufactures, on finely and highly calendered paper, with explanatory letter-press with price list attached.

We would call the attention of our readers to the advertisement of the Kearney Chemical Works in another column, manufacturer of the improved Pest Poison, said to be the best and safest remedy for destroying all kinds of noxious insects.

To FARMERS, Truckers and Gardeners. The "Crop Grower," a new fertilizer, better than guano or phosphates. A. C. Adamson, 143 Front street, Philadelphia.

WHOLESALE PRICE LIST of grapevines, fruit trees, &c. Spring, 1878. T. S. Hubbard, Fredonia, N. Y. With testimonials of character.

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\$5 to \$20 per day at home. Samples worth \$5 free. Address STINSON & Co., Portland, Maine.

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10-5-1m

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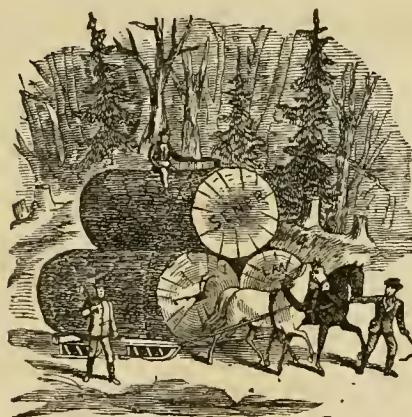
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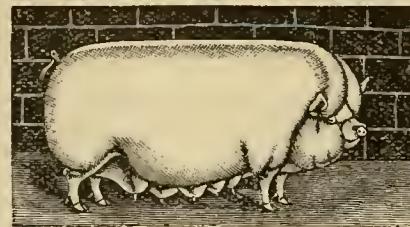
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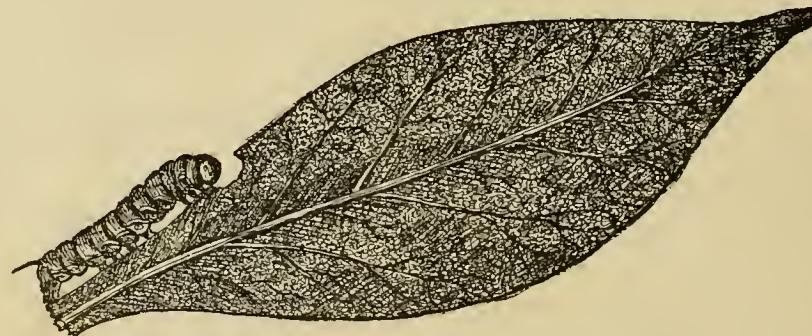
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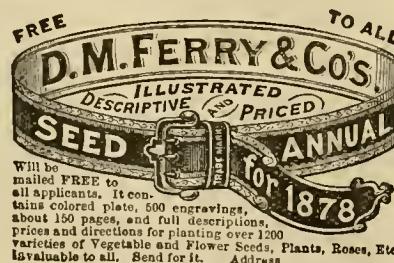
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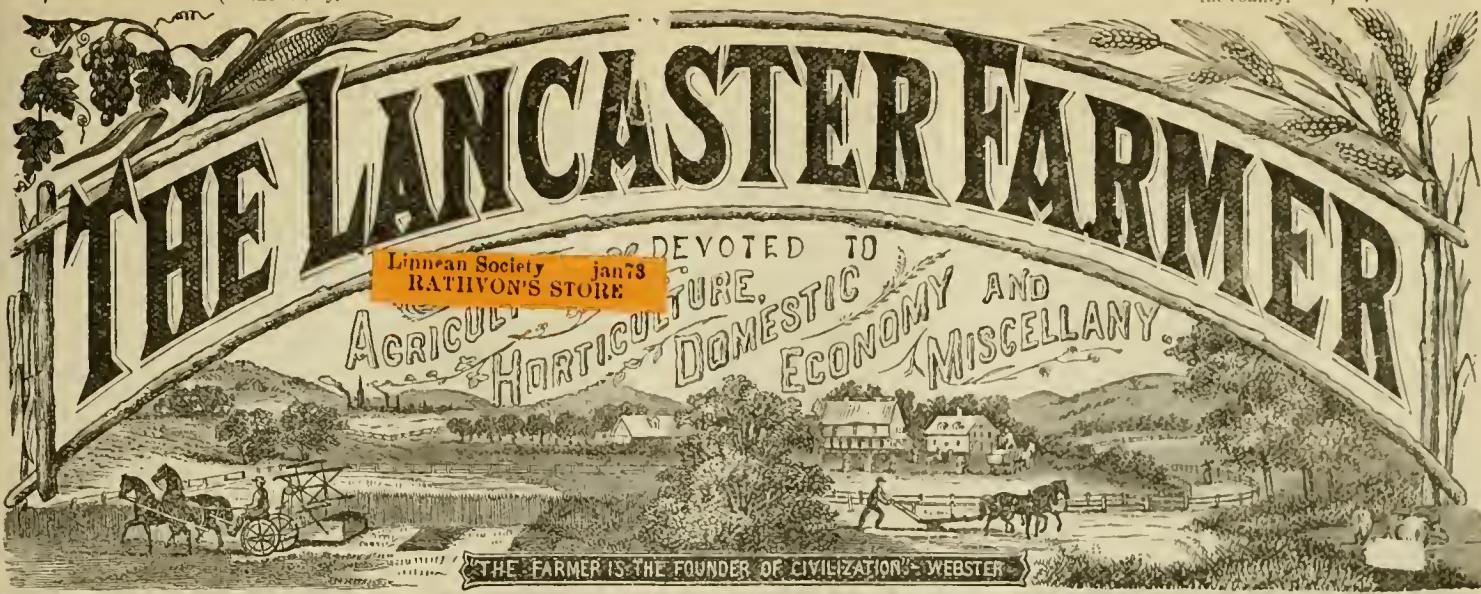
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LANCASTER JUNE 15, 1878.

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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor.

LANCASTER, PA., JUNE, 1878.

Vol. X. No. 6.

LANCASTER COUNTY CATTLE.

Our readers, outside of the geographical limits of Lancaster county, and many of those residing within said limits, may feel interested in the fine cattle and feeding system of Messrs. C. B. Herr & Son, of Manor twp., Lancaster county, as witnessed by us on a recent visit to the stock stables of those enterprising farmers. It is almost superfluous to say that the elder Herr is President of the *Lancaster County National Bank*, and a son of the former "King of the Manor," (a designation accorded to him for many years, and whose reputation as a cattle grower himself has been so amply enhanced and improved by his enterprising descendants). Although progress is manifested in the different departments of the farm, the farm buildings and farm productions, yet as the fattening of stock cattle for the shambles of the butcher is the specialty of the Messrs. Herr, we will confine our remarks mainly, on this occasion, to the impressions made by this casual visit upon our mind. The system of ventilation, feeding, littering and grooming of the cattle, and the economical principles upon which the whole work is conducted, seem to be as nearly perfect as any we have ever witnessed, although the proprietors have many things yet in view, which will be eventually accomplished, but which require time. The basement of the barn is entirely occupied by cattle stalls, with ample gangways between them, and in the rear of them, so that access to every animal can be had without going out of the building, climbing over, or dodging under.

Facing the barn from the south, including its appendages, it is in the form of an inverted L, the central arm extending backward; and this extension constitutes an immense corncrib, equal to three stories high, systematically ventilated, and capable of holding three thousand bushels of corn in the ears, and the capacity of the granaries contiguous to it, are three thousand bushels in grains. The right and left wings of the barn are flanked by large tobacco sheds, the basement of the one being occupied as a "piggery," and the other by a dog-power, by which the water is pumped from a fresh spring well beneath, and is conducted by means of pipes and troughs to the different cattle stalls. One of Mr. John Best's best ten-horse power engines, and a fifteen-horse power wrought-iron boiler, by the same, are erected and in use to run the chopping-mill, corn-sheller, thresher, hay-cutter, fodder cutter and various other operations needing power. The water to supply the boiler is conducted through troughs and spouting from the entire roof of the barn and annexes, to a large tank, where it is reserved for that special purpose. (By the way, the proprietors paid a very high compliment to the scientific and mechanical skill of Mr. Best as a builder of boilers and engines.) The mill, the granaries, the hay and fodder cutters, &c., being on the second floor, they are convenient to the cribs and mows, from whence the corn, oats, hay and fodder are brought in the rough state, to be passed through the grinding, shelling and cutting processes, and are then discharged into receivers on the basement floor on a level with the cattle stalls. Here the chopped corn and oats, and the cut hay and fodder, are placed in two long covered troughs, and saturated with cold spring water in summer, and hot water in winter, a large tank being in proximity, connected by pipes with the boiler above, and the well below. These troughs contain enough for one "feed" for the sixty-five head of cattle in the stalls.

As soon as these covered troughs are emptied they are refilled and moistened, and left to stand thus until the next feed. The feed is given three times a day, namely, at 5 o'clock

in the morning, at 11 o'clock a. m., and at 6 o'clock p. m.; and fresh water is given twice a day—between the feeds in the forenoon and afternoon. No hay-racks are in the stables, and there is an unobstructed view of the whole herd from any position in the stable. Indeed, very little or no hay at all is fed "in the rough;" all is cut and steamed or moistened, and every blade and stalk is so completely economized and utilized, that hardly a stray fragment can be found lying about large enough to make a toothpick. The Messrs. Herr have introduced a novel mode of currying and brushing their cattle by steam power by means of wheels, pulleys, shafts and belts connected with the engine, and the brushes are manipulated by a flexible arm and eccentric movements, something in the manner of that used by dentists for drilling out and cutting teeth, only on a much larger scale—the brushes and combs revolving similar to those used by fashionable barbers.

When the feeding hour arrives the provender is placed in oblong, square barrows, or trucks, on wheels, and pushed through the gangways and distributed among the cattle, with as much facility as a lady pushes a child in the carriage along the sidewalk. All these details, however, and others which we may have omitted, are but subsidiary to the great centre of attraction, namely, the sixty-five head of cattle in the stalls. These, when the time comes to commit them to the shambles—about the middle of July—will weigh not much less than *one hundred and twenty thousand pounds*, if they do not exceed that weight. We are not at liberty to give their estimated weight at the present time, but it seems sufficient to justify the amount we have mentioned, when they are ready for market. The cattle are so healthy, kept so clean, and the ventilation so perfect that the odor exhaling from them is not as offensive as that which is encountered sometimes among human beings; and then we can easily imagine an assemblage of men who do not look as intelligent as these "dumb animals"—none at least whose eyes are so beautifully bright, whose breath so sweet, and whose look so gentle and innocent as these varieties of the genus *Bos*. Some continue to chew their "cud" with philosophical gravity when strangers appear, others manifest some curiosity, some assume a sort of indifference, but all look gentle and innocent, and surely no one can justly call them "common and unclean." As a rule these cattle are kept tied up in the stall all the while, and when, for cause, any are temporarily left out it is amusing to notice their unwieldy playfulness and their grotesque attempts to kick up their heels and run, like great *fat boys* indulging in the recess recreations of a country school.

In addition to the tobacco sheds already mentioned the Messrs. Herr have erected a very large shed facing the public highway, that is 85 feet long, 30 feet deep, and equal to a building four stories and an attic high, without including the basement cellar; so that it may be said that their specialties are cattle raising (or fattening) and tobacco growing; but we rather incline to the opinion that if they were to abandon the latter altogether, and devote the tobacco ground to corn and oats, it might in the end be made more profitable to the farmer. All these buildings are permanent and mechanically constructed frame work, planed and painted, and very unlike the temporary, undressed and unpainted buildings so commonly met with elsewhere for that purpose.

In passing to and fro we were agreeably impressed with the old Manorial district, in the heart of which the Herr farms are located; its rolling lands, its waving fields of luxuriant

grain, its meandering streams, its rural mansions, and its cozy clusters of woodland, and withal, its prospective fields of corn and tobacco. A bountiful Providence seems to have been profuse in his gifts on every hand; and if our "great expectations" are not realized when the harvest comes, instead of indulging in untoward croaking, it will be well to ponder with our inner self to see whether we really were deserving of any better results, reconciling ourselves to the spiritual "powers that be."

THE ROBIN DOOMED TO DEATH.

"A gentleman writes to the *Norristown Herald* that the house-sparrow scratches out and eats his peas. Well, all we have to say is, that if he plants his peas so shallow that a bird as big as the first joint of the thumb can scratch them out, they ought to be scratched out; for nobody who desires fine flavored peas ever plants them less than three inches deep. We feed our sparrows and all other birds, winter and summer. In winter even the Canada woodpecker is on hand and helps himself from the common board. The only injurious bird we have upon our premises is the robin, which is ever hungry and ever pilfering. Even now it is busy ferreting out the earliest and best strawberries. It next tackles the cherry, then the grape, and so on. We confess they ought to be shot. It lives as little on insects as many of those classed as non-insectivorous. Besides it is excellent for the pot and griddle."—*Germandown Telegraph*.

In imitation of the Major, we might say, "well, anybody that is simple enough to plant strawberries, and cherries, and grapes, ought to have them ferreted out and eaten by robins—but we don't." From our personal experience, however, we do not hazard much in saying that we do not believe a robin will be guilty of stealing a hot brick, or a "shad off a gridiron." Some years ago we had a domestic robin in our possession for a period of about ten months. He had the free run of the garden all summer, and never attempted to touch a grape; but he was, perhaps, not entitled to much credit for this abstinence, from the fact that through a long winter's confinement in a cage, the development of his wing-power became very defective; still, he could mount aloft by short leaps, aided by his wings, if he desired. But he seemed to prefer the ground, and during the summer he and "Old Bufo" (a common toad) were very industrious in gobbling up worms, snails, caterpillars, flies, moths, aphids, slugs or any other morsel of the kind that came within their reach. We often gave him cherries, but he never seemed to care much for them—an occasional taste, no more. But for more than fifty years we have been cognizant of the fact that robins have a partiality for the common black cherry, (especially when it becomes dead ripe, and infested by the *coccidio*, and they always will be so infested in that condition, and from our earliest recollection always have been) wild cherries, gumberries, blackberries, and when these are exhausted, for pokeberries—especially late in the season; and it is not at all surprising that they should appropriate strawberries, cherries and grapes, since such choice kinds are cultivated, and their old kinds of berries have been almost totally removed.

The robin makes his appearance in our county very early in the season (the present year about the middle of February,) and from that period until strawberries and cherries are ripe he must subsist and does subsist on insects in their various stages of development—both the adults and the first brood of the young birds. One hundred insects destroyed in the beginning of the growing season is

more than equivalent to ten thousand at a later period, or at the season's wane. That the robin eats fruit is no new habit acquired by him. So long as we have known him he has always been a fruit-eater, and our law-makers must have been aware of this fact when they enacted laws for his protection; if they were not they were hardly competent to be law-makers on the subject.

So long as we have not on our premises

"Here and there a tree,
The cattle to get under
Out of the way of
Lightning and thunder,"

and so long as such trees are not the common black cherry, wild cherry or gumberry, we may expect the robin to help himself from among the more tempting varieties now under cultivation.

The robin is a progressive bird; his cultivation runs parallel with the human species, and if we hanker after and are only satisfied with the most improved varieties of fruit we surely should not be astonished that he should imitate our excessive fastidiousness.

In conclusion, it needs no influential admonition to shoot the robin; our "crack shots" are already addicted to that, even in defiance of the law. We believe that all the pros and cons of the case should be well considered before we take any steps towards the extinction of the robin.

THE CULTIVATION OF WHEAT.

"A Pennsylvania farmer, located rather too indefinitely, 'in Lancaster county,' is said to have raised, in some uncertain past, sixty bushels of wheat per acre by sowing in rows eleven inches apart and tilling with a cultivator. Possibly there might be a Yankee back of this with an implement to sell."

The above paragraph was handed to us as having been cut out of a recent number of the *New York Tribune*. We don't know from what source the *Tribune* received its information, but if it was from THE FARMER, or any other paper published in Lancaster county, we think it might have learned that Mr. Levi W. Groff's location in our county is by no means "indefinite," and that he resides in the old family mansion and on the very farm first located by the celebrated HANS GROFF, in West Earl (then Earl) township. Lancaster county, the township being called after him, its most distinguished first settler. *Graf* or *Graff* was originally a German title of nobility, and translated into English it becomes and is equivalent to *Earl*. Mr. Groff's farm is located about one and a half miles northeast from Bareville, which is his nearest post-town. Whether there is "a Yankee back of the statement with an implement to sell" or not does not at all affect the facts of the case; Mr. Groff and his son have been engaged in the cultivation of wheat for some years, and last year, it is believed, that by cultivation alone, they brought the yield to more than double the yield of the average crop of the county of Lancaster. The matter is one that belongs exclusively to the "Pennsylvania Dutchmen," and there is no Yankee either in the background or the foreground. It is not pretended that the cultivation of wheat is yet a fixed system beyond any peradventure, but the results thus far have proved it a successful experiment. In a season when, through favorable circumstances, the crops are universally good, the benefits resulting from cultivation may not be so apparent as they are in seasons more unfriendly, and when through the manipulations of the soil the growth of wheat, as the growth of any other species of vegetation, may be stimulated and strengthened by cultivation. If we were to put corn, potatoes, beans, cabbages or tomatoes into the ground, cover them with a little earth, and then let them take care of themselves, as is usually done with wheat, we should gather a very unsatisfactory crop, but through cultivation we cause them to perfect themselves and yield abundantly, and it is difficult to determine by what known law in vegetable

physiology wheat, or any other cereal, should be deemed a special exception.

Lancaster County Farming.

The *Reading Eagle* says: "Ezra Z. Griesemer and Solomon Deturck, two Oley farmers, have just returned from a trip to Lancaster county, whither they went to look into the plan of cultivating wheat. The wheat is sown in rows four inches in width and eleven inches apart, giving sufficient room to run the cultivator through in the spring of the year, very much like hoe-harrowing corn. The cultivator is a simple arrangement which is attached to the drill and worked by two horses, who walk between the rows of wheat. The wheat is worked in this way just as soon as the frost leaves the ground and afterwards about the twentieth of April again, when the clover and timothy are sown. The results of this new plan of cultivating wheat were 61 bushels and 15 pounds to the acre last year, and the promise the coming harvest is in every respect as bright. The straw is 6 to 6 feet 1 inch high, and the heads of wheat from 4 to 4½ inches in length. Mr. Griesemer thinks that without any exaggeration the yield of wheat will be forty-five bushels to the acre. The clover and timothy are also mentioned as very fine, being much better than when sown under the present way. The farm visited by Messrs. Griesemer and Deturck is owned and worked by Levi W. Groff, near Bareville."

HAYMAKING.

The sun shone out in splendor on the afternoon of June 6th, 1878, and the air was genial and healthful. "The ripe harvest of the new mown hay gave it a sweet and wholesome odor." In company with Mr. S. we took a short rural ride to his farm, just beyond the western boundary line of Lancaster city, and there, probably, witnessed the taking in of the "first load of hay of the season," the grass having been cut two days previously. We repaired to the hay-field, and taking a hay-fork in our hands (in our boyhood we called it a "shaking-fork") we proceeded to run up a "winrow" into "hay-cocks," as we had done "many a time and often" more than fifty years ago. It was early to take in hay on the balmy 6th of June; indeed we do not remember of ever having seen it harvested so early in this county, although it may have been done a hundred times before, and the occasion recalled the happy scenes of our early days of youth, when we were wont to engage annually in this healthful exercise, although we may have then looked upon it as a sweaty and laborious occupation. In order to make clean work we looked for a hand rake, but we were told that that implement was not used so much in a hay-field now as it was in days of yore—it has been superseded by the horse-rake.

This was not a merely premature or spasmodic haymaking, but was a permanent beginning of the hay-harvest on this farm, which was to be continued "right along," until the whole crop was gathered, and which promised to be an ample one.

The *Scientific Farmer* says: "Of late years the early cutting of hay has received considerable attention, and it has been found that for milch cows such hay is preferable to that which is overripe. Yet the reasons why early cutting should be an advantage are seldom considered. We know that the analysis of chemists tell us that there is more digestive matter in the plant at one time over another, and as an empirical fact, that cows relish the early cut hay and seem to thrive on it."

The proprietor of this farm conducts his farming operations with special reference to the raising and feeding of milch cows, and his leading aim is the production of *first-class butter*; and for that purpose he has in his stables about twenty-five head of Alderney and Guernsey stock, including three fine bulls. All the appointments, machinery and fixtures essential to a *first-class* dairy farm are here introduced, or are in process of introduction,

and when completed will be a model in its specialty. The proprietor seems to think that "some things can be done as well as others," and therefore he is not content with mediocrity when an advanced point is attainable.

Whenever the proper time comes to give the details of this farm with its various buildings, fixtures and systems of operation, it will be interesting reading to those whose tastes and interests lie in that direction, and not only to these, but also to those who are patrons of the *very best butter* the market affords. Essential to good butter is good cream, and this presupposes good milk, which can only be obtained from good milking stock; and that stock must be well housed, well fed, and well cared for in all their various periods of progress and development, and they are likely to obtain it here. In a late speech Lord Beaconsfield defined "civilization," briefly, as being "comfortable," and there is a great stratum of truth underlying the proposition.

Those nations, those people and those animals that are comfortable are peaceable, tractable, prosperous, contented, and not given to wars and fightings. Discomfort is the great cause of revolts, strikes, frauds and falsifications. It may be sad to think that many millions of human beings in this world are not as well housed, fed and cared for as the cattle of a good dairy farm, nevertheless these conditions are essential to the production of good butter, and preliminary to these are good feed; and this brings us back again to the hay-field, and the early cutting of grass and making hay on practical and scientific principles.

HOW TO SAVE PLUMS AND GOOSE-BERRIES.

A correspondent of the *Farmer's Advocate*, London, Ont., gives the following as the experience of a neighbor. The experience is easily tried and may prove of value:

Mr. Holman has eight plum trees in his garden. In the spring of 1876, all the trees being in full bloom, he smoked one tree with smoke from gas house tar; in the autumn that tree was loaded with fruit, while the seven trees not so smoked, had not a single plum on them. In the spring of 1877 he reversed his operations, and smoked the seven trees, leaving the one tree smoked in 1876 without smoke in 1877. All the trees were alike covered with blossoms, but the result showed that while the seven trees were so loaded with fruit as to require supporting, the one unsmoked tree bore not a particle of fruit. His method of operating is as follows: Mix in an old tin pan coal tar with shavings, chips, pieces of shingle, old rags, or anything else that will ignite; place the pan under the tree, keeping it moving so that the smoke will come in contact with the whole tree. It takes him about half an hour to smoke the eight trees. The evening he thinks the best time—about sundown—when there is no wind and the dew is falling. The smoke then adheres better to the leaves and the forming fruit.

The first application of the smoke must be made just as the blossoms begin to fall, and must be repeated immediately after a storm of rain. Mr. Holman repeated the application at intervals of about four days in 1877 until the fruit was formed, say for three weeks. He is not sure of the necessity of doing so, although he recommends it. He is a master bricklayer, mason, &c., by trade, and in 1876, after smoking the one tree, he was obliged to leave home to perform a building contract, so that his tree bad but one smoking, with the result aforesaid—no rain having fallen to wash the smoky deposit off.

Mr. Holman has also been successful in endeavoring to prevent the mildew on the gooseberry. He purchased from the St. Catharine Nursery a bush of a large English variety, against the advice of the nurseryman, as it was so subject to mildew. His method is in early spring carefully to remove all the surface soil from under and around the bush, then to pour the composition under and around the bush, and immediately cover the composition with the removed soil. The com-

position is prepared as follows: Mix in a pail two quarts of water, two large tablespoonsfuls of salt, and sufficient fresh cow-dung to make a thick grout. By this method the bush has regularly borne fine, large fruit, entirely free from mildew. Why it acts in this manner he leaves to scientific men to discover.

[We copy the above from the *Western Farmer* for June, 1878, for what it may be worth, and as something so simple in its preparation and application, that little time and labor will be lost in making a trial of it, and if no good, certainly no injury can follow. Although nothing is said in Mr. Holman's remedy, or in his experience with it in applying it to his plum trees, what he applied it for, yet the inferential is, that it was to kill or expel the *circulio*, which is about the greatest enemy to the plum crop that we know of. As a sort of corroboration, we recall the experience of Zuriel Swope, esq., of this city, who about four or five years ago, applied "gas lime" (which is also a refuse of the gas house) for the destruction or expulsion of noxious insects from his garden, which was seriously infested by cut-worms, caterpillars, aphids, cucumber beetles, cabbage moths, &c., &c. Mr. S. alleged that he was entirely successful. He applied about six bushels in an enclosure of about 34 by 200 feet, mixing it with soil, especially around the hills of the plants. All we have to say to our patrons is, "try it," a prospective good crop is worthy such a trial.—ED.]

TWO HUNDRED THOUSAND BUGS.

The San Francisco *Bulletin* says: "Prof. Davidson, President of the Academy of Sciences, recently called the attention of a number of citizens to the large collection of specimens in entomology made by Henry Edwards during a period of twenty-five years. This collection is said to be one of the largest ever made in the United States, and by far the most complete ever made on the Pacific coast. About 60,000 species have been collected, representing more than 200,000 specimens. These represent not only all the orders on this coast, but nearly or quite all in the United States, with a large representation of orders from all parts of the world. The collection is really one of the most complete known in this country or any other. The collection is valued at \$12,000, or rather that is about the sum expended in freights, cabinets, and the purchase of rare specimens. The labor of 25 years is not estimated."

The above, from the columns of a contemporary, and sent to us by a correspondent, may serve as an illustration of the magnitude of the great Class INSECTA, and also what it costs to make a collection in that department of natural history. No man but an active working entomologist knows what time, labor, patience, perseverance, physical energy and pecuniary outlay is required to collect, impale, preserve and classify a cabinet of insects, whether large or small; and very few have the least appreciation of their value in any sense. Although it is important that every district of our country should have a knowledge of its local entomology, yet a massive general collection is not essential; except, perhaps, for the museum of a scientific association, of which there should at least be one in every city or town of five thousand inhabitants and upwards. The 60,000 species that Mr. Edwards collected on the Pacific slope, probably, includes insects belonging to all the different orders of this class of animals. Twenty-five years ago it was said that there were 40,000 species of Coleopterous insects (Beetles) alone in the museum of Berlin, in Europe. What the number may be to-day we have no idea of. It may be no larger, or even less now than it was then, as insects generally are very fragile and perishable.

When the number in a collection once reaches 200,000, if the very greatest care is not taken of them, we may infer that they will be destroyed by cabinet pests and otherwise, about as fast as the additional accumu-

lations are made. We really do not know what more onerous "elephant" we could bequeath a man than such a gigantic collection of insects, especially if he were a poor and physically feeble man. If he were mentally feeble, it might set him crazy, or kill him outright. If he were not compelled to labor for a living at some secular occupation, he might keep it in order by making a voluntary slave of himself. It is for this reason that the larger number of entomologists—and perhaps the most thorough number—become specialists, particularly in Europe, as by this means alone can the subject be mastered in a single generation, and then only within certain limits. If in any community ten men of leisure and pecuniary means could be found, and with a taste for natural history, and they were to divide the subject into ten sections, and each to pursue a section as a specialty, more progress could be made in a given time than could be effected by three times that number of general naturalists. Under no circumstances need any entomologist expect to be compensated for his labors. Nobody could make a proper compensating award except a jury of entomologists, and the compensating party would surely "object to the jury." In conclusion, we do not think there is a collection of insects on this side of the Rocky Mountains that is equal to Mr. Edwards', unless the above statement is exaggerated.

QUERIES AND ANSWER.

Mr. E. K. H., Creswell, Lancaster county, Pa.—The galls upon the hickory leaves you sent us were produced by a species of Phylloxera, (*P. caryae*) and are generically allied to the famous *Phylloxera vastatrix*, which has been so destructive to the grape vines of France and other localities on the continent of Europe. The insides of the galls before us are completely packed with the insects, and if all the leaves on the tree were similarly infested, injurious effects would certainly follow. While the insects are protected by the gall, of course no external remedy could be applied short of cutting them down and burning them. We are pretty sure we have seen this insect fully fifty years ago, and during all that time they were, no doubt, present every summer season, but we have never heard of any destruction of hickory trees. We have twelve or more species of them, but they are not very formidable.

Mr. D. H., Lancaster city, Pa.—The small, black insects which have so numerously and so filthily infested the ends of the twigs and small branches of your cherry trees are the "cherry plant-louse," or "Black aphids," (*Aphis cerasi*) and on examining some of the branches I find that you possess both the *bane* and *antidote*, in presence of a plain little "lady bird" (*Coccinella mundi*) among them. Luckily the cold rains of May have washed off and destroyed millions of the aphids, and the lady birds are busily engaged in removing the remainder. So that from present appearances you will realize a fair crop of good cherries, unless some other unforeseen cause should prevent it. The "peach aphis" (*Aphis persica*) has largely shared the same fate, and the peach crop, which seemed to be so seriously threatened early in the season, is now rapidly recovering from their infestations and promises a fair yield.

The insects infesting your currants, little else than the cast off skins of which are now remaining, belong to a family of "Leaf-hoppers," (TETTIGONIADÆ) which, "for short," many people are in the habit of calling "thrips." The cold rains of May have had a similar effect on these; although being nimble leapers, they do not generally fall so easy a prey as the slow, lazy and greedy aphids.

Mr. J. C. L., Gap, Lancaster county, Pa.—The larger, ugly and dirt-colored worm in your box, is very probably the "corn cut-worm," (*Gortyna zea*). A cut-worm it surely is, but there are many species of these worms, and very variable in coloration and marking. Even the same species undergo a series of

changes in their various stages of development. Being found in a corn field and in a hill of corn, we infer it is the individual above named. The smaller worm, of a dark color, with whitish cross lines and six feet is the larva of a species of "Soldier Beetle," (TELEPHORINADÆ) of which there are a great many species in Lancaster county, but we think it may be referred to the genus *Telephorus*. These insects have been known to destroy the larvae of the *curculio*, and we have known the mature beetle to attack and destroy snails. We confined the two in a bottle, and in a few hours thereafter the latter had killed the former and eaten a great hole in his side, unequal as they were in size.

Mr. D. L. R., Bird-in-Hand, Lancaster county.—Your rose bushes seem to have been infested by Tettigonians, similar to, if not the same as the above, although nothing but the white cast-off skins were present on the leaves we examined. We think the mild previous winter was the cause of the abundance of the above insects early in the present season.

CORRESPONDENCE.

GREENE, Lancaster co., Pa., {
May 21st, 1878.

S. S. RATHVON—Editor Lancaster Farmer Dear Sir: I send to you, by stage, an owl which I captured last night as he was making his usual nocturnal visit to my hen roost; accept the present.

Yours, J. PAXSON HAMILTON.

[Thanks for the "Horned Hooter," which was safely delivered. It is of the same species (*Bubo virginianus*) as the one received from Quarryville last Christmas, and may be its mate, but this does not necessarily follow, as this bird, except during the mating season, is usually "solitary and selfish" in the extreme. This is the largest species of the owl kind that occurs in Lancaster county, at least the largest Horned Owl. The "Snowy Owl" (*Nyctea nivea*) is its equal in size and rapacity, and often occurs larger. The Horned Owl feeds on small mammals and reptiles; is a good monser, but has too strong a penchant for the hen roost for his presence to be tolerated in any community where poultry abounds. When he is successful once in a poultry house he usually repeats his visits until he "sweeps the board" or is captured, and through his rapacity and his success he often becomes unguarded and "puts his foot into it." In this respect he is probably like many of the bipeds belonging to the human species, and fares about as badly in the end. It is very certain that he sometimes destroys more fowls in a given time than he can possibly consume—therefore "let him die."]

About Corn.

BUCK, LANCASTER COUNTY, PA., {
May 31, 1878.

S. S. RATHVON: Enclosed is a specimen of my corn; it was very slow coming up, and now seems to be getting less. Nearly the whole field is badly hurt; a piece of low ground is not so bad, and a plot of new ground is still less hurt; other years it was nearly as bad; it seems to be an insect. If you can give a remedy or preventive, you will much oblige a friend.—*Jonas Huber*.

The corn plants came duly to hand, but we could not detect an insect of any kind upon them, or inclosed with them. The blades looked as if some kind of an herb-eating insect had cut them in holes; but, our knowledge of entomology is by no means equal to the gum we once heard of, which would kill a bird as well "where it isn't as where it is;" and therefore we cannot tell what the insect was, nor yet recommend a remedy, without having specimens, or an accurate description. According to the observations of our friend, there must be something the matter with his corn, especially as he had a similar experience in "other years." If it were not that we are totally unacquainted with the circumstances attending those other years, we would suggest that the present season has, thus far, been rather unfriendly to the corn on account of the low temperature of the entire month of May. If it were us, we believe we would rather have our seed corn in the garner than

in the ground during such weather. We have known corn to be planted on the 10th of June to take a vigorous start from the beginning, and to mature as early, and a far better crop, than that planted on the 20th of May. As this is a matter of a succession of years, there may be a deficiency in the soil of some element that corn especially needs; or less likely, something present that is unfriendly to corn. This is a question, however, which involves an experimental knowledge of agricultural chemistry, in order to shed the needed light upon it. A *Bureau of Agricultural Chemistry* in every county will be one of the necessities of the near future.

THIN OUT YOUR FRUIT.

The present time is a trying one to fruit-growers, and calls upon them for the exercise of all their prudence and fortitude. Pear, peach, plum and other fruit trees will again present, as they nearly always do, overladen boughs which will be unable to mature their burdens. To secure the best results the prudent fruit-grower must undertake the reluctant task of removing the surplus in order that the remainder may reach its highest state of perfection and the vigor of the trees remain unimpaired. Who that has had experience in this matter does not know that a more disagreeable subject cannot possibly be called up. How many of our readers have favorite fruit trees, which they know require to be thinned out, but which they do most reluctantly, if at all. To deliberately pluck half the fruit from a favorite pear or peach tree seems a direct loss of just that much. Argument is generally in vain, and even with those who are fully alive to the necessity it is an ungracious task. Yet nothing is more necessary. The deed will in the end repay the doer. Larger, better and finer fruit will be the reward and an abundant crop in the following year. Thinning out fruit always pays. Fruit-growers understand this and practice it. That is why their fruit is always finer than that grown by amateurs, and commands higher prices. Even the writer, well aware of the pernicious results of forcing a tree to bear beyond its capacity, last year permitted his judgment to be swayed in the case of a choice dwarf pear; instead of removing twenty of the twenty-eight handsome pears that hung upon the little tree, the pretty picture was allowed to remain and gladden the sight until fall. But he has paid dearly for that act of imprudence; not a flower did it put forth this spring, and its growth has been stunted in addition, not having advanced a single inch during the present season. He will never commit the same mistake in the future.

[The foregoing from the editorial columns of the *New Era*, is so fully corroborated by our own experience that we believe we can place no more seasonable dish before our readers at this time than the aliment it contains. We mourn the loss of a thrifty and prolific young Delaware grapevine, because we disobeyed the admonition of a Horticultural Father to remove only seventy-five clusters of grapes out of one hundred and thirty-five. But we were too "stingy," and as a consequence we only ripened a dozen, and the following year had no grapes, and the year after that no vine. We "killed it with kindness." Sinners, take heed.—ED.]

APPLE TREE BORER.

An article in the *Rural* for March 23d, entitled, "To kill the larvae of the apple-tree borer," has attracted my attention. It, I think, greatly magnifies the difficulty of destroying this "worm." Let me hazard an opinion in regard to the arrangement therein described for killing the pest. It is not practical to any extent. It would be of no use unless the nozzle were inserted directly into the chamber he has excavated for himself and where he is; for the idea of ever forcing any liquid through the mass of *debris* lie leaves behind him, would in nine cases out of ten utterly fail; for it would escape through the orifices in the bark, which he makes to dispose

of the surplus *debris*, when it is in his way. Enough for that.

I have dug out thousands of these pests, having had a large experience among orchards not my own and also among nursery trees. I never found a hole where one had entered closed by the growth of the tree. Having removed the soil around the base of tree to expose the presence of the "worm," on clearing the bark by scraping it with the back of a knife, his presence is indicated by a little spot, and the extrusion of a greater or less amount of chips. If he is a *juvenile*, hatched the current year, or only one year old, he will be found near and a little below the surface and is easily destroyed; as he has cut but a small place beneath the tree at all. If two years old, he will be found further down the root, having cut a somewhat tortuous and continually widening path and packed it hard with *debris*, involving more and more of the woody structure. This downward path is generally about four inches long, seldom six. He then turns and cuts his way up, generally keeping near the other path and passes the place of entrance, whereupon he commences to cut deeper, making a path in the sound wood and keeping entirely away from the bark. He continues his path upwards to about a foot above the place of entrance, cuts to near the surface, retires to the excavation he has made and goes through his last change, getting his wings ready for an active out-door life.

I think the injury to the tree is principally done the first two years, while he is cutting between the bark and wood. If there is a hole through the bark in the body of the tree, above the place of entrance, it is too late to look for him. He is gone, but if there is no hole he has not yet got away. In that case cut down after him, remove the dead bark and *debris*, and follow his path until you find an open chamber, and then it is not difficult to dislodge or destroy him with a fine wire. An acquaintance of mine takes a small bit, and after finding his bearing bores in and follows him up that way. It is a benefit to the tree to clear the path made of *debris* and dead material. I have noticed that as long as the dead matter remains no young wood is formed at the edges; and the healing process does not go on, but as soon as dead matter is removed and the edges cut afresh and smooth, a new deposit of wood is made and the scar commences to heal up, and if the wound is not too great it heals over. I have found some trees with so many old fellows that they were entirely girdled and could not be saved.

The method of prevention mentioned in the article referred to is good, but not infallible—perhaps no method is infallible. The nearest to that is to wrap the bottom of the tree, from an inch or two under to a foot over ground, with cloth or paper, from the first of May till the middle of September, when it should be removed, to enable the bark to harden that it may not be injured by the freezing of winter. Another method of preventing mischief is to bank the trees with earth, four or five inches high, in the early part of the season; and remove it in the fall and cut out any borers that may be present, before they have done and harm. Whatever preventive may be employed the trees should be carefully examined once or twice a year.

Have any of our readers observed that buckwheat sown in an orchard will keep away borers? I have lately come to take charge of a large orchard, and find, on examining the trees, that in a part of it where buckwheat was raised last year there were none of the young larvae. Was the buckwheat the cause?—*Rural New Yorker.*

THE NEW GAME AND FISH LAW, AS PASSED BY THE LEGISLATURE' OF 1878.

The new law passed by the Legislature, at the session just closed entitled, "An act to amend and consolidate the several acts relating to game and fish," makes some changes in the former laws. We notice the following

provisions which will be interesting to our readers:

It prohibits killing of gray, black or fox squirrels between the 1st of January and the 1st of September, under penalty of five dollars.

It prohibits the killing of hares or rabbits, between the 1st of January and 15th day of October, under a penalty of five dollars.

It provides that no person shall kill or have in their possession any wild fowl between the 15th of May and 1st of September, under a penalty of ten dollars.

Grass plovers cannot be killed between the 1st of January and the 15th of July, under ten dollars penalty.

Woodcock cannot be killed between the 1st of January and the 4th of July. Penalty, ten dollars.

The killing or exposing for sale, partridges or quails, between the 1st of January and the 15th of October is prohibited.

Pheasants cannot be killed between January 1st and October 1st. Pheasant hunting at night is also prohibited. Penalty, ten dollars.

No person shall kill at any time (except for scientific investigation) any night hawk, whip-poor-will, sparrow, thrush, lark, finch, martin, chimney swallow, barn swallow, woodpecker, flicker, robin, oriole, red or cardinal bird, cedar bird, tanager, cat-bird, blue bird, or any other insectivorous birds. Penalty, five dollars.

Pheasants, partridges, woodcock, rail or reed-birds not to be caught with traps, nets, snares or torchlights. Penalty, ten dollars.

No hunting, shooting or fishing on Sunday. Penalty, twenty-five dollars.

Trout fishing, except with rod, hook and line, except for propagation, prohibited. Penalty, twenty-five dollars. Brook trout fishing prohibited, except during the months of April, May, June and July. Penalty, ten dollars.

Fish baskets, gill nets, pond nets, eel wires, kiddles, brush or facine nets, or any other permanently set means of taking fish, prohibited. Penalty, twenty-five dollars.

Fishing with seines prohibited, shad fishing excepted. Penalty, twenty-five dollars.

Fishing with hoop nets, in streams not inhabited by brook trout, with nets of not less than an inch in size, is allowed. Persons catching any trout, bass, pike or pickerel in such nets, must return them to the water, under twenty-five dollars penalty.

Bass fishing prohibited between the 1st of January and the 1st of June. Bass can be taken or killed only with a hook and line, scroll or spear. Penalty, ten dollars.

Catching bass or trout in nets, by drawing off waters, prohibited; placing poisonous bait, quick lime, giant powder, or substances in the waters of the Commonwealth to catch fish, prohibited. Penalty, fifty dollars.

Bass less than six inches in length not to be caught, or if caught, must be returned to the water. Penalty, ten dollars.

Actions for penalties under this act to be brought before justices of the peace. In default of payment of fines offenders shall be committed to prison not less than one day for each dollar of fine imposed. Mayors, burgesses and police officers are to see that the law is observed.

There are other penalties and provisions of the law, but we have given a synopsis of the more important ones that apply to this part of the State.

Our readers, as a matter of sport, may feel very little interest in the game laws of the State, but as they may possess premises upon which hunters are likely to trespass or poach, the above synopsis may enlighten them as to the time when the different kinds of game are in or out of season, and the penalties for the violations of the same. High-toned sporting men respect those seasons, and the laws made in pursuance thereof; but there are many would-be crack shots who discard all law on the subject, and are at all times on the lookout for an opportunity to wantonly trespass, kill and destroy. It would be well to "go" for these.

PLYMOUTH ROCK FOWLS.

Our cuts illustrate the "Standard Plymouth Rocks." They are large and of good shape, very plump bodied with full breasts. They mature early and make large broilers for early spring market. They are very superior table fowls, having also bright yellow legs, free from feathers. They are good layers, and combining as they do, in a wonderful degree, the economies of large size, prolific laying and superior sitting qualities, we do not hesitate to recommend them as a fowl for utility and profit.

These fowls are an out-and-out American breed, having been originated and perfected here. And they are a production of which American fanciers may well be proud; for of all the favorites known in the fowl category these are more than others entitled to be called "The Farmers' Fowl."

Moore's Rural New Yorker—which ought to be good testimony, if age and experience are of any value—says: "Among the many fine breeds of fowls originated or introduced from abroad during the past half century the Plymouth Rocks appear to hold a very prominent position, or to put it in the language of one of our noted breeders,

"They are just now roosting on the topmost wave of general popularity."

They are an American breed, having originated by crossing the old, short-legged Dominiques with some variety of the Asiatics; the color, hardiness and other good qualities of the former being preserved with important addition of an increase in size.

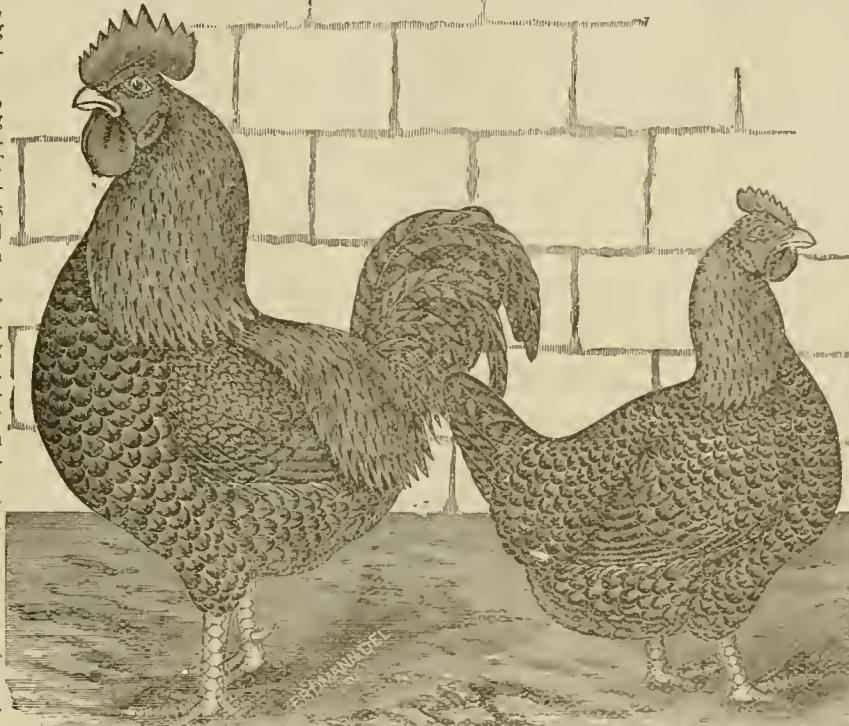
The Plymouth Rocks may be considered a "general-purpose breed," the hens being excellent layers and good mothers. In their case, therefore, there is no necessity in keeping two breeds on a place in order to obtain both eggs and chickens, as must be done when only the non-sitting varieties are kept, thereby increasing the chances of introducing impure blood into one's flock. They are also a clean-legged breed, there being no feathers on their feet and lower part of the leg, to dabble in the snow and mud, and in this way furnish a congenial harbor for parasites, which cause a disease known as the "scurvy-leg." The combs and wattles are also of moderate size, and not likely, therefore, to become frozen in cold weather, as in breeds which have these almost useless, but ornamental appendages more largely developed.

The general color of these birds is gray, or what would be generally denominated a hawk-color, each feather being distinctly penciled across with dark bars. The beak is a bright yellow, short, stout at base, and with a fine curved point. Eyes large, clear and bright. Comb red, single, upright and straight. Wattles and ear-lobes bright red and of medium size. Neck of the cock of medium length with abundant hackle. Color bluish gray, and free from white or black feathers, and when these occur they should be considered a disqualification. Legs large and strong, of medium length, and the skin of a yellowish color. Disposition quiet, not much given to roaming far, or attempting to fly, for their wings are too small and their bodies too heavy to admit of much progress in flight.

Messrs. W. A. BURPEE & Co., of Philadelphia, (to whom we are indebted for the above illustrations,) who have a choice stock of these fowls for sale, state, that "If a better breed for the farmer who desires both eggs and meat exists, they have failed to find it, although by some they may have been tried and 'found wanting.'"

SCURVY LEGS IN FOWLS.

White legs and scurvy legs are synonymous; that is, blanching of the shanks generally precedes the scurvy. Blanched legs, and the unsightly scurvyness generally proceeds from low condition of the bird affected. When the fowl is in high condition the plumage is rich and glossy, every joint is better developed, the comb and wattles are of a brighter red, and the skin of the legs (of yellow legged breeds) will be a good orange. A tawny color in the shanks denotes impurity of blood. Of the two Leghorns—the Brown and White—the Browns have the richest color of leg, being in both cock and hen a bright orange, beside which the lemon yellow of the White Leghorns is tame. The spotless purity of plumage in the Whites causes the color of the leg to stand out in bold relief, and oftentimes appear darker and richer than it really is, both in the legs and beak. There is also the same difference observable between the P. Cochins and L. Brahmns. The coloring of the Cochins is almost exactly the same as that of the Brown Leghorn. Their skin also is of a richer, rarer yellow. No white, or entirely black fowl, ever bears so yellow a skin as a brown or Domi-



nique-colored one. Frequently those breeds whose standard demands their shanks to be yellow will throw chicks with white or a very pale shade of yellow legs. Such should be guarded against and never be allowed to breed. When first hatched, and before any exposure to the air or sun, the legs of all chicks are apt to be white, but after a day or two they will come to their color and be bright and clear. Oftentimes they will grow up and remain still pale in color, and slender and weakly in appearance. Such a bird has a delicate, sickly constitution, and in reaching maturity should never be allowed to enter the breeding pen. If a cock, make a broiler of him, and if a pullet, throw her out to lay eggs for culinary purposes. Such not infrequently happens to be the case, even from pure-blooded parents, and when all the mates may be perfect birds too. Some default, or unprobed weakness in either one parent or the other, that may be of only temporary duration may for a short period manifest itself and be inherited by the offspring. This fault may arise from some neglect in feeding, or a lack of the proper exercise which is necessary to keep the body in perfect working order—the digestive as well as all the generative organs.

In yellow-legged breeds, that are bred pure, any approach to blending or blanching denotes a low condition of the birds in which it makes its appearance. The fading out of the color

from the leg is almost always followed by the mealy appearance of scurf that accumulates slowly until the shanks are filled with bunches, and the scales are distorted, swollen and warty. This is brought about by the presence of mites; vermin so small that they cannot be discovered by the naked eye, which have gradually increased until they are millions in number.

We frequently meet with recipes in poultry books and papers to cure this unsightly disorder. The majority of them are heartless and cruel in the extreme. The birds thus afflicted are in nearly every case out of order and suffering from disease. They are thin in flesh, with poor appetites, and generally prefer to roost a good portion of the time. One recipe recommends kerosene oil as a cure. Now this is the very worst remedy that can be applied. Better cut the bird's head off in the commencement, and relieve much misery that will surely follow an application of this dangerous remedy—poison it might be called. It removes all the skin from the leg, and renders the tendons and sinews extremely sore. In this case the remedy is far worse than the disease. The first thing to do is to tone up the system. The bird perhaps is afflicted with

vermin on the body, and it would be strange if this were not the case. The application of grease of any description to a fowl for vermin is cruel, especially if the bird be complaining a little. It causes the feathers to be wet, and consequently heavy, and to stick close to the body. Besides, a wetting of grease is apt to give the bird cold. Instead, a gentle bath of finely sifted wood ashes is to be preferred, which acts as a stimulant and causes many of the vermin to let go their hold and drop off.

All sick birds should be moved slowly and handled carefully. Give soft food of some description that will tempt the appetite, and bathe the legs with a pretty strong decoction of carbolic soap, afterward applying a thin coating of ointment, or sweet oil, being careful not to rumple or soil the feathers. Fowls are chary of their feathers, and dislike wet or grease on them. If the bird can be coaxed to eat often a recovery is certain. When a hen desires to sit it is the greatest benefit possible to allow her to brood the usual period, and then afterwards run with the chicks.

WHEN IS THE BEST TIME TO HARVEST WHEAT?*

Mr. President and Gentlemen: The question you have assigned me is one as full of interest as a perfect head of wheat is full of grains. The gain or loss reached, both in quantity and quality, depends very much upon the time and manner of harvesting. Wheat constitutes one of the principal mercantile commodities, both domestic and foreign; yielding an immense revenue to the producer and to the consumer. It is the principal food of all classes, and is the "staff of life;" therefore, a proper knowledge of its culture, and the best time to gather it, becomes an important issue.

Like on all other great questions, there is a variety of opinions as to when is the best time to harvest wheat. I am aware that among those present there are gentlemen who have given this subject much attention, and have arrived at conclusions which no opinion of mine can change; but, as I understand the object of this organization to be the interchange of opinions, in order that we may

*Read before the Lancaster County Agricultural and Horticultural Society June 3, 1875, by Peter S. Reist.

benefit from each other's experience, I willingly contribute my knowledge of all questions relating to practical farming. In reply to the question now under consideration, I can only give you my opinion, based, it is true, on long years of experience, and to some extent corroborated by the experience of others.

Speculative theories will not avail us anything—farming is a practical business, and what the true, earnest, industrious and economical farmer needs most is practical information. The best time to harvest his wheat is of more importance to him than the best time to plant it, because the gain or loss is more easily made. The question as given me is indefinite, but I shall endeavor to answer it in two respects: First, as to quantity; secondly, as to quality. If the object or desire is to harvest quantity, the greatest number of bushels to the acre, the best time to harvest your wheat is to commence a few days before it appears to be ripe (the weather being favorable) and finish a few days after it is fully ripe. As there is no assurance when the weather will be most favorable, you should take advantage of the fine weather, whether your wheat appears to be ripe altogether or not, lest the weather should change when it appears more ripe, or when you imagine you are better prepared to begin your harvest. It will not do to wait for the ripening of the last stalk, neither will it do to set a time suiting your own convenience. "All work should be done at the proper time," is an excellent motto, and in no respect is it more true, than in the sowing and gathering of wheat.

I have said it will not do to wait for the last stalk to ripen; there may be low parts in your field, or some portions may have been sown deeper than others, so that the earliest may become too ripe by the time the last ripens. The safest way is to let your wheat become ripe enough to harvest it so as to admit of gathering it into your barn, or to stack it as soon as it is in sheaf, providing the weather is favorable, or to begin a little too early rather than a little too late, both for a good yield and for making good bread.

The ability to judge of the ripening of wheat is of paramount importance. An error in this direction spoils the whole crop. My rule is to examine the straw and the kernel. The straw ought to turn yellow, and should be cut before turning brown. So much for the best time to harvest wheat for quantity, but I suppose the more important point is when to harvest it for quality.

To this I would reply, examine your wheat very carefully, and take it after the kernel has turned from its milky or doughy state to such a solidity that it will not shrink too much, so that the shells will remain more tender and softer, when less gluten will remain with the bran, after it is ground. This kind of wheat, my experience has taught me, makes the finest and most nutritious flour and the best bread.

Harvesting wheat too green or soft not only causes it to lose in weight but in flavor also. The premature gathering of any vegetable substance interferes with its maturity, and whatever injures its growth injures its taste. Take, for instance, the cherry, or peach, or currant, or gooseberry, or any kind of fruit, pluck it a few days before it matures or is perfectly ripe, and you spoil its natural taste or flavor. So wheat, together with other cereals, must have its true wheaten flavor, or it will not make that fine and perfectly good flour which always commands the highest prices and the readiest market.

LOCAL FRUIT NOMENCLATURE.*

Since the organization of the "Lancaster County Agricultural and Horticultural Society," it has crossed my mind a hundred times that there is something very defective in the department of our local fruit nomenclature. There are many excellent varieties of fruit in this county that are entirely destitute of a distinctive name, or if a name ex-

ists it is so very local in its character that it is hardly known beyond the limits of the family that produces it. There is scarcely a meeting of the society during the fruit season—and very often out of that season—that specimens of fruit are not presented *for a name*; and I do not know of a single instance of any attention being given to such application, any further than a mere notice in the proceedings to that effect, and but for the reporters of the proceedings of the meetings they would, in most instances, receive no recognition at all. Only at the last meeting Mr. L. S. Reist presented an extraordinary apple—extraordinary at least in its prolonged keeping qualities—for a name, but there is nothing in the proceedings to indicate that it received any other notice than the incidental record made by the reporters of the proceedings. Now, this, it appears to me, should be provided for by this society, representing as it does the wealth and wisdom—in agriculture and horticulture—of one of the oldest, largest and most populous counties in the American Union. I am clearly of the opinion that our local society should have an active, competent and aggressive committee on nomenclature, and the said committee, "without fear, favor or affection," should give practical effect to the object of its appointment. I have said that the committee—otherwise properly qualified—should be *aggressive*; and by that I mean that when an unnamed fruit, that is worthy a distinctive name, and has long been known to the proprietor of it as a good fruit, and one that is capable of being perpetuated, is presented to said committee under proper representations, it should name, describe and make a record of the same; and also assume all the responsibilities of the act, and have it published in the proceedings of the society. True, it might transpire that the committee would name fruit that had been previously named. But that should not prevent them from acting in any event, for the most distinguished scientists and the most distinguished societies have done the same thing. Of course, when such a contingency occurs, the former name takes the priority and the latter is suppressed; but the object sought is none the less attained. I don't believe such an intelligent and respectable agricultural and horticultural community as Lancaster county should be content to play perpetually a second fiddle in matters of this kind, when it possesses the ability to play a leading part. I don't believe that they should in all cases depend upon the decision of those foreign to its soil in matters of which they must know most about themselves, and of which they are competent to assume the initiative. There is a maxim among the most learned, that whatever name an object bears among the masses of the people in the locality where the object exists and is known, that of right ought to be the common or popular name of it. Anterior to this, however, there is another maxim to the effect that when a new country or a new object is discovered it ought not to be arbitrarily named after some county or object in a different locality that was previously discovered and known, but after something locally relating to, incidental to, or traditionally or historically connected with such a new discovery. Of course, on such a subject as pomology, in which a single species often runs out into hundreds of varieties, there must necessarily be a dearth of common names, and therefore many of them are named after the possessors, the producer of the originator of said varieties, if not after some external form or internal quality which they possess.

Who then is more competent to name a new fruit, or any other subject of the kingdom of nature, than those who first discovered it and who are acquainted with its origin, its habits and its peculiar qualities. If we happen to originate or develop a new potato there is no need for us to wait until some man in the Russian empire condescends to give it a name, and especially so when it is apparent that he knows nothing about it beyond the bare fact of its existence. I here allude to

the common or popular name—that name by which it may become best known among the common people—among those who cultivate it, who traffic in it, or who consume it. Its scientific name may be left to the option of scientific men.

At the Centennial pomological exposition, where the poverty of Pennsylvania in aggressive pomology was by comparison very apparent as a whole, I made the limited acquaintance of Dr. Staman, of Leavenworth, Kansas. The doctor appeared to be an earnest, industrious and persevering pomologist. His catalogue contained over nine hundred described and figured varieties of apples and pears, all of which were duly baptized with a popular name, and many of these names were bestowed or endorsed by himself; but he was always very particular to learn as much as he possibly could about the history, the habits and the quality of all new or unnamed varieties presented to him. About six months after the close of the Centennial exposition I received a letter from him, in which he stated that his catalogue had been increased to seventeen hundred varieties, a large number of which he had picked up at the Centennial. Many people had sent their unnamed fruit there for a name, just as if it could not have been named in the locality where it originated. I had presented an excellent apple to this society for two or three successive seasons for a name; and although it had been grown in this city for forty years, and possessed qualities which I thought were worthy of perpetuation, it elicited no serious attention whatever. I gave Dr. Staman a specimen of this fruit, and also some scions, and he has described and named it the *Scner Pippin*, after the person who had been in possession of the tree for a number of years, and through whom it had been brought before the public.

Whether a fruit possesses good or only indifferent qualities, if it is a fixed and well defined variety, it still ought to have a name, in order that we may be able to deal with it intelligently—to at once reject it if it is worthless, or adopt it if it is good. When a botanist discovers a new plant, he immediately proceeds to describe and name it, no matter how poisonous or otherwise worthless it may be, because in some instances it is as important that the inferior qualities of a thing should be known as the superior qualities of some other thing, in order that we may be able to discriminate between them.

But there is a rule among scientists to the effect that when a new object is discovered, described and named, in order to elicit public recognition, the discovery, the description and the name should be published to the world, and not be kept within the domain of a single family, or be hidden in the unpublished proceedings of a single society. Hence it seems to me that the matter should be delegated to a competent commission or committee, whose decision—under the qualifications heretofore stated—should be final.

I offer these remarks as suggestions, and preliminary to a plan for bringing into some kind of order the loose fragments in fruit nomenclature which are so plentifully strewn all over the county of Lancaster, and for the want of a knowledge of which we seem to be always hankering after foreign things of far less excellence.

FOR THE LANCASTER FARMER.

REVU OF MAY NUMBER.

Attraction Extraordinary.—The Y. M. C. A. and the Linnean hav clasped hands it sems. It wud not hurt yur Ag. and Hort. Societe to giv them compane.

Kitchen Garden Calender.—The closing paragraf is xcelent, in urging the cultivation of garden vegetabls with hors insted of woman power.

General Suggestions.—This artiel is so sound that any of yur reders may understand it, but as ther dades and grandades did not belev in such nufangld nosluns, fu of them wil.

The Cat-Bird.—Much as we lik his songs, and even his mokery, we wud rather du with-

*Read before the Lancaster County Agricultural and Horticultural Society, June 3, 1875, by S. S. Rathvon.

out them, than without the fruts witch tha destroy for us.

Something About Eels.—It seems strang that naturalists dont no mor about the habits ov thes snak fish, but we dont ear. We wud rather et shad.

Morells.—We wud be much gratified if somebody wud send us a mes now and then, or put us in the wa ov groing them. Som ov our frends mit lern the bisnes during ther visit to Paris.

Late-Planted Peachblows.—A. B. G.'s articl provs that it is saf to lev the old rut in potato-planting. It shos how lat and erly we ma plant them and realize gud crops.

Mennonite Grass-Burner.—From its desription it must be supplyng a grat want on the prairies, but Mr. Yanke is tu lat to cary of the oners of the invenshun. Perhaps he wil get to work and contriv something that wil het without any fuel.

Propagating by Natural Selection.—The hints by J. G. r excellent, but if he wil practice his thery he wil lern that his lotery wil draw many blanks to 1 prize. His advice to farmers wil not hurt the nursery bisnes for a while yet. On planting potatoes his hed is perfectly level; also on having our implements in order in time. The editor's quotation of the ancient proverb mit clos in many cases with 99 insted of 9.

Around the Farm.—Ruralist has switched of upon a nu trak, but we dout if he can in-due any won to embark in the sed bisnes of the ornamental plants and flowers witch he describs. We can get plenty ov them without sending to Manor township. Our own township mit hay som to spar.

Eureka Digger.—This implement neds only a far trial to mak it popular.

Garden Vegetables.—A. H. W. thros out nu ideas which ar wel worth considering. Ther is som fore in his hints, from both pecuniary and helth standpoints.

Letter from Iowa.—W. B. S. seems quite elated with a kind ov Eden in that slate. He had beter go Kansas also; we wud lik to her from al the Edens befor we emigrat.

Essay on Poultry Raising by S. P. E., contains valuable directions, altho we find nothing strictly nu. It is a gud comon sens articl.

Improving Farm Crops.—A. B. K. seems to be wel stored with progresiv ideas, but it wil tak a gud deal ov pounding to mak any impreision upon the majority ov farmers.

The Dairy Situation, by J. H. R., is one ov the best articls on this subject that we hav seen. It is both a grat pity and a grat los that the dairy ov the farm is mad so much ov a sid bisnes. What an amount ov increased welth wud be aded to this country, if al the dairy products wer first-clas, but even that (acording to Mr. R.) wud be superseded by the general adoption of the creamery system from the increased production.

State Millers' Association.—This is a sensible mov. Tha ned protection as wel as other calings. We hop tha wil form a seal ov prices, so as not to pay as much to one groer for chet, rye or cockle as another for whet.

Proceedings ov the Ag. and Hort. Society.—Thes monthly metings always have somthing ov interest. Consumers as wel as producers ar interested in the condition ov crops. H. M. E.'s essay on cutting gras for ha, seems not altogether orthodox, but we hardly no now-a-days what to fix upon that wil not be upset next da. Nothing but accurate tests wil decide, but we ougt to no for certain. Wheat cultivation seems to absorb much ov the bisnes ov thes metings, but it is ov vast importance, to us at least.

Tobacco Growers' Meeting.—This interest seems to lag. Put yur shoulders to the whel, boys, keep the quids flying, and rais as much smok as possible, even if you can't kep up the fir.

Bee-Keepers' Meeting.—This is a bisnes that mit be extended indefinitely, and pa som wel.

Linnarion Society.—We fel alwas to put in a gud word for this societe for its disinterested labors in behalf ov progres.

Corn Growing.—This luks wel on paper.

How to Plow.—Mor truth than fiction in this articl.

Pop Corn.—Don't al embark in this bisnes at wons. The profits ar tu gud to last long.

Canteloupes.—We hop the advic from the Germantown Telegraph wil be hedded. It wud prevent the eling ov so many stal wons.

How to Make Trees Fruit Early.—If the Vineyard Gazette is level its advic is worth trying. Hu wud not hav the erliest fruts.

Hints to Horse Owners.—Her is gud comon sens advis. If thes directions wer folowed we wud not her ov so many runaways and los ov lif.—*Von Humbolt.*

THE TOMATO.

(*Lycopersicum esculentum*.)

Also called in our boyhood the "Love Apple" and the "Jerusalem Apple," although not a native plant, has become so perfectly acclimated and domesticated that it now constitutes the most universal vegetable production of the country, and is the chief ingredient in a very large number of our most healthful culinary preparations. If it be true that no evening sun ever sets upon the English possessions, but that "her morning drum beats the whole day," we may say the same



in regard to the domestic status of the Tomato, for there is now no single moment within the year that we cannot have this vegetable in one or more of its various forms. Many an object of almost infinitely less domestic merit has become deified, but the Tomato is content to occupy the hearts, the affections and the stomachs of civilization; and that is glory enough for any one fruit or vegetable in the kingdom of nature. There is no canned fruit or vegetable that has become more uni-

versal in its use or retains its integrity equal to the tomato, and many future generations will rise up and call it blessed. The generic name of the Tomato has a very fanciful origin. It is derived from two Greek terms, which mean a *wolf* and a *peach*, hence a "wolf-peach," but what relation these have to each other would be very difficult to explain; but, like the Irishman, who "didn't care what he was called so he wasn't called too late to dinner," the Tomato can now afford to be called by any name so we only have plenty of them. Its specific name is derived from its edible qualities, but fifty years ago we knew very little about these qualities, for we well remember when it was cultivated as an ornamental pot plant, under the name of "Love Apple," and was generally regarded as poisonous.

But time has wrought a great change in its economical status as it has done, and will continue to do, in many other things. Originally it was included in the genus *solanum*, to which the common potato, the deadly "nightshade," the "Jerusalem cherry," the "Bittersweet," the "horse-nettle," the "Apple of Sodom" and the "egg-plant" belong, but now it stands solitary and alone in its own genus. Perhaps from the known *poisonous qualities* of some of these plants, the Tomato was judged by the character of the company

it was in, which is about the test of human judgment in many things it is profoundly ignorant of at the present day.

The Tomato is a native of the tropical regions of South America, but as it is so simple in its culture, and thrives so well, we may consider it naturalized in the temperate regions of our country, and it has become a leading article in our truck-gardening. England, it appears, did not take to its culture as energetically nor as extensively as the United States and the continent of Europe. Some of the varieties of the Tomato—of which there are many—differ so widely from the original type, that they might be ranked as different species.

FOR THE LANCASTER FARMER. RAMBLING THOUGHTS STRUNG TOGETHER.

Croakings.

When the farmer examines the prices his products bring in the market to-day, it must certainly give him some concern as to what this state of things will lead.

The best wheat is quoted \$1.09 to \$1.15 per bushel; corn, 45; rye, 65; oats, 29; lard, 6 to 7 ets.; ham, 8 to 10 for smoked, and 7 to 8 for pickled; eggs, 12 to 14; and in addition to these low pries is the "dull," showing that even at such low figures, buyers do not care to take hold, either expecting that pries will be still lower, or they have not enough call for anything in these lines to warrant them in laying in a stock.

To the man that bought a farm only a few years ago and could not pay the whole of it then or since, the view must be exceedingly discouraging, for while the labor that he employs may be hired for much less than formerly, the interest still remains the same in amount and doubly oppressive. The running into debt often brings on evils, for though it may be legitimate in itself, yet it must be remembered that "the borrower is the servant of the lender," and a very hard master Mr. Debt is often found to be.

What Must be Done.

All of us who would now be sucessful must look closely that no needless expenses are incurred, and lop off all such as are not needed to earay on business or necessary to our well-being. That this is being done very generally, I very well know to be the case, but I have seen a few instances in which it was overdone or misdone in stopping newspapers and agricultural papers. I will admit a farmer may get along and make money, and take no paper at all, but the question is as to whether he might not have made more had he taken a few papers.

Argument Against Taking Papers.

Only the other day I heard a novel argument against taking an agricultural paper any longer, somewhat in the following style:

"You see, when I first commenced taking the paper there were a great many things mentioned in it and hints given that were new to me; of course, some of the subjects treated I knew myself, but there were really a great many helps and facts mentioned that I would hardly have thought of myself, but it seems to me that the paper is not as good now as it was when I first took it, for some of the same subjects are gone over that had been in before, and I do not find as many new hints as I did at first."

The man who made use of the above argument is intelligent and quick of comprehension, and yet he makes use of a weak argument. In the first place, he should have remembered that any paper worth taking is all the time getting new readers, to whom the things he considers old are new, and that the very things he considered new were old to many other fellow-readers; and, in the second place, that the hints given from time to time strengthen and sharpen his perceptions, so that many of the facts given in late numbers of the paper would have been new and interesting but for the educational effects of what

he had been reading; and, lastly, many times a single hint or idea, not occupying one-fourth of a column, or perhaps only a few lines, may be worth the subscription price for years to come.

How It Must be Done.

But to resume, the farmer must make each stroke count, do his work thoroughly, and raise the largest crops with the least expense possible. In lessening the expense it must not be done by cultivating crops less than before, but to make an increased amount of cultivation bring a two-fold increase in the crops. Let no land lie idle (or fallow), but make it work like his horses or himself, continuously.

It is also advisable that as great a variety as possible be the aim: This is not only because if one product may be below the paying point another may be produced with profit, but most soils seem to improve under a variety in cultivation that would run out under the system that produces only one or two leading varieties. This is explained on the ground that crops take up the materials in the soil in different proportions, that which is not needed very much by one crop is perhaps the very thing wanted by the succeeding crops.

The want of rotation is shown in the west. We read in the papers of the great fertility of the soil and the immense production. As I have never been "out west" to judge, the fertility of its soil will be admitted, but I say that their average production does not show it.

Crops in Brag States.

In 1875 Illinois raised the enormous quantity of 280 million bushels of corn and yet the average was only 34.3 bushels per acre; Iowa followed next in quantity with an average of 35 bushels; in 1876 Illinois fell to 223 million bushels, with an average of only 25 bushels per acre; Iowa, though like in Illinois, more acres were put out, had also a marked decrease, and an average of but 30 bushels per acre.

So it is with all other crops of these much vaunted States. It is not the enormous crops per acre that make the quantities, but the large extent of land under these crops. It may be that the virgin soil will bring 80 to 85 bushels of corn with little cultivation, and 30 to 40 bushels of wheat, but the farmers there certainly have a knack of bringing them to below the average in a short time. And this crop, which of all others delights in a fertile soil and plenty of sunshine, yields in the south only from 10 to 17 bushels per acre, which a northern man would declare a total failure.

Cotton and Profit.

That all is not gold that glitters can be seen in looking up the statistics of the once powerful "king cotton." I thought still, and I suppose most northern people did the same, that cotton was one of the paying crops in the south, and for that reason in some sections did not engage in general agriculture; but the published statistics knocked it all into "pie." The average yield in 1876 was only 190 pounds per acre; that of 1875, the largest yield since the war to that time, was only 198 pounds; while the yield of 1874 was less than 160 pounds. The money value. In 1875 the amount of money realized per acre was an average of \$25.26; in 1876, I think it was somewhat less than \$19.00 per acre. As long as cotton ranged from 20 to 40 cents per pound there was of course some money in it, but when it sunk below 12 and 14 cents per pound the profit would not have satisfied a Lancaster county farmer, the average profit being but little over one dollar per acre in 1876.

Probably our thoroughgoing farmers of the north here would make a better showing than this, for this crop has been known to produce over 900 pounds to the acre, and I have no doubt if the right class take hold of it the yield will be in the neighborhood of 500 to 600 pounds per acre. This would no doubt leave a handsome profit.

New Productions.

The raising of a greater variety of crops must be accomplished in many instances by raising such as have not usually been raised

before, at least in the neighborhood, and sometimes not in that part of the world. In no case should any extensive operations be commenced by a novice, as the result in nine cases out of ten would be a failure, and perhaps financially ruin the individual.

The raising of sugar beets for making sugar has often been recommended as a sure and paying business, and I thought myself that it was an industry that was unaccountably neglected. The cost of the machinery stands in the way of general introduction, being as high as one hundred and sixty thousand dollars, (\$160,000) and the process very intricate. The amount of beets raised from an acre, when intended for sugar is also comparatively small, being given by the *American Agriculturist* at only eight tons per acre, the 40 ton crops being worthless for sugar, and good only for feeding stock.

Not understanding all the details is in nearly all cases the direct cause of failure, and this was one of the causes for the decline in raising sorghum. Where the parties have become initiated into the process, the raising of this crop has become profitable, and I have no doubt it may, in time, be raised again in considerable quantities in these parts.

There are many other products which can be raised in different parts of the United States, and most probably will be, among which are the following:

The tea plant, olive and fig plant for lower part of Virginia and south. Jute for moist Southern States; vanilla in Florida; rape seed (for oil) in the north. The castor bean is considerably cultivated in Missouri, and is probably profitable. These are comparatively new industries, and it remains to be seen as to their profitability.

The conservative farmer will, of course, not need advice, for if he makes any experiments it will be on crops that have been raised more or less; and this is the best course, for all new manias ruin more people than they benefit, and it is only after the mania has passed away that solid profit comes in.—A. B. K.

FOR THE LANCASTER FARMER. AROUND THE FARM.—No. 9.

There was once a Turk who on his deathbed provided for the construction of a fountain, on the sides of which was carved a request for the prayers of all that should drink of it. This was a good idea; if it did not benefit him it benefited posterity. We are, as a rule, not fully alive to the importance of having a plentiful supply of good water. Every farm-yard should have its penstock of running water, accessible at all times to man and beast. By the hydraulic ram water can be raised to places on hills. Cisterns can also be constructed to take the water off the roofs of farm buildings. According to an authority, a roof 10 feet square will give 70 barrels a year; one 30 by 40 gives 864 barrels a year, or more than two barrels a day, allowing the rainfall in this latitude to be 36 inches.

Where springs are not in reach water may be raised by windmills, but whatever the means used, water should be supplied to the farm, and that abundantly.

While driving through the country, a few days ago, in passing the residence of Mr. Fred. Frey, near Creswell, I noticed that he has provided a drinking trough along the roadside for horses, and judging by the numerous tracks in the road it is liberally patronized, and many a poor, thirsty horse, through the kindness and liberality of Mr. Frey, gets a drink there who would otherwise have to suffer thirst. Could we not have more such public-spirited citizens that would erect drinking troughs along the roadside where there is running water?

Potato Beetles.

"What is the reason you have no potato bugs, while I have so many?" asked a neighbor the other day. "It is a mystery to me as well as you," I replied. "We expected a plentiful supply, because we had potatoes in the same lot last year, and we inferred that

sufficient beetles hibernated to produce a numerous progeny this spring."

But the fact is, we had less bugs this year than any previous one since they are among us. Our potatoes are nearly a foot high and are yet clean. I cannot account for it, unless fall plowing did the business. I put manure on and plowed down in November, and left lay until planting time, when I plowed again. Perhaps the beetles were frozen during the winter. Can not our excellent editor and scientist give us some light on the subject from the above facts?—*Ruralist, Creswell, Pa.*, June 2, 1878.

LANCASTER COUNTY TOBACCO.

The Crop of Last Year—Its Extent and Value—Prospects of the 1878 Plant.

At the close of the purchasing season and the opening of the yearly plant the statistician posts his books and reviews the extent and value of the last year's crop of tobacco in this county with a view to calculate upon the future importance of this element of our agricultural industry. Prophets of evil never tire of telling the farmers hereabouts that, in the long run, tobacco raising is certain to be an injury, and that its deleterious effects upon the land will eventually far exceed the temporary profits from its cultivation.

Victor E. Piollet, the great Bradford farmer and a leading member of the order of Grangers, pours this into the ears of Lancaster county farmers whenever he meets or addresses them, and even a small number of our home farmers are influenced by such considerations, and one of our most intelligent and progressive agriculturists positively refuses to allow a stalk of tobacco to be grown on his premises. They point to the desolate and waste plantations of "ole Virginny" in demonstration of their theory; but they forget the marked difference between the thrifty system of farming in vogue here and the thriftlessness which marked the operations in the Old Dominion years ago. With the farmers in Lancaster county the rule is to put as much back on the soil as is taken off, and for this return they have found nothing so good as barnyard manure. Accordingly the feeding of stock cattle has been greatly increased in this section of late years, and in consideration of the more highly appreciated services of the barnyard manure farmers have been satisfied with less direct returns from their stock-feeding operations. By the liberal use of this fertilizer the exhaustion of the soil caused by the culture of tobacco has been effectually counteracted, and by its profuse application lands planted year after year in tobacco show the same steady improvement as other parts of the farm. Occasionally, when a field is seen to have had an overdose of the "weed," there is a rotation of crops, and a year in wheat followed by a crop in clover restores it to its original condition. So far as this apprehension of exhausted lands goes it will be many days before the Lancaster county farmers abandon the cultivation of tobacco.

With regard to the value of the crop of last year and its relation to that of succeeding years, it is estimated that the total amount was about 40,000 cases of 400 pounds each—16,000,000 pounds—which, at an average of fifteen cents, would represent \$2,400,000, a very material interest. Of these 40,000 cases at least 34,000 cases have already been bought up, and, with the exception of probably 1,000 cases shipped by jobbers, are now lying in the various warehouses in this city. There are probably 5,000 or 6,000 cases of the crop of 1877 in the hands of the growers, by whom it has been cased, and most of which will be held over by them.

Of the crops of former years there are not more than 100 cases in the hands of parties here, and probably 5,000 cases in the hands of the buyers. In quality the crop of 1877 was of lighter weight to the acre than usual, averaging about 1,500 pounds, but in quality, though decried at first, is conceded to be al-

most equal to that of 1873, which was the best ever put into the market by Lancaster county. The 1877 crop sold at all prices, varying from 2 and 6 to 8 and 25, and some choice lots as high as 30, but a fair average would probably be 5 and 20, that is one pound of fillers at 5 and two of wrappers at 20, an average of 15 cents. On the estimates herein made the acreage of last year would figure at about 10,000, and there is no probability that the plant of 1878 will be less. The average product of \$225 per acre represents an outlay of not more than \$125, counting all expenses, and until the average Lancaster county farmer is shown how he can realize more than \$100 per acre net profit from land worth \$200, he is not likely to let his hold slip on the good thing he now has of it. But all the far-sighted of our tobacco growers have begun to realize that it is in the careful attention to the crop, in planting, raising, cutting and curing, that the chief source of profit lies, rather than in the extent of acreage, and, if their counsels prevail an improvement in these respects rather than an increase in the extent of the plant will be the distinguishing feature of the tobacco-growing industry here for years to come. When \$400 to \$500 can be realized from an acre by increased attention, and a comparatively slight outlay over that required for a \$250 product, true economy will suggest more careful attention to the quality. The young plants are now being set out, and with favorable temperature following prolonged moistening of the ground they will get a fair start; but the few recent days of comparatively cool weather have been unfavorable to the setting out of plants and untoward to the growth of those already in the ground, many of which have had to be replanted.

The industry of cigar-making is on the increase throughout this city and county, and the annual product is now about 50,000,000. In these much of our local tobacco is used, and an article made of Havana filler and Lancaster wrapper is manufactured here that sells for from \$60 to \$70 per 1,000; but most of the cigars made here are of low grades, running from \$13 to \$20, and of these a large number are shipped to St. Louis.

Whether our patrons oppose or favor tobacco growing, the weed itself is too conspicuous a factor in the agricultural productions of Lancaster county to be in any wise ignored. Therefore, as a mere matter of information on the subject, the above resume from the Philadelphia *Record*, may be of interest to readers of any and every grade. If it is a "good thing," then every farmer ought to know it, in order that he may participate in its benefits. If it is an "evil thing," then he ought to know something of its magnitude, in order to measure his strength properly against it. Until it becomes contraband of law we must let people do as they please in cultivating it. Its status, therefore, is interesting as a mere matter of knowledge, and knowledge on any subject is always an element of power.

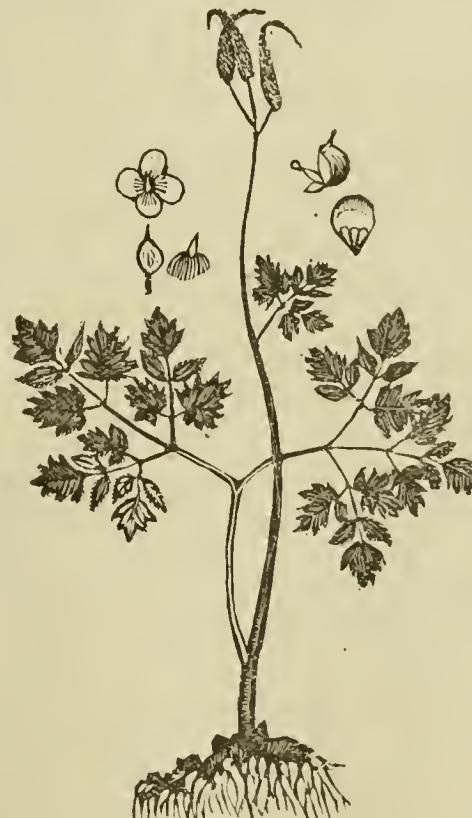
A SIMPLE REFRIGERATOR.

A correspondent of an exchange writes: I performed a simple experiment a few days ago, and when explained the public will properly appreciate it. I procured an air-tight barrel and put a cake of ice into it; also about a quart of salt. On this ice and salt I put a tin bucket two-thirds full of lukewarm water. I then covered the barrel with a blanket folded two or three times and a sack half filled with sawdust: this covering made the barrel air-tight. My object was to freeze the air inside the barrel. The salt melting the ice took the heat from the air. Ice cannot melt without heat. Salt has a great affinity for water, and attacks or forces the ice to melt. A solid cannot become a liquid, nor a liquid a gas, without heat—for instance, water cannot become steam without heat. The ice melting took heat from the air inside the barrel, which took the heat from the lukewarm water, it giving off the heat to equalize the temperature in the barrel. The water became frozen or formed ice by giving away

heat to melt the ice. Thus, you see, ice was turned into water, and water (in the tin bucket) into ice. What I wanted to get at was a cheap and simple refrigerator. Every one could make or have a refrigerator of this kind. A small quantity of ice and salt would freeze an air-tight room full of air, but it would take a room full of ice and salt to freeze a room full of water. Any one can put a box in a box and surround it on all sides with sawdust and cover it over as I did. The other points to watch are only two, viz.: To keep air out and preserve temperature, and by freezing the air inside the box, barrel or chamber, the latent heat of all objects inside of these chambers is given off, and they in turn become frozen. This idea of principle could be applied to a box, house or barn, or carried to any magnitude. Refrigerating cars, slaughter-houses, etc., could be conducted on this plan, and in fact by adding salt and ice enough any temperature could be acquired, and all articles at any season, inside of this air-tight chamber, would be frozen. The queer part of my experiment was that I thought by freezing the air in the barrel I would find ice on the top of the bucket of water, but to my astonishment, at the time, it had formed at the bottom more than two inches. If I had put a non-conductor between the ice, salt and water, the ice would have formed on top.

FOR THE LANCASTER FARMER.
BLACK SNAKE-ROOT.

This plant has numerous synonyms—bugbane, black-cohosh, squaw-root, &c. Also, in different localities, applied to different plants, as with the generic name, *Actaea racemosa*,



Lin., but Pursh puts it in the genus *Cimicifuga* of Lin. It is now known scientifically as the *CIMICIFUGA RACEMOSA*. This is common in open woods and hillsides, flowering in June and July, when its long, spike-like racemes of small white flowers make it conspicuous. This plant does not strictly agree with either the generic character given by Linnaeus to *Actaea* nor *Cimicifuga*. Rafinesque, in 1808, made it the type of his genus *Macrotyls*. De Candolle, who recognized it as a sub-genus of *Actaea*, the name was changed to *Macrotyls actaeoides*. Still not satisfied, in 1828, Rafinesque bestows an entire new appellation on it, describing it in the *Medical Flora* as *Botryphis serpentaria*. Drs. Torrey

and Gray consider it a sub-genus or section of *Cimicifuga*. This shows the difficulty in classifying plants that seem to interblend with other types of the order *Ranunculaceæ*, commonly called the crow-foot family. It has an unpleasant smell when handled, and a disagreeable, nauseous taste. The portion employed medicinally is the root, which should be gathered early in the autumn, and dried in the shade. The root is in short, rugged form, outside blackish brown, with numerous long, slender radicles, much wrinkled; and when fresh a bitter, nauseous and astringent taste; when dry less apparent. This is one of the medical plants of the aborigines, being in high repute among the Indians in the treatment of rheumatism, and as an emmenagogue given in decoction made with an ounce of the root to a pint of water, the dose being one or more fluid ounces several times a day. It is considered a stimulating tonic and capable of increasing the secretions from the skin, kidneys and lungs; and has really proved useful from its efficacy in rheumatism and affections of the lungs, and truly worthy of more attention than it receives. Dr. Hildreth, of Ohio, (*American Journal of Medical Science*, October, 1842,) found it very useful in phthisis (consumption), in combination with iodine. The reason it is called "snake-root" arises from the fact that the Indians used it as an antidote against the bites of venomous snakes, and from its stimulating diaphoretic properties no doubt proved useful. The powers of the root seem to depend on a somewhat volatile oil and a bitter resin, both soluble in alcohol and partially so in water.

Many farmers use it in various combinations for horses and cattle in the spring season, as a purifier of the blood without much regard to the nature or necessity of the case. The name *Cimicifuga* is derived from the Latin *Cimex*, a bug, and *fugo*, to drive away, hence bug-bane, having been used for that purpose; and we see no reason why it would not be equal to the celebrated insect powder, brought from a great distance and expensive; but unless a thing costs something we do not appreciate it, so high priced commodities will be used and the cheaper abused.—J. STAUFFER.

THE UTILIZATION OF WASTE MATERIALS.

The strict economy of nature, which never allows a particle of matter to be either wasted or lost, is so manifest that it could scarcely have escaped the attention of man; and so, when circumstances compel him, it is not surprising to see him putting in practice the lesson she has taught him, and striving to put every scrap to the best account. In China, owing to the crowded state of the population, this economical husbanding of material has, of necessity, long been in vogue; and to such an extent is it carried that what would be considered strict economy in Europe or America would there be regarded as absolute waste. The same causes have been slowly operating to bring about a similar state of things in Europe. Thousands of materials that were but a few years ago thrown away as utterly useless are now carefully saved and turned to some account either for purposes of luxury or necessity. Hosts of costly products of distant climes can now be produced at home, at an insignificant expense, from the most unpromising sources. For instance, science has evoked the most delightful perfumes from the most offensive refuse, and extracted dyes of the most gorgeous hues from a most unlikely looking material—pitchy black tar. Accidental discoveries, no less than active researches, are continually transforming some article comparatively worthless into something else that stands high in commercial estimation, and supplementary factories are gradually springing up to utilize the by-products of others. So numerous are the discoveries that something useless may be converted into something useful, and so rapidly does one follow in the wake of another, that it is difficult to keep pace with them. Scarcely a scientific exchange reaches us that does not

contain the announcement of some such a fact, and the details of the process by which the result may be reached. Here, for example, before us, in the current number of the *Echo Industriel* we have a description of the method by which the straw is extracted from manure heaps, to be subsequently utilized (after cleaning and drying) as a cheap bedding for horses and cattle, packing for glass, crockery, etc., but more especially for paper pulp, to which it is said to be peculiarly adapted; since, saturated with urine and allowed to ferment, ammonia is evolved, which aids in separating the fibers, and reduces the need of using stronger and costlier alkalies to a minimum. After extracting the straw the remaining manure is sold for the usual purposes. The simple machinery for doing all this is an invention of an American resident of Paris. Much of the false hair worn by the fair sex of Europe and America is derived from sources that would make the wearers stand aghast were they to learn the facts. From a late report on the commerce of Swatow (China) we learn that a large export trade of hair, gathered in the stalls of barbers, sprang up in 1873, during which year 141 piculs (18,800 pounds) worth 2,904 taels (\$4,300), were shipped to Europe. In 1875 the exports of this refuse rose to 1,000 piculs, with a value of over \$25,000, certainly a remarkable industry to be created at such a distant point to supply the demands of a caprice of fashion.

To chemistry modern perfumery is perhaps more indebted than any art that ministers to the luxury of life. It is commonly supposed that all floral essences are the product of distillation; nothing could be a greater mistake; nearly every perfume of the toilet bottle or sachet of the muchoir case is the product of waste matters—some of them odorless, others most intensely nauseous and disgusting. Many a fair maiden damps her brow with the “Extract of Millefleurs,” innocent of the knowledge that its essential ingredient is derived from the drainage of the cowhouse. The perfumed toilet soap is scented and confectionery flavored with oil of bitter almonds artificially prepared by the action of nitric acid on the fetid oil of gas-tar. The pure “fruit sirups” of some of the soda water vendors are made from factitious oils that chemists have learned how to produce. Singularly enough, too, the latter are usually derived from substances of disgusting odor. The oil of pineapples is obtained from a product of the action of putrid cheese on sugar, or by making a soap with butter and distilling it with alcohol and sulphuric acid. The peculiar fetid substance called “fusel oil” serves as a base for several artificial flavors; thus, distilled with sulphuric acid and acetate of potash, it gives oil of pears; with sulphuric acid and bichromate of potash the product is oil of apples. And so, too, by other means known to the chemist, refuse corks are made to yield essence of mulberries, tallow to put forth essence of melons, and the wood of the willow tree to part with oil of wintergreen undistinguishable from the genuine article. The fact, well known to the schoolboy, that by the action of sulphuric acid on starch, sawdust, woody fiber, etc., a saccharine substance called “glucose,” or grape sugar, is produced, has not by any means been lost sight of in this country, notwithstanding the low price of cane sugar. Extensive works for the manufacture of this article are located in one of the largest cities of the western part of the State, and almost every day one or two car loads arrive, occasionally consigned to Europe, but oftener to the various brewers of the city and vicinity, and to extensive dealers in molasses. All these matters show a direct application of science to an industrial purpose, and imply a knowledge of the deepest investigation into organic chemistry.

One of the most singular discoveries in the history of agricultural chemistry is due wholly to the French. Sheep draw from the land on which they graze a large quantity of potash, which is eventually excreted from the skin along with the sweat. It was shown by

Chevreul that this peculiar potash compound (“suint”) forms at least one-third of the weight of raw merino wool; while it constitutes about 15 per cent. of the weight of the fresh fleece. As it is easy to extract the “suint” by mere immersion in water, the wool manufacturers can readily produce more or less concentrated solutions, from which the potash may be recovered by appropriate treatment. The development of this new industry is principally due to MM. Maumne and Roget, whose process, in operation at most of the great seats of wool manufacture, is very simple. They evaporate the solutions to dryness, and place the residuum in retorts, and distill it very much the same as coal is distilled at gas works. The result is that while much gas is evolved which can be used for lighting the factory, and much ammonia is expelled which can be collected and used in many ways, there remains a product consisting of carbonate, sulphate and chloride of potassium. These salts are separated by the usual method and pass into commerce. While on the subject of animal refuse, we refer to the manner in which certain dead animals are utilized in France. Every portion of a dead dog, for instance, is converted to some use; it is boiled down for the fat, the skin is sold to glovers and the bones go to make superphosphate. In Paris the carcass of a horse is worth more than elsewhere, inasmuch as the working classes eat the best portions of the flesh. Their hair is a well-known refuse used by the upholsterer; the hide goes to the tanner to make thick leather for bank ledgers, etc., the intestines make coarse gut-strings, wheel bands and lathes; the fat, which from a well-conditioned horse amounts to 60 lbs., finds a ready market; the hoofs are used either by turners or makers of Prussian blue, and the bones go to manufacturers of ivory black and to turners. Even the putrid flesh is allowed to breed maggots, which are sold as food to fatten fowls. The final residue is used by rat catchers to trap their prey, and the skin of the captured rat finds a ready sale among furriers on account of its delicate fur. A statement that has frequently gone the rounds of the papers to the effect that most of the “kid” gloves of commerce are made from the skin of this rodent is probably untrue, since its small size would preclude its use for anything but gloves for children.

The great meat packing establishments of the West afford examples of the extreme refinement to which the utilization of by-products may be carried. Not a scrap of the slaughtered animal is wasted. Every portion fit for food (even to the heart and liver) is pickled and packed, and most, if not all, of it exported to Europe. The fat, hoofs, horns, hides, tails, hair and bones find ready sale in the market, for various purposes in the industrial arts; and the final products usually reach us in the form of dried blood and bone-black, for the use of the sugar refiner and the agriculturist.

Until within comparatively a recent period it had become a serious question as to what use should be made of the slag which is produced in such quantities during the smelting of iron ore; human ingenuity at length solved the problem, and produced from this intractable material a white flocculent substance, known as “mineral wool,” which at once found numerous applications in the arts. Within the last few years no industry, perhaps, has made greater strides than that of paper making, both as regards the material of its manufacture and the applications of the product. Paper wheels for railway cars, paper chimney-pots for dwelling houses, and paper plates and teacups for temporary use for travelers, must suffice as illustrations.

Of course it would be impossible within the limits of so short an article to refer to any more than a few of the more prominent examples of the use of refuse. We have intentionally omitted very many; but the few that we have given will serve the purpose we have in view of showing to how great an extent civilization is adding to the useful products of

the world, both by economizing its resources and calling forth new ones by the aid of chemistry.—*Scientific American*.

[In addition to the above use of the slag or scoria of iron furnaces we read an article, some years ago, that in England the experiment had been made of running it into hot moulds of various forms, and used as building blocks, especially in the form of lintels, sills, mantles, cornices, corner-blocks, column cappings of the different architectural orders, arched window and door headings, chimneys, and various other uses, where they are not exposed to fire heat. The first attempts were failures, inasmuch as the slag had been run into cold moulds and became too porous. Subsequently hot moulds were substituted, which was said to be a success, as the articles came out of the moulds as solid as glass. We have not seen anything recently on the subject; perhaps the substance is too soft and brittle to stand the test of wear and tear, as was the case with those introduced from a neighboring county as paving tiles, and which, so far as our observation extends, are far inferior to common brick; but for other inside purposes this material may be eventually utilized.—ED.]

OWING to unforeseen contingencies neither the Tobacco-Growers’ Association nor the Linnaean Society held their usual meetings in the month of May.

STATE BOARD OF AGRICULTURE.

The Pennsylvania State Board of Agriculture held its regular annual meeting at Doylestown on Thursday and Friday, May 30 and 31st, which was attended by quite a large number of distinguished gentlemen, among whom was Gov. Hartranft. The session was opened on Thursday morning with Hon. M. C. Beebe, Vice President, in the chair, and Secretary Edge in place. The first exercise was an address of welcome, delivered by Mr. Henry T. Darlington, senior editor of the Bucks County *Intelligencer*. At the close of his address Mr. Beebe replied on the part of the Board in a fitting manner, and the session then settled down to its regular business.

Among reports from the special committees presented was one from Mr. Beebe, from a committee appointed to consider the question of improving the fence law of the State. The law of the State in this particular, as defined by the Supreme Court, applies to grass and grain fields—such fences to be five feet high, and made close at the bottom, to exclude animals. Those not having such fences are liable for damages done by stock in the fields. This dates back to 1700. The common law requires stock to be kept in close fields, but this is modified by the act of Assembly in Pennsylvania. Improved land must be fenced, else the owner cannot recover damage done by stray cattle. The inference is that there is no application to woods and unenclosed lands. This act was passed when the country was new and fencing materials plenty—when logs and rails could easily be had by everybody. When the population increased the law seemed to fall into disuse, and the courts made decisions which meant almost anything. The act of 1784, applying to a few western counties, was the same in substance as that of 1700, but making the height 4½ instead of 5 feet, and fixing the space between the rails at five inches. The repeal of these two acts, and the restoration of the common law, is all that can reasonably be asked for of the Legislature. That would require owners only to fence in their own cattle, and not to fence out those of their neighbors. This is now the rule in several other States. The time may come when it will be possible to have all fences removed, and have cattle kept within still closer bounds. The committee therefore recommended the repeal of the laws of 1700 and 1784, so that the common law as stated shall take effect. This report was adopted by the board. Secretary Edge stated that the value of fences in this State amounted to over \$79,000,000, and that it requires a dollar’s worth of fence to keep a dollar’s worth of stock in place.

Easburn Reeder, member of the board from Bucks, read a paper on the cost of making butter per pound. He stated that the Solebury Farmers’ Club, of which he is a member, settled upon 27 cents per pound for the whole year, but according to his calculation 30 cents was about the proper amount. The estimate of Willis Hazard, of Chester county, however, made it 31 cents. According to the report of the board, the average price of producing butter in the whole State was 15½ cents in summer and 20¾ cents in winter. Mr. Hazard said there is a profit gained in the use of farms that is not taken into account. He considered Mr. Reeder’s statement correct. The average product in Chester county is 152 pounds per cow, at an average cost of 31 cents per year.

An essay on the subject, "How to Make the Most Economical Application of Barnyard Manure to Crops," prepared by Col. James Young, of Dauphin, was read by W. G. Moore, of Berks.

Several other reports and essays were read during the session, and on Friday morning Governor Hartman delivered a short address. The board adjourned on Friday, after deciding upon Titusville, Crawford county, as the place for holding the next meeting.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The June meeting of the Lancaster County Agricultural and Horticultural Society was held in the third-story of City Hall Monday afternoon, June 3d, 1878.

President Calvin Cooper being absent, Henry M. Engle was called to the chair, and the Recording Secretary, Jas. F. Witmer, being absent, Johnson Miller was chosen Secretary *pro tem.*

The reading of the minutes of last meeting was dispensed with.

The following members were present: H. M. Engle, President *pro tem.*, Marietta; Johnson Miller, Secretary *pro tem.*, Warwick; Levi W. Groff, Treasurer, West Earl; Peter S. Reist, Lititz; Levi S. Reist, Manheim; C. M. Hostetter, Eden; Henry Kurtz, Mount Joy; John C. Linville, Salisbury; Eph. H. Hoover, Manheim; John H. Landis, Manor; Simon P. Eby, city; Isaac Bushong, Upper Leacock; J. Frank Landis, East Lampeter; Henry Erb, Manheim twp.; Abraham Hostetter, Manheim; E. C. Ernst, Lititz; Prof. S. S. Rathvon, city; Jacob B. Garber, Columbia; Elias Hershey, Paradise; Abraham L. Lehman, East Lampeter; Wm. McComsey, city; C. L. Hunsecker, Manheim; Levi Scarlet, Sadsbury.

Johnson Miller, of Warwick, from the committee on fertilization, reported that he had made arrangements to experiment during the coming season with a number of commercial fertilizers; that he had written to a number of manufacturers for samples of their manufactures, and would in due time report the result of his experiments to the society.

Simon P. Eby, esq., of the city, as a member of the committee to secure for the society a permanent place of meeting, reported that he had conferred with the Property Committee of Councils, and the committee was unwilling to rent to the society for more than a year the third-story room of City Hall, though they believed there would be no difficulty in the society securing the room for a number of years. Mr. Eby thought the society had better remain in the room now occupied than to rent the Hall of the Young Men's Christian Association, which had been kindly offered them at a rent of \$25 per year. The City Hall room could be had for a mere nominal rent, and it would not cost more than \$12 or \$13 to paper it and put it in decent repair. He thought the question of renting a room should be acted on at the present meeting. On motion, the question was postponed to be taken up again before adjournment.

Crop Reports.

Reports of the condition of the crops being called for, J. C. Linville, of Salisbury, reported the crops in his neighborhood as all looking well, though the corn was somewhat backward, owing to the cold weather, and the wheat was somewhat rusted in the blades, but no serious damage was done; the fly had shown itself in some localities but not much damage had been done. Potatoes, sweet potatoes, beans, etc., had been somewhat cut down by the late frosts but were recovering and gaining strength. Clover was in bloom and almost ready to cut; timothy is somewhat backward but healthy; oats is doing well and the fruit crop will be average.

Henry Kurtz, of Mount Joy, reported the wheat as looking well, but has noticed in some fields a kind of rust on the head. He exhibited a few heads thus affected, and said he thought the mischief was done by some small insect. If the season from this time on remained dry he feared the wheat would shrivel, but if the weather remained moist the crop would be a very full one. He reported the grass as being very heavy and rank, and almost ready to cut. Early planted corn looks yellow, on account of the cold, wet weather. Oats looks very fine; rye very large and full, and tobacco reasonably well.

Johnson Miller, of Warwick, reported a full crop of wheat, but the Fultz not as good as the Mediterranean; a large crop of hay is assured; young clover looks first-rate; corn somewhat backward; tobacco mostly planted; potatoes growing finely, and no potato bugs to complain of.

Levi W. Groff, of West Earl, said that the rusted wheat heads shown by Mr. Kurtz seemed to be well filled and would not be, probably, much hurt; late rust does not generally do much damage to wheat. Mr. Groff stated further that a committee of four had visited his farm lately to look at his cultivated wheat and, after examining it closely, had expressed themselves well pleased with his mode of cultivation. Gentlemen from Berks county who had seen it, had commended it in the Reading papers.

John H. Landis, of Manor, reported the grass crop as being remarkably fine; haymaking will commence in a week or ten days; clover is in blossom and very luxuriant; wheat looks encouraging; potatoes are growing finely, and only a few bugs have thus far appeared; corn is yellow in some places, caused probably by the cold, wet weather. The indications are that there will be a full crop of almost everything.

Ephraim Hoover reported that in Manheim and East Hempfield townships the crop of hay would be immense; the season is two weeks earlier than usual, and in some places the grass is already almost fit for cutting. Wheat in some fields looks brown, having been no doubt discolored by the late frost, but he thought it was not much injured. Here and there a cornfield looked irregular and backward, the effect no doubt of the late heavy frosts. Cherries will yield a light crop; peaches will be abundant according to present appearances; apples an average crop, and small fruits the same.

C. M. Hostetter, of Eden, reported the wheat and rye as very promising; the grass the best he had ever seen, especially the young clover and herd grass; apples a full crop; peaches promising; cherries scarce, except the sour varieties, which would yield a full crop; potatoes thriving, though the bugs were numerous about Quarryville and some other sections. On the whole the prospect for good crops was never more promising than now.

P. S. Reist, of Manheim, corroborated the reports of general good crops of grain, grass and fruits; heard of a stalk of rye that measured 8 feet 9 inches in height.

Henry M. Engle, of Marietta, said the reports from all sections were favorable; his own report would be a stereotype of the others; there is a little rust in the wheat, but it is not serious. If the weather should continue dry from this date till wheat harvest, the grain will, no doubt, be shriveled; if moist, the crop will be full and good; the grass is excellent; the corn rather slow, as is always the case with anything that is planted when the ground is wet and followed by a cold rain. Apples are thinly set, peaches fair and cherries short.

Mr. P. S. Reist then read a paper on "When is the best time to harvest wheat?" [See page 85 of this number of THE FARMER.]

Henry Kurtz agreed with the essayist that wheat should be pretty ripe before being cut, but not too ripe.

Johnson Miller thought the essay was to the point. He would recommend the sowing of two varieties of wheat that do not ripen at the same time—say the Fultz and the red Mediterranean. He moved a vote of thanks to the essayist. Carried.

John C. Linville said it is the custom of Western farmers to cut their wheat greener than we cut it in the East. They generally cut their wheat before baymaking. Their wheat is of a brighter color than ours, but one objection to cutting it too green is that it will sprout in the shock if it gets wet. He thinks farmers might cut rather earlier than is their present custom.

Henry M. Engle said a majority of the farmers hold with the essayist that if you want quantity and weight you must cut late; but if quality is what is wanted, then you must cut earlier. Mr. Engle's opinion is that wheat should be cut when the grain has passed from a milky into a doughy state. If left stand until entirely ripe, it does not grind so well; the bran is rough and cannot be cleanly separated from the flour; the result is that though the wheat may have had greater weight than it would have had if cut greener, it will not make any more flour nor of as good quality. The objection to early cutting is that the grain is apt to sprout in the shock. This is an objection and should be carefully guarded against. For forty years he had practiced early cutting and had the grain to sprout only twice. When cut early the straw packs closer, and more can be got into the barn than when cut late.

John C. Linville said that if the wheat was cut green it should be shocked for at least two or three days before hauling in. The shocks should be capped to prevent the rain from sprouting the grain. He did not believe in drying the straw in the swath or too rapidly.

S. S. Rathvon then read a paper on "Local Fruit Nomenclature," which will be found on page 86 of this number of THE FARMER.

Henry M. Engle endorsed the essay. He thought the society should have a committee on nomenclature, to which should be referred for a name all new and good varieties of fruits. By growing seedlings an immense number of new varieties of fruits are being obtained. Many of these are worthless, and should be rejected. The National Society has already thrown out many worthless names. This is right; but no good variety should suffer neglect for want of a name. Already many Lancaster county apples are recorded in the books. Among them he named the All Summer, the Millport Sheepnose and the Mellinger. He has already several of his own seedling peaches in the catalogues. Prof. Rathvon's idea was a very good one, but let us not run into extremes and give names to worthless varieties.

On motion the chair appointed the following com-

mittee on nomenclature: J. B. Garber, Columbia; Levi S. Reist, Manheim; Martin D. Kendig, Manor.

Place of Meeting.

On motion of John C. Linville, the society, after considerable discussion, resolved to continue to hold its meetings in the third story of city hall, and the committee, of which Simon P. Eby is chairman, was authorized to have the room papered and put in proper condition for the use of the society. The thanks of the society were tendered to the Young Men's Christian Association for the generous offer of their room as a meeting place for the society.

Wheat Cultivation.

Wm. McComsey, whose business called him away from the meeting, left with the president the following paper, which was read:

By invitation of Mr. Groff, Mr. John K. Reed and myself constituted ourselves a committee to visit his farm to see and judge for ourselves as to the advantages of the new method of cultivating wheat. We spent a very pleasant day, not only in the enjoyment of the beauty and loveliness of the country at this season of the year, but also through the kindness and generous hospitality of Mr. Groff and his family. And our observations seemed to justify all we had heard in favor of the new method. A look over Mr. Groff's wheat fields was not only a pleasure but a rare sight. I have traveled through most of the wheat growing States and have never seen anywhere a finer crop; and thought the advantages of the new method of its cultivation so apparent that no better evidence could be required than may there be seen.

The wheat was then, May 10th, about three feet in height, perfectly uniform throughout, and, although the drills or rows are nearly a foot apart, completely covered the ground. While much of the wheat on other farms was very heavy and somewhat lodged, Mr. Groff's all stood perfectly straight, owing to its being much thicker and stronger in the straw. Mr. Groff would no doubt have secured a good crop by the old method, but careful comparison with other wheat in the same neighborhood seemed to warrant the conclusion that cultivation by the new method will increase his average yield from five to ten bushels per acre. And it is believed that with a less favorable season the advantage would be still more apparent.

When this subject was first discussed by this society it was thought that cultivating wheat in the spring would destroy the young grass. Experience has proven the contrary. The grass appears to be equally benefited. Mr. Groff has a ten acre field of grass, timothy and clover mixed, which Mr. Reed, himself an experienced farmer, pronounced the best he had ever seen, and gave as his opinion that it would make three tons of hay to the acre. The timothy was sown broadcast in the fall after seedling, and the clover after cultivating the wheat in the following spring. Young clover sown after finishing the cultivation of the wheat—less than three weeks previous to our visit—presented the most healthy and promising appearance of any I ever saw; and I feel confident that sowing the seed on soil thus prepared will prove to be an effective remedy against failure in this respect.

John C. Linville said that if the timothy was sown broadcast in the fall, as above stated, much of it must have been torn out by the cultivation of the wheat in the spring; so whatever timothy there is left must be principally in the rows of wheat, while the clover sown in the spring must be principally between the rows.

Levi Scarlet, who had visited Mr. Groff's farm, in company with Dr. Gibbons, and had been shown through two fields of the cultivated wheat, said he found it decidedly better than the uncultivated wheat in adjoining fields. The stalks were stouter and stronger than the others, and averaged five and a half feet in height and unusually well headed. There were two varieties under cultivation, the Amber and the Clawson. The young grass growing in the wheat looked very fine. The cultivation had not destroyed the timothy, as Mr. Linville suggested it would do. He believed Mr. Groff's system of cultivation to be an excellent one.

Levi W. Groff extended a general invitation to the members of the society to visit his farm and take a look at his wheat before it was cut. He hoped the chair would appoint a committee to examine and report. He could not tell just when the wheat would be ready to cut, but he thought it would be ready in three weeks. He would name the day hereafter. He would be obliged to members who intended to come and see him if they would drop him a postal card announcing the fact, so that he might know how many to provide for.

The chair appointed the following committee: Calvin Cooper, M. D. Kendig, Joseph F. Witmer, H. M. Engle, Johnson Miller, C. M. Hostetter, Levi S. Reist.

Business for Next Meeting.

The following are the subjects to be considered at next meeting:

"Cultivating and marketing vegetables." For general discussion.

"Crop Fertilization"—Essay by Jacob Stauffer.

Testing Fruits.

The only fruits on exhibition were three varieties

of strawberries presented by Henry M. Engle, all of which were very fine. They were Crescent Seedling, the Charles Downing and the Jucunda.

On motion, adjourned.

MAY MEETING FULTON FARMERS' CLUB.

The May meeting of the Fulton Farmers' Club was held at the residence of Day Wood, Fulton township, on the 4th instant. Visitors present by invitation—Isaac Bradley, Amos K. Bradley, William Shoemaker and Granville B. Wood, M.D.

The President, Joseph R. Blackburn, being absent, E. Henry Haines was called to the chair. The minutes of last meeting were read and approved. No agricultural or horticultural specimens were exhibited. The question, "Is the cultivation of broomcorn profitable?" was asked by S. L. Gregg. The members all thought that in late years corn would be more profitable, though several of them raised enough for their own use.

Josiah Brown asked if this would be the proper time to sell wheat? Nearly all thought it would be better to sell than to hold on to it. E. H. Haines said that you could decide the matter as easily by pitching pennies as by any other way. A few years ago he had gone to the trouble of examining the New York market reports for years back, and had found that the best time for selling wheat had generally been in September, and February for corn.

G. B. Wood asked—What is the proper time for sowing Hungarian grass? Answer—As early as possible after the corn is planted, though it will do well as late as the 1st of June. Late sowing, however, is apt to make the harvesting of it come in bad weather. Cut it when the stalk begins to get yellow, after the seed is shaped.

Josiah Brown: Would it not be better to cut grass earlier than we usually do?

Amos K. Bradley: It is better to cut young for quality, but the quantity is increased by letting it stand.

Isaac Bradley: The hay is better if you succeed in getting it well made, but it is more difficult to make.

Wm. King: If hay is cut for sale, the weight of it will be much increased by letting it stand until it is ripe. Wm. P. Haines added: And according to city ideas such hay is preferable.

C. Sumner Gatchell has been cutting clover when one-third of the heads are dead, but thinks of cutting earlier hereafter. He would cut timothy just before the pollen comes off.

Josiah Brown had long thought that grass had been left too long before cutting, and spoke of the practice of an old farmer in the neighborhood, who died a few years ago, which was to cut before any of his neighbors. This man was said to have fed his horses very little grain, but they were always in good condition.

Day Wood asked if it was profitable to raise sugar cane? Only one present thought so, and he did not raise it.

Dinner and Inspecting the Host's Farm.

After partaking of a good, substantial dinner, the club, as usual, viewed the live stock and farming operations of the host. After reassembling in the house the nice condition of the fine herd of dairy cows, young cattle, sheep and hogs, were spoken of by nearly all present. The host is a successful breeder of Poland China hogs, and it was noticed that the quality of even this thoroughbred stock had been much improved since the club had last met at the place.

An article from the *Country Gentleman*, on the early cutting of grass, was next read by the host, stating that hay from such grass was worth from four to five per cent. more than when made from grass cut when over ripe—such hay being but little better than straw.

This revived the hay question again, and Dr. G. B. Wood asked if it would be advisable to procure hay-tedders? No one present had any experience with them. Several had heard very favorable reports about them, but the general opinion was that the cost of them would overbalance the advantages with ordinary farmers.

The question—Has the fertility of the farms in this section been decreasing during the last fifteen years? —was then taken up.

Wm. King thought that if we go no further back than fifteen years we must answer that the fertility of our soils was increasing. For a period previous to that time he thought the productiveness of our farms was not so great as formerly.

The land had first been enriched exclusively by the use of lime, and farmers had come to the conclusion that it was all sufficient to keep them up. This was a mistake. Now other fertilizers were being used in connection with it, and the land was becoming more productive.

S. L. Gregg did not think the land less productive than formerly. The seasons for the last five years had not been very good, and as a general thing less hay and straw was raised. With him the lime business was about played out.

Wm. P. Haines did not think the land better than

it was fifteen years ago. The land about here was all made up with lime. Fifty years ago his farm was poor, but lime has brought it to its present state. When farmers made more use of lime they did not break up as they now do.

C. S. Gatchel knew of some farms that had been brought up with lime, and although lime was still applied to them they were going down, which was evidence that a change of fertilizers was needed.

Isaac Bradley did not think the land is getting any poorer. For several years there was less rainfall, the streams were low, and vegetation affected thereby. Last year it was better; the streams were full and crops better.

Dr. G. B. Wood thought the volume of water in Conowingo creek still much less than formerly. There is more clear land, and consequently more evaporation. He cited the experiment of John I. Carter on the Experimental Farm, with 200 bushels of lime per acre. It showed a decided advantage, but did not pay.

Josiah Brown thought the land as good as formerly, if not better. The reason why as good crops were not raised was owing to the season. Had been on the farm where he now resides for twenty years, and can raise as good corn as ever, but not as good grass. Has been keeping his place up with lime until within a few years, when it did not seem to be doing as much good as formerly; has been trying other fertilizers since.

After some other miscellaneous business the club adjourned to meet at the residence of E. Henry Haines, Fulton township, at the usual time.

REMINDERS FOR JUNE.

GENERAL SUGGESTIONS.—Now that strawberries—the most delicious of summer fruits—are coming in, we may be excused for making much of them. Attend to the beds closely, and keep the plants fresh and vigorous, and your daily pickings of the luscious berry will be generous. Put the fruit on the table unhulled, and eat them with the fingers, or make them into a lily with rice. Put the largest and sweetest currants upon the table on stems. Stew them also with sweet dried apples. Have an abundance of the best cherries; if possible, enough for yourselves, the birds and the children. Teach the latter not to eat fruit between meals, and set them the example. Can berries of all sorts, or dry them, and save the juices of all these fruits, too.

See to the children, their work and play, that all things may be conducive to good. The garden abounds with object lessons. Make them to understand, as far as practicable, whatever they do. Teach them to see and know weeds, and to pull them; but don't overwork them. That will be the principal work for the garden this month. Put in an abundance of sweet corn for eating green. Where it fails, put in beans, also beans for the main crop (in abundance), more Limas and white wax. In the house, so plan your supplies that you will have as little as possible in the meal-room to keep through the hot, sultry month.

It is a good plan in gardening to label everything when planted, and also put it down in a blank-book, so that if labels are lost, the kinds can be identified. This book should also record dates and experiments, and therefore be of much value. Watch for currant worms, squash bugs, etc., and destroy the flies and eggs on the leaves before they are hatched. Carefully put all weeds and garbage into compost heaps and cover with earth. See "How to Raise Fruits" for directions. Price only \$1.

Asparagus beds keep clean. Beans, Bush or Bunch, plant for succession, and cultivate those in growth. Beets, thin the later planting. Broccoli, plant out those sown in April. Cabbage ditto, especially the sorts which it is desired shall come into use in September and October, in advance of the winter varieties. Celery, plant out a portion for early use. Cucumbers, sow successive crops. Corn, Sugar, plant for a succession. Endive, sow. Leeks, thin or transplant. Peas, a few may be planted as a succession.

AGRICULTURAL.

How to Use Fertilizers.

In general, the use of a single fertilizer will be found profitable as a farm practice only in connection with manure or on land in strong heart, and the poor farmer will never succeed in enhancing the cropping capacity of his farm to an increased profitable position through the use of one fertilizer alone. Much of the discredit which artificial fertilizers have won has arisen from a non-appreciation of the fact that they cannot supersede dung, but must be used in connection with other plant food. A superphosphate, or a nitrogenous, or a potassic manure can always find place on a farm, but can never take the place of manure in farm practice, and the sooner this false hope is destroyed the better it will be for all concerned. A mixture of chemicals or other elements containing the food that plants require does, however, offer promise of practical results on the farm, and can be offered in competition with dung, so far as the result in crops is concerned. This,

then, is the promise of the complete fertilizer; if the farmer has dung sufficient for five acres only, and wishes to cultivate ten or twenty or more in addition to what his dung supply will allow, then he must rely on the complete fertilizer for every acre in addition to what his dung will cover. The experience of ages has shown the reliability of dung; all the best modern experiments we have show the efficacy of a mixture of chemicals in taking the place of dung, provided they supplement the soil supply so as to furnish to the crops the elements shown by analysis to exist in dung. We cannot fairly compare a superphosphate in its results with dung; a single element with a complete fertilizer. The recognition of this fact by farmers will make revolution in farming and will disperse much of the fog which interested parties have thrown about the question of fertilizers. In a final word, all the best experiences and experiments, as we interpret their meaning, point certainly to the facts we here claim, that the single fertilizer element must find its profitable use in connection with other manures, while the complete fertilizer alone can be expected to furnish material in a form adapted for farm practice, and is the only form of artificial fertilization as yet discovered which offers a means of extending an arable land beyond the ability of the dung keeps to supply.—*Scientific American*.

Hoeing Wheat.

The *Practical Farmer*, in reply to a question as to the practicability of hoeing wheat, says: "The advantages would seem to be the same, in degree at least, as in hoeing corn or any other crop. It destroys weeds, loosens up the soil, letting in air and sunshine to the roots, giving increased life and vigor to the plant. Hoeing wheat is a new business, comparatively, in this country, and yet we have records of experiments sufficient to prove that the plant responds to cultivation in a marked manner. We have before us accounts of experiments in Michigan, last spring, with a machine constructed for the purpose. Strips of equal size were hoed and left unhoed, and not one of some five or six experimenters estimate the gain of the hoed over that left unhoed at less than twenty-five per cent., and the general opinion seemed to be that the net profits could be doubled by proper cultivation."

Hoeing wheat in the fall after the plants are fairly established would appear to be beneficial, but the principal benefit is in the spring, as then the ground has become solid and packed. This should be done as soon as the ground has well settled, and grass or cloverseed sowed immediately upon the fresh, mellow surface. Machines for hoeing have the seed sowing attachment, which does the work all at once. Timothy or clover will rarely miss when sowed in this way. Wheat that has been drilled in is in the proper shape for cultivation, but, perhaps, as ordinarily drilled, it is too thick for the best results. It will require a number of well-directed experiments to determine all these points, but these can be conducted with so little trouble and expense, that the wonder is we know so little about the whole matter. Would it not be well for those readers who have drilled wheat, to try this spring what a single hoeing will have on both wheat and grass or clover sowed after hoeing? Stake out a small plat of definite area, if only a square rod; give it one good hoeing as soon as the ground will admit, in the spring, harvest this square rod by itself and see how it compares with the rest of the field, or with any other square rod equal in soil and condition previous to hoeing.

The Value of Hen Manure.

By what we see on the most of farms we are led to believe that but little value is placed on the hen manure, which is left to accumulate wherever it is dropped, until around some farmers' premises it might be gathered up by the wagon load. Now this, when properly applied to corn or other crops at planting time, has given the best of satisfaction, and the experiences of those who have used it is that it is far ahead of any fertilizer that can be bought in the market at \$40 per ton. Among farmers there is a difference in the manner which this home-made fertilizer shall be mixed and applied. But the present opinion of those that have tried it for some time is, that equal parts of hen manure and plaster be well mixed up together and applied on the hill, as soon after planting as it can be conveniently done. Some have tried mixing ashes with the hen manure, but after a trial are well convinced that this is wrong, as the ashes do more hurt than good; they weaken the mixture by letting much of its valuable properties escape in the atmosphere. Again, others have applied a mixture of plaster, hen manure and salt, a small handful on the hill, and the corn dropped on it. But when this is done care must be used or it will prove too strong for the corn. It may be placed so close to the corn as to injure the germs so that the seed may not sprout. I once saw a neighbor apply about a quart of hen manure, as an experiment, to some cabbage plants that he was setting out, which his brother said would surely kill them, but it did not: on the contrary it made them grow very finely, and he had a very fine lot of cabbage, while some of his neighbors had "nary" one, although their gardens

were in other respects equally as good as his. Let us here say to all that keep fowls, see that they roost in a place where their droppings can be saved, and they will prove one of the best manures that can be obtained.

Protecting Cornfields from Birds.

The crow, the blackbird and the blue-jay are the only birds that molest our cornfields, and this for a period of about two weeks, starting from the time the crop is up. To protect the fields against their depredations many devices are resorted to, two of which at least are effectual, the rest doing little or nothing in averting the mischief. The first is the running of a twine around the field, elevated six to eight feet from the ground on poles; but this requires time and is somewhat expensive. The other is to sow corn over the field to feed the hungry birds. It is not necessary to extend this sowing over more than a small portion of the ground at two or three different places, at the head-lands. The depredators would soon discover the charitable donation and be perfectly satisfied with the arrangement, leaving the young plants unharmed. In providing this remedy the time spent would be trifling, and the whole cost from a half to a bushel of corn. But it should be remembered that the crow never eats *hard* corn. If found hard it is carried off, six to eight grains at a time, and buried until it becomes soft. Therefore the corn, before being scattered, a portion at a time, should first be *well-soaked*. With this precaution we think we can promise any cornfield to be free from the depredation so much complained of in certain seasons.

Buckwheat.

The name comes from beechnut, because the seed resembles the Beechnut in shape, but has been corrupted into buckwheat. It is a native of Asia, and was brought into Europe either by the Crusaders, six or seven hundred years ago, or into Spain by Moors. It did not reach England until the last 250 years, but just in time to come over with some of the earliest settlers in America. It was first cultivated by the Hudson river Dutch, and by the Swedes on the Delaware. The Dutch mention it as early as 1625, and from what they say on the subject it is quite certain that they knew quite as much about buckwheat cakes as was ever worth knowing. From these two centres of early settlement the cultivation spread over New York, New Jersey and Pennsylvania, following the colonists into the new homes they cleared up in the forests as certainly as the honey bee follows in the pathway of the western pioneer, making his home wherever the white man builds his cabin. These three States have always been immense producers of buckwheat, growing two-thirds of the whole quantity raised, now amounting to millions of bushels annually. Its cultivation is rapidly extending through the North and Northwest, until the present annual product is over 30,000,000 of bushels.

Soot and Wireworms.

A writer in *Land and Water* says, that a gardener found the wireworms so abundant in every part of his garden that he could scarcely grow a potato or carrot without it being rendered useless by them; and among the various things he was led to adopt as preventives, soot appeared to be the only effectual one. This he applied to potato crops in the following manner: The drills were got ready in their usual way, and the sets laid in at the bottom of each drill; the soot was put down upon them in quantity sufficient to cause the drills to assume a pretty black appearance; then the drills were closed in the ordinary manner to the natural level, and the work was finished. Wherever soot was applied the crops turned out clean and good, scarcely a trace of the wireworm's ravages being visible; but the yield from rows not dressed with soot were quite another look, the potatoes being pierced through in every direction and fit only for feeding pigs.

Manure for Tobacco.

Dr. Ledoux, chemist of the North Carolina department of agriculture, in answer to a request for a formula without cotton seed or marl as a basis, gives the following, of which he recommends 400 to 600 pounds to the acre:

Stable manure, mould, etc.....	1000 lbs.
Sulphate of potash.....	300 "
Sulphate of ammonia.....	100 "
Sulphate of magnesia.....	100 "
Dissolved bone.....	400 "
Laud plaster.....	100 "
	2,900 "

Muriate of potash is often used instead of sulphate, but produces a poorer quality of smoking tobacco.

EVERY farmer should keep a pot of mixed paint in his workshop, and should apply it liberally to plows, wagons, harrows, reapers, and all implements that are exposed to the weather. This will cause them to last twice as long as usual. Farming tools and implements are less frequently worn out by hard service than by useless exposure to the weather when not in service.

HORTICULTURAL.

Thinning Out Fruit.

It may be considered somewhat early to make suggestions on the subject of thinning out fruit, but it can never be too early to give good advice, and we think as pear and peach trees are beginning to show their products, the thinning out process may be begun at almost any time.

It is true the operation can be performed conveniently only upon such trees that are not over large. But it should be especially attended to in young trees, which frequently over-bear to the great injury of the health of the trees, as well as the quality of the fruit. To obtain the finest specimens, they should not be allowed to grow in clusters or in contact with each other, and all that exhibit the least imperfection should be removed. What is lost in number will be doubly made up in size and flavor. This should be remembered. Many persons regard the thinning out of peaches, pears and apples as so much loss; but they are not judges of fruit, and have no knowledge of its proper culture. They want as large a crop as possible, letting the quality take care of itself, no matter how much the tree is damaged and what effect it may have on next year's crop.

On some of our own pear trees we sometimes remove three-fourths of the entire crop, and afterwards find the tree to grow more than is advisable. Occasionally, with dwarf trees, we do not allow more than one in ten to remain, when the tree is small.

It goes hard with some people to diminish the quantity of fruit upon their trees. Sometimes they plead want of time; but this is not admissible, for if they have not time to attend to the proper cultivation of fruit they should abandon it altogether. The real cause is their greediness. You can't make them believe that they are the gainers by destroying a portion of the crop, saying that nature is the best judge as to the quantity of fruit. Such persons have no practical knowledge of fruit-raising, and the sooner they give it up the better it will be for them, their pockets and reputation.

Protecting Trees Against Worms.

The bandage system, which we were the first to suggest some twenty-five years ago, and often referred to since, is the only effectual protection we have yet seen against the operations of the worm in fruit trees. We repeat again that in not a single instance have we ever had a worm in our dwarf pear trees where this was properly attended to. It is simply to bandage the bottom of the tree with any kind of muslin or cloth and tie it, letting the bandage be about six inches above ground and two inches below. It should be applied as soon as the ground is in a fit condition to go upon. These bandages should be removed at the end of October, but it will do no harm to let them alone, only that they remain in good condition for another season. As long as this is continued we defy the worm. The beetle lays its eggs an inch or two above the ground early in the spring, that is as soon as the warm days in March will admit of its coming forth from its winter-quarters; the eggs are soon hatched by the sun, being laid on the sun-side of the trunk, and the young grub finds its way down to the soft bark beneath the soil where it gradually works its way in. The bandage prevents both the laying of the eggs and the descent of the grub. Let doubters try it. One man will bandage two hundred trees in a day. It may also protect the peach tree in the same way.—*Germantown Telegraph*.

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 gradually 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 close together as the size of the head 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*.

Flower Pots.

Save the tin fruit-cans, and convert them into tasteful flower pots in the following manner: With a can opener cut off any rough or projecting portions of the cover, leaving a narrow rim to project inward.

With a pair of pliers or small hammer, bend this rim down. This gives firmness to the top of the can. Punch three or four small holes through the bottom of the can. Then paint it with varnish made of gum shellac dissolved in alcohol, and colored with lamp-black and a little yellow ochre to give a dark brown color. The cans may be ornamented by pasting on them little medallion figures or pictures. They are handsomer than the ordinary flower pots, require less watering, and keep the plants free from all insects, owing to the presence of iron rust in the can. One of the prettiest arrangements for plants we have seen was a window with two narrow shelves placed one above the other, on which were these home-made flower pots, containing heliotropes, geraniums, pinks, begonias, petunias, fuchsias and other plants, all as thrifty as if grown in a greenhouse. They should be showered once a fortnight with lukewarm water, using a whisk broom for the purpose, and watered sparingly every second day. On very cold nights newspapers may be placed between the window and the plants, to protect them from frost.

Is the Strawberry Wholesome?

Some people can digest anything. The ostrich enjoys iron spikes and barrel hoops. Strawberries to the great majority of people are certainly wholesome, or at least not directly injurious; but that they are universally wholesome and unequalled by any other fruit, as it is claimed, we deny. Many people cannot eat them at all. We do not allude only to persons liable to attacks of gout or skin diseases, to whom strawberries are almost poisonous, but to those who are in the enjoyment of general good health. They seem to affect the tissues and excite the blood, producing pimples, blotches and even boils. We saw a young lady, a belle, at a fashionable watering-place, three or four years ago, who was obliged, much to her discomfiture, to confine herself to her room for ten days from eating a plate of strawberries in the evening. And we have known of many others who were forced to abstain from their enjoyment altogether for the same reason.—*Germantown Telegraph*.

Success of an Exposed Orchard.

J. M. Smith, of Green Bay, Wis., has a pear orchard one and one-half miles east of the city, upon the highest point of land, a white oak ridge, in the most exposed situation, and without any sort of protection from the north or west winds. Of fifty trees planted in 1861 thirty-four are now bearing, twenty-two of which yielded fruit this year. These trees are models of beauty and fruitfulness, and commenced bearing in 1867; have borne good crops since 1870. The years 1872, 1874 and 1876 gave enormous crops, and the off years fair crops. This orchard has been in blue grass for the last twelve years. Very little blight has ever appeared, and none this year. It is thought the secret of success in this case is the free circulation of air, steady growth on a medium soil, unenriched, contrary to the old theory that protection to the trees is the only road to success. Mr. Smith's trees are common ones, the Flemish Beauty perhaps doing the best of them.

The Egg-Plant.

This vegetable is perhaps the most difficult to cultivate of any to be found in the garden, owing to the tenderness of the plant, when set out. The young plants must, of course, be grown in a hot-bed, and can be purchased at some nurseries or from others who raise several kinds of early plants for sale. They should not be set out before the last week in May, and generally the first week in June is better, to provide against frost or cool nights, and they should be covered with old newspapers or boxes until firmly established. A single cold night will put them back two or three weeks, and sometimes render them unfruitful. As they have small roots occupying a very limited space, they should be planted in the richest soil, and have the best stable manure liberally applied. They should then be mulched with grass or light manure and the ground frequently stirred and the mulching renewed.

A Hint to Geranium Growers.

In flowering seedling geraniums the process which I generally practice after the plant has grown some eight inches is as follows: I make a six-inch cutting of the top, dry it in the shade for a day, and insert it in sand or sandy soil, keeping it moderately dry until rooted, when it should be potted and shifted, as it requires, or planted out in the ground. By this means seedling geraniums are made to flower much quicker and grow dwarfer than on the seed roots, and where room is no object and stumps are kept, you get two plants instead of one, which is a great advantage if the seedling be worth preserving.

A MAMMOTH bunch of grapes, six feet in circumference and three feet long, and weighing 125 pounds, was recently exhibited in San Francisco. It was from the great vine at Santa Barbara, which is 16 years old, and produces annually from 18,000 to 20,000 pounds of grapes.

DOMESTIC ECONOMY.

Selecting Meats.

In selecting beef to roast, if it be for a small family, the rib is by far the best and most tender cut; have some of the bone removed, then make your butcher skewer the beef. The best beefsteak for broiling is porter-house. The best beef for a la mode is the round; have the bone removed and trim off all the gristle. For corned beef the round is also the best. For a mutton roast choose the shoulder, the saddle, or the loin and hunch. The leg should be boiled. Small rib chops are best for broiling; those cut from the leg are generally tough. Mutton cutlets to bake are taken from the neck. For roast veal the loin, breast or shoulder is good. Veal chops are best for frying; cutlets are more apt to be tough. In selecting beef take that which has a loose grain, easily yielding to pressure, of dark red color, smooth, with whitish fat; if the lean is purplish and the fat is yellow it is poor beef. Grass fed is the lightest, ox the best, and next the heifer. Perhaps the nicest mutton roast is a small leg, the bone taken out and the cavity stuffed with forced meat. The best beef roast is (for three) about two and a half or three pounds of porter-house. Sirloin ranks next. A rump roast is very nice. Two to three pounds is a very great plenty for three. In chops, we think, that from the hind leg of mutton best, unless you can get a "meaty" sirloin. The same in pork, about one and a quarter to one and a half pounds is sufficient; beefsteak about the same quantity. Porter-house is cheaper than sirloin, having less bone. Rump steak and round, if well pounded to make them tender, have the best flavor.

The Uses of the Lemon.

Few people know the value of lemon juice. A piece of lemon bound upon a corn will cure it in a few days; it should be renewed night and morning. A free use of lemon juice and sugar will always relieve a cough. Most people feel poorly in the spring, but if they would eat a lemon before breakfast every day for a week—with or without sugar, as they like—they would find it better than any medicine. Lemon juice, used according to this receipt, will sometimes cure consumption: Put a dozen lemons into cold water and slowly bring to a boil; boil slowly until the lemons are soft, then squeeze until all the juice is extracted; add sugar to your taste and drink. In this way use one dozen lemons a day. If they cause pain, lessen the quantity and use only five or six a day, until you are better, and then begin again with a dozen a day. After using five or six dozen the patient will begin to gain flesh and enjoy food. Hold on to the lemons, and still use them very freely for several weeks more. Another use for lemons is for a refreshing drink in summer, or in sickness at any time. Prepare as directed above, and add water in sugar; but in order to have this keep well, after boiling the lemons squeeze and strain carefully; then to every half pint of juice add one pound of loaf or crushed sugar, boil and stir a few minutes more until the sugar is dissolved, skim carefully and bottle. You will get more juice from the lemons by boiling them, and the preparation keeps better.

Cellars.

Cellars are a nuisance in hygienic point of view, but as they are, under present circumstances, a necessity in household economy, they should be so constructed as to avert, as far as possible, their effects. These arise from dampness and from gases, which ascend to the rooms above, and affect the health of the family. To prevent this, let the ceiling of the cellar be plastered, and let the plaster extend to and connect with the cellar walls, so that no dampness or odors can pass between the partitions or walls of the house or through the floors. Let the cellar be thoroughly aired and dried as frequently as the weather will admit, and cleaned often. Let no vegetable or other matter begin the process of decay in it, and if it is discovered to have done so, remove it at once, and purify the air by the opening the cellar windows. A cellar should never be dug in a wet soil. Better put up with a thousand inconveniences than run the terrible risk of living daily over such a breeder of miasmatic poison.

Work Baskets.

Take wrapping twine or carpet warp, and commence at the centre of the bottom and crotchet round and round, thick and close, in short double crochet stitch, keeping it widened so it is flat, and when you get it as large as you want it make the sides in shell work. Starch it very stiff and dry it in the oven, with the door open. Dry it over a flower pot, vegetable dish, or anything you like. They are very convenient to set on a sewing machine and hold a thimble or thread. If wanted very elaborate varnish with black varnish and trim with scarlet worsted or ribbon. Anyone familiar with a crochet-needle can readily make one from the above description. An extra nice, soft dish-cloth can be made of candle-wicking, loosely knit or crotcheted on large Afghan needles.

Household Receipts.

A GOOD waterproof cement may be made by mixing glue 5, rosin 4, red ochre 3 parts, with a little water.

A TRANSPARENT MUCILAGE of great tenacity may be made by mixing rice flour with cold water, and letting it gently simmer over the fire.

FILLING FOR CRACKED CEILING.—Whiting mixed with glue water, or calcined plaster and water makes a good putty for filling cracks in plastered ceilings.

FOR RICE GRIDDLE-CAKES AND WAFFLES, USE THE COLD RICE LEFT FROM DINNER, ADD MILK, SALT AND BUTTER SUFFICIENT TO MAKE IT THE REQUIRED CONSISTENCY FOR EITHER GRIDDLE CAKES OR WAFFLES.

HERE IS A RECEIPT FOR A NUTRITIOUS DRINK FOR EITHER INVALIDS OR GIANTS: BEAT UP A NEW-LAID EGG, POUR ON IT HALF A PINT OF BOILING MILK, SWEETEN TO TASTE, AND FLAVOR WITH LEMON-PEEL, NUTMEG OR VANILLA. SERVE COOL IN A GLASS.

THOSE WHO ARE TROUBLED WITH MOTHS, NOTE THE FOLLOWING IN ANTICIPATION OF THE SPRING: GUM CAMPHOR OR KEATING'S PERSIAN INSECT DESTROYER, PLACED IN THE DRAWERS, OR DISTRIBUTED THROUGHOUT THE PLACES THE MOTHS FREQUENT, WILL PROVE EFFECTUAL INSECTICIDES.

TO CLEAN PAINT smear a piece of flannel with common whitening, mixed to the consistency of common paste, in warm water. Rub the surface to be cleaned quite briskly, and wash off with pure cold water. Grease-spots will in this way be almost instantly removed, as well as other filth, and the paint will retain its brilliancy and beauty impaired.

A PRACTICAL AUTHORITY ON HOUSE-PAINTING STATES THAT PAINT APPLIED TO THE EXTERIOR OF BUILDINGS IN AUTUMN OR WINTER WILL ENDURE TWICE AS LONG AS WHEN APPLIED IN EARLY SUMMER OR IN HOT WEATHER. IN THE FORMER CASE IT DRIES SLOWLY AND BECOMES HARD LIKE A GLAZED SURFACE, NOT EASILY AffECTIONATE AFTERWARDS BY THE WEATHER, OR WORN OFF BY THE BEATING OF STORMS.

WHEN MEATS ARE BROILING ON A GRIDIRON, OVER HOT COAL, THE SUDDEN HEAT APPLIED SEARS THE OUTSIDE, WHICH SHUTS IN THE JUICES, AND THE RAPID APPLICATION OF HEAT SOON COOKS THE MEAT THROUGH, IF IN MODERATELY THIN PIECES. IT IS THEN TENDER, JUICY AND PALATABLE. THOSE WHO NEVER BROIL THEIR FRESH MEAT, FISH OR POULTRY DO NOT KNOW THE EXCELLENCE OF A PROPERLY COOKED DISH OF ANIMAL FOOD.

CLAM SOUP.—Boil one peck of clams in two quarts of water about twenty minutes, or until the shells open; pour into a pan until cool enough to handle, then shell the clams, cutting off the head and the black spot on the side of the belly; strain the liquor on to the clams; put them back and bring to a boil; skim and add cracker crumbs, a small bit of butter, and a quart of milk; let it scald and serve hot.

DRIED PEACH BROWN BETTY.—A layer of peach sauce in the bottom of the pudding dish, a layer of bread crumbs about an inch thick, sprinkled with sugar; another of stewed peaches, and a second layer of bread crumbs and sugar, with enough thin, sweet cream poured over the top to wet the upper layer of crumbs. Bake from half an hour to an hour, according to the heat of the oven. This is to be eaten with good milk, but sweetened cream will not spoil it.

MUTTON SOUP.—Take the fore-quarter of mutton, cut out the bone from the shoulder, and put it down to boil in two quarts of water; as soon as it boils skim it well; set it where it will keep simmering for an hour; then add the meat, also more boiling water; skim again as soon as any scum arises; grate one good sized carrot, chop three onions, three yellow turnips, and some celery quite small, and add to the soup; boil slowly five hours; soak a cupful of rice or barley, according to taste, in some tepid water, and add with the meat; season with the grated rind of a lemon, a little chopped parsley, salt and pepper, and a sprinkle of nutmeg.

PEA SOUP.—Use half a pint (cost three cents) for every two quarts of soup you want. Put them in three quarts of cold water after washing them well; bring them slowly to a boil; add a bone, or bit of ham, if you have it to spare, one turnip and one carrot peeled, one onion stuck with three cloves (cost three cents), and simmer three hours, stirring occasionally to prevent burning; then pass the soup through a sieve with the aid of a potato masher, and if it shows any sign of settling, stir into it one teaspoonful each of butter and flour mixed together dry (cost two cents); this will prevent settling; meantime fry some slices of stale bread, or use dry bread to serve with. The soup should boil down to two quarts, and should cost ten cents.

CLAM CHOWDER.—Boil one peck of clams in two quarts of water about twenty minutes; then fry two or three slices pork in a spider; when well done place in kettle, then half the clams on the pork; slice six good sized potatoes and one onion on the clams; sprinkle with salt, pepper and flour, and pour over them part of the pork fat, then the remainder of clams and as many more potatoes, with another sprinkling of pepper, salt and flour, and the remainder of the fat; pour the liquor in which the clams were boiled over them, and if it does not cover the potatoes add a little water; cover close and boil until the potatoes are well cooked; then moisten a dozen crackers, put them in and pour a quart of milk over them, allowing it to become scalding hot, when it will be ready for the table.

LIVE STOCK.

Raising Pork.

I WISH TO GIVE YOUR READERS MY PLAN OF RAISING PORK CHEAPLY, AND IF ANY BROTHER FARMER HAS A BETTER WAY I SHOULD LIKE TO KNOW IT, AS I AM OPEN TO CONVICTION AND ANXIOUS TO LEARN HOW TO MAKE THE MOST MONEY OUT OF MY HOGS IN THE SHORTEST TIME AND AT THE LEAST EXPENSE. MY PLAN IS TO SECURE AS GOOD A BREED OF HOGS AS POSSIBLE (MY PREFERENCE IS FOR THE POLAND OR MAGIES). DURING THE SUMMER I ALLOW THEM PLENTY OF RANGE ON A GOOD PASTURE OF MIXED GRASSES—BLUE GRASS, TIMOTHY, WHITE AND RED CLOVER—AND PLENTY OF PURE WATER, AND GOOD SHEDS TO SLEEP OR LAY IN OUT OF THE RAIN AND HEAT. I FEED THE YOUNG PIGS SHILLED CORN SOAKED PRETTY FREELY, IF I HAVE IT. THE OLDER HOGS GET NO CORN FROM JUNE 1 UNTIL CORN BEGINS TO HARDEN, SAY SEPT. 1. I GRADUALLY INCREASE THE FEED, AND AM CAREFUL TO KEEP PLENTY OF SALT, ASHES AND SLAKED LIME IN A TROUGH WHERE ALL CAN HAVE ACCESS TO IT. ABOUT OCTOBER 1ST I WILL TURN MY ENTIRE HERD OF 200, LITTLE AND BIG, INTO MY FIELD OF RED BRAZILIAN ARTICHOKEs. OF THESE I HAVE SEVEN ACRES, AND I THINK THEY WILL SUPPLY THE HERD WITH ALL THE FOOD THEY WANT UNTIL WINTER CLOSES THE GROUND, AND WHEN SPRING OPENS WILL SUPPLY THEM WITH FOOD UNTIL THE MIDDLE OF MAY. DURING THIS TIME MY STOCK HOGS WILL GET NO OTHER FOOD; BUT THE FATTENING HOGS WILL HAVE IN ADDITION A FEED OF CORN AT NIGHT.

ARTICHOKEs HAVE BEEN USED HERE SEVERAL YEARS, AND THOSE WHO HAVE USED THEM LONGEST LIKE THEM BEST. IN FIELD CULTURE WE HAVE NO TROUBLE TO ERADICATE THEM; IN FACT IT IS NECESSARY TO USE A LITTLE CAUTION, OR THE HOGS WILL ROOT THEM OUT SO THERE WILL NOT BE ENOUGH LEFT IN THE GROUND FOR SEED. BUT DURING THE WINTER IS WHEN WE ALL FAIL IN HANDLING HOGS. THE LONG MONTHS WITH ONE KIND OF FOOD, AND THAT A KIND THAT MAKES BUT VERY LITTLE HONE OR MUSCLE, VIRTUALLY A FAT PRODUCING FOOD ONLY, THE BEST ARTICLE TO LAY ON FAT WITH, BUT NOT THE BEST TO BUILD UP THE CONSTITUTION AND GIVE HEALTH AND STRENGTH. I HAVE THIS YEAR RAISED AN ACRE OF MANGEL WURZEL AND SUGAR BEETS, ALSO HALF AN ACRE OF TURNIPS; THESE I WILL PUT WHERE I CAN GET AT THEM IN THE WINTER, AND WHEN THE WEATHER WILL PERMIT I WILL FEED THEM FREELY. THE SWINE EAT THEM EAGERLY, EVEN NOW, AND I FEEL SURE THAT SUCH A CHANGE OF DIET OCCASIONALLY IN THE WINTER WILL BE A GREAT BENEFIT. I SHALL ALSO CUT A FEW ACRES OF CLOVER (SECOND GROWTH, CURE IT CAREFULLY, SALT IT WELL, AND FEED IT DURING THE WINTER, PERHAPS CUT SHORT AND MOISTENED. I WILL HAVE QUITE A NUMBER OF LATE PIGS; THESE I INTEND TO FEED DURING THE WINTER WITH ONE GOOD FEED EACH DAY, ALL THEY WILL DRINK OF WARM SWILL MADE OF TWO PARTS BRAN, ONE PART SHORTS, AND ONE PART MEAL, AND AT NIGHT A FEED OF CORN. NOW, WITH THIS BILL OF FARE AND VARIETY OF DIET I HOPE TO SECURE HEALTH FOR THEM AND PROFIT TO MYSELF. A PART OF THIS IS YET TO BE TRIED, AND IS AN EXPERIMENT WITH ME, AND I AM AWARE SOME OF YOUR READERS WILL SAY, WILL REQUIRE TOO MUCH LABOR; BUT I THINK I WILL BE WELL PAID FOR MY LABOR; AT LEAST I HAVE NEVER FOUND THE SUCCESSFUL STOCK RAISER THAT EITHER SHUNNED LABOR OR CARE, AND, IF YOUR READERS DESIRE IT, AT SOME FUTURE TIME, I WILL GIVE THEM THE BENEFIT OF MY EXPERIENCE.—*E. F. Brockway, in Prairie Farmer.*

Balking.

AS TO MATTER OF BALKING, NO GENERAL DIRECTION CAN BE GIVEN OR RULE ESTABLISHED. IF THE EDUCATION OF THE COLT HAS BEEN CONDUCTED IN ACCORDANCE WITH CORRECT PRINCIPLES, HE WILL NOT BALK. BALKING ON THE PART OF THE COLT IS, FOR THE MOST PART, THE RESULT OF THE TRAINER'S IGNORANCE OR PASSION. YELLING AND WHIPPING ON THE PART OF THE TRAINER OR DRIVER, OVERLOADING, SORE SHOULDERS, OR ILL-FITTING COLLARS—THESE ARE THE CAUSES THAT MAKE HORSES BALK. BUT IF YOU HAVE A HORSE OR COLT THAT BALKS, WHILE ONE CANNOT, WITHOUT A PERSONAL KNOWLEDGE OF THE SUBJECT, TELL YOU WHAT TO DO WE CAN TELL YOU WHAT NOT TO DO—NEVER WHIP. IF HE WON'T GO LET HIM STAND STILL AND THINK OVER IT. HE WILL VERY OFTEN THINK BETTER OF IT, AND AFTER A FEW MOMENTS' REFLECTION AND A FEW TOSSES OF THE HEAD, GO ON OF HIS OWN ACCORD. OR, IF THIS DOES NOT ANSWER, GET OUT OF THE WAGON AND PAT HIM AND TALK TO HIM. A HORSE IS VERY SUSCEPTIBLE TO KINDNESS; AND WE HAVE KNOWN MORE THAN ONE VIOCIOUS HORSE GENTLED INTO GOOD BEHAVIOR BY A FEW PATS FROM A LADY'S GLOVED HAND ON THE MOIST NECK AND VEINED MUZZLE. SOMETIMES IT IS WELL TO LOOSEN A STRAP OR START A BUCKLE. WE HAVE KNOWN THE MERE FACT OF UNCHECKING AND RECHECKING THE ANIMAL TO ANSWER THE PURPOSE. IT TOOK HIS ATTENTION OFF IN ANOTHER CHANNEL, CHANGED THE CURRENT OF HIS THOUGHT AND BROKE UP HIS PURPOSE AND DETERMINATION TO RESIST.

Arab Maxims for Horse-Keeping.

1. Let your colt be domesticated and live with you from his tenderest age. When a horse he will be simple, docile, faithful and inured to hardship and fatigue.
2. Do not beat your horse or speak to him in a loud tone of voice; do not get angry with him, but kindly reprove his faults; he will do better thereafter, for he understands the language of man and its meaning.
3. If you have a long day's journey spare your horse at the start; let him walk frequently to recover his wind. Continue this until he has sweated and dried three times, and you may ask of

him whatever you please he will not leave you in difficulty. 4. Observe your horse when he is drinking at a brook. If in bringing down his head he remains square, without bending his limbs, he possesses sterling qualities, and all parts of his body are built symmetrically. 5. Four things he must have broad—front, chest, loins and limbs; four things long—neck, chest, forearm and croup; four things short—pasterns, back, ears and tail.

The Perfect Sheep-Dog.

The London *Fanciers' Journal* gives the following description of the Scotch colley fitted to win a prize in a first-rate English dog-show: "The head has a great resemblance to the wolf's—being rather conical, and going off gradually sharp to the nose, with a long jaw—only longer, and with a foxy and intelligent look, and wider and longer ears, which are a little feathered and pendant; eyes have a sort of flashing 'miss-nothing' look, always on the alert; jaw long; nose sharp; neck long, and well furnished with apron and ruffie; shoulders fine and deep; chest well let down; legs straight and full of muscle, with cat-like feet. A good, broad back, thick over the loins, with well-bent hocks; stifles well developed; tail feathered and not carried over the back; coat long and straight, wiry to the touch, with a pily coat underneath the 'overcoat.' Color various; that most in vogue is black-and-tan—the tan pale, not rich. This is the present fashionable sheep-dog."

Success in Breeding Fine Stock.

It is folly for a man to think of becoming a successful breeder of live stock unless he takes a pride in the business and likes the stock he is raising. To be successful he must become enamored with the business. He must feel nearly the same interest in his stock that he does in the members of his family. He must always have a kind word for them, and feel a lively interest in their comfort and well-being. He must provide for their wants, pet them, cultivate an acquaintance with them. He must be ambitious to excel in raising the very best specimens, and hence must procure the choicest animals as breeders. He must have his business "on the brain," give it his chief attention, study how to excel in it, post himself in regard to it by taking the best papers devoted to it. If he will no this his future as a breeder is bright and promising.—*Colman's Rural World*.

Curing a Sick Hog.

While on a visit to an old farmer's in Massachusetts, a fatteing pig was taken violently sick from no explainable cause. Some soft, rotten logs or chunks of wood were at once obtained and placed within reach, of which he ate most ravenously, his owner assuring me that he had no doubt as to its effecting a cure, which it did in the course of a few hours. I asked for the theory of this strange practice, to which he laughingly replied that some things were too deep for science to fathom, but that he accounted for it as a craving need of the originally wild nature of the hog, which domestication does not root out.

The Keep of a Horse.

In various stables where powerful dray horses are kept, the food given being hay, straw, oats, corn, beans, bran in varying proportions, the ration at the Lancashire and Yorkshire Railroad Company is 11 pounds hay, 16 pounds grain. The Municipal Guard of Paris allows each horse 11 pounds of hay and 8 pounds of oats daily, with 11 pounds of straw daily for litter. The forage ration of the United States cavalry horse in 1861 was 14 pounds of hay and 12 pounds of oats, corn or barley; 100 pounds of straw monthly being allowed for bedding. The mule ration is 14 pounds of hay and 9 pounds of grain.

Number of Stock.

A farm in high condition and kept so will support twice as much stock as another in good condition. The general rule on farms devoted to sheep husbandry exclusively, is three sheep to an acre of cleared land; in mixed bushdry two sheep to every such acre, and in grain farming one sheep to every acre of cleared land. A horse is estimated to eat as much grass as eight sheep, and a cow as much as eight or ten sheep (no grain considered). These are averages only, both of animals and land, and fine wool sheep are understood, the coarse wools requiring more feed.

If Cows are Kept

In a half-starved condition they yield but little if any milk, and this of poor quality. The food they get under these circumstances may not even be sufficient to meet the more immediate requirements of the body, so that little, if any, is available for milk. Not only is there no profit gained by keeping cows under these circumstances, but the food thus consumed may be said to be wasted, since, if given to fewer cows, it might yield a proper quantity and quality of milk.

POULTRY.

Onions for Poultry.

In 1860 I joined my husband down in Southwestern Virginia, and was there during the war, and I was engaged in raising poultry. I went to the chicken-house one morning for eggs, and when I came out had to make a complete change of apparel. I recollect of reading in the *Country Gentleman* that the feeding of onions to poultry would exterminate poultry lice. It began at once by chopping the onions fine, and mixing with cornmeal and hot water. After standing a short time it was fed to the poultry, and in less than three weeks the little pests had entirely disappeared. I used to take onion tops and cut them up fine and mix with the meal, wetting it with sour milk, or clabber (when I had it), to feed the chickens one or two days in a week, until they were large enough to eat grain or small corn.

I never lost a chicken with the gapes during the five years I was there. I asked a Yankee refugee from the border in what way lice on chickens caused the gapes. He said it weakened them so that they could not sneeze and throw out the worms. The feeding of onions will not cure the gapes, but is a preventive. My neighbors would say that because I was in a new place was why I had such good luck in raising chickens. I told them about feeding the onions, and they found them very good. I told them I should lose many of my early chickens, just as they did, if I followed their example, in giving twenty-two chickens to one hen the first of April. There would be half a dozen or more little chickens on the outside of the hen that her feathers could not cover, in a cold, frosty morning. Three feedings a week in the spring and a part of the summer is sufficient. I seldom fed the onions in fall or winter. One of your correspondents thought the eggs would taste of the onions but they do not. I have noticed their flavor in butter early in the spring, when the cows (down South) ate leeks, which were more forward than the grass, but there is not a particle of this taste in the eggs from the hens eating the onions. My neighbors have had the same good results in feeding onions.—*Correspondent Country Gentleman*.

Number of Eggs that a Hen Can Lay.

We copy the following item, which has been, for a long time, going the rounds of the agricultural press, showing how little scientific attention has been ordinarily bestowed upon the subject of poultry-keeping: "It has been ascertained that the ovarium of a fowl is composed of 600 ovaules or eggs; therefore a hen, during the whole of her life, cannot possibly lay more than 600 eggs, which, in the natural course, are distributed over nine years, in the following proportion:

First year after birth.....	16 to 20
Second do.....	100 to 120
Third do.....	120 to 135
Fourth do.....	100 to 115
Fifth do.....	60 to 80
Sixth do.....	50 to 60
Seventh do.....	35 to 40
Eighth do.....	15 to 20
Ninth do.....	1 to 10

It follows that it would not be profitable to keep hens after their fourth year, as their produce will not pay for their keeping, except when they are of a valuable and scarce breed."

To begin with, we may doubt the possibility of making any accurate count of the number of ovaules in the ovaries, or of affirming that no new ones make their appearance out of minute germs or cells in the course of the life of the hen.

In the next place, such a limitation must have reference to the actual constitution of the fowl, and this either in its wild or tame condition. If to the former, the number of ovaules, even if definitely ascertained, can have no connection whatever with the real habit of the hen, since she lays in a wild state only as many eggs as she can cover; if to the tame fowl, it is strange to find so definite a rule laid down for an animal that is, in the highest degree, of an artificial character, and whose nature is, in so many points, constantly being remade.—*Poultry World*.

Feeding for Eggs.

For the production of eggs the food should contain an ample supply of those ingredients that make up the egg. An average egg weighs about 1,000 grains, divided as follows: Shell 107, white 604, of yolk 289. The shell is composed of 97 per centum carbonate of lime, one per centum of phosphate of lime and magnesia, and two per centum albumen; the yolk of 54 per centum water, 28.6 per centum yellow oil, and 17.4 per centum albumen; and the white, 85 per centum water, 2.7 per centum mucus, 0.3 per centum salts and 12 per centum albumen. Therefore a food containing albuminoids and fat should be employed. The natural food of the fowl consists of insects, seeds, vegetable matter, etc. Therefore there should be a variety of grains, animal matter in the form of seraps of meat, etc., or, as has been practiced, finely cut and steamed clover hay. There should be great variety at all times, and Indian meal scalded and well seasoned with pepper or chopped horseradish will be very effective. A recent writer prescribed

Indian meal made into a mush, which was cooked an hour or two and then fed hot with horseradish. It was recommended to cook food of all kinds and feed hot. This might be well as a stimulant, but corn-meal must be combined with animal food to produce eggs. A supply of powdered shells or bones should be provided, not only to aid digestion but furnish egg-shell material. A correspondent of the Plymouth *Chronicle* mixed hog's lard with the dough he gave his hens, and asserts that a piece as large as a hickory nut will set a hen to laying immediately after she is broken up from setting, and that by feeding a little occasionally hens may be made to lay all winter.

How to Keep Eggs Fresh.

A lady correspondent writes: "It is sometimes desirable to store away eggs in the summer or fall, when prices are so low that we cannot afford to sell them, and keep them till in the winter, when they are often very scarce, and will be keenly relished or can be disposed of at a good price, if good and fresh. To keep them thus we do not believe there is a more simple and efficient way than the one we have always practiced, and which was successfully practiced by my father for the last thirty or forty years. This is by simply taking none but perfectly fresh and sound eggs and setting them in layers on the tip or small end, in a box or basket, or anything that will hold eggs. We do not put anything between them, nor do we put them up 'air tight,' but we always keep them in the cellar. Eggs that we have put away in this position last fall are to-day—after six months—as fresh and good as the day they were laid, and we have never found one that was spoiled or stale among them, when thus served. We feel confident that they would keep good and fresh for one year. I wish some of your readers would try this method and see how long they can keep them, and then report the results."

Feed Fowls a Little and Often.

It is a very careless method of feeding fowls which we see so often adopted, where the grain is thrown down in great heaps on the ground or floor. It is not only wasteful, but injurious to the fowls, because they get over-fed, and it is in an important respect contrary to their habits. For their nature is to "scratch." Watch the old hen with a brood when she is just let out of the coop. She hardly stirs from the spot, but as soon as she has realized her freedom, down go her claws into the soil, and afterward, whenever you see her, she is at it.

Always feed, then, no more than can be eaten at once, and take care that is so scattered amongst some light rubbish, that they may have the luxury of scratching for it. If feed is buried in in fresh earth then they get, with their mouthfuls of grain, something of use to their peculiar digestive organs. Grain, however, should not be allowed to come in contact with the filthy tainted soil too often found in the poultry-yard.—*The Poultry World*.

Cooked Food for Chickens.

Todd's *Hand-Book on Fowls* gives good rules for feeding fowls in winter, as follows: "We think fowls cost less and return more, if fed warm, cooked food once a day, early in the morning. A mixture of corn, oats and bran, and middlings, ground fine is good; or the corn may be boiled unground. It is well to add a portion of boiled potatoes, apples or turnips, and vary the mixture occasionally, for a change. The feed should be well cooked, and not made thin. In breeding season, fine bran and oats, with vegetables, make a feed sufficiently rich for Asiatics, which are disposed to get so far as to prevent laying, increase broodiness and render eggs unfertilized. In fact, they should be fed very sparingly, and kept 'hungry and lively.' I prefer whole grain in variety for mid-day and evening feeding. In cooking daily, there is quite a saving, as much stuff and scraps can be converted into food that would go to waste. There is nothing but what fowls will eat, if properly 'dished up.'

Grain for Poultry.

There is no other grain that is relished so well by fowls as Indian corn. It must always continue to be, as now, the American poultreer's main reliance, for, although too fattening to use in certain cases, possesses more nourishment for the price than any other grain, and is always to be obtained. Corn can be given ground and unground, raw and cooked. Oats we prefer ground fine, as otherwise the hulls are too harsh and bulky. With wheat-bran and middlings, wheat in the kernel, barley and buckwheat, there need be no difficulty in avoiding monotony. Rye, though the poorest grain of all, may be given occasionally, and brewers' grains, if convenient.—*The Poultry World*.

Good setters among hens seldom or never leave their nests more than once a day, provided they are well fed when they come off; while they seldom remain away from a quarter to half an hour, rarely exceeding the latter period, unless food has not been supplied and they have to forage for themselves.

ENTOMOLOGICAL.

Habits of Curelio.

Prof. Riley, of St. Louis, informs us that the enurelio, as a beetle, winters above ground, and seeks shelter under the bark of trees, brush or any other rubbish. The female lives sometimes a year. Its operations upon fruit are mostly performed at night and during the absence of the sun in cloudy days. Hence the most successful jarring is early in the morning and in the evening. The insect always becomes a pupa under ground, and the grub frequently remains in fruit that falls, which should be removed and destroyed. During its beetle-life both sexes feed as long as the weather admits of activity, and they attack pip fruit when stone fruit is not to be had. Jarring should, therefore be repeated every morning and evening from the time the fruit is the size of a pea till it is ripe. No doubt this is correct in every particular. *Jarring* the trees seem to be the most certain mode of getting rid of this destructive insect, and the best way to do this, in order that the tree shall not be injured, is by removing a low bough of the tree within an inch or two of the trunk and strike it with a mallet. A friend in Montgomery county, who has adopted the jarring system, informed us a couple of years ago that by this means he always saved his plums, and that he has caught in a sheet, at the first jarring, full one hundred and fifty insects, and at the second about fifty. But he does not continue it so frequently as Prof. Riley suggests. It is best to begin operations early and to continue them at least as long as any of the "little Turks" remain. This is no doubt a "remedy," if properly attended to.

Wire-Worms and Corn.

One of my neighbors, who is troubled with wire-worms in his land, says he has found a remedy at last. The ground whereon he planted corn this year was infested with the wire-worms, and on a piece adjoining, last year, where he did not try the experiment, his corn was completely ruined. At the time of planting, he soaks the seed in soft soap until it is well moistened, after which it is rolled in plaster until the grains do not adhere to each other, so it can be easily dropped. As soon as the young blades appear a mixture of lime, plaster and ashes, equal parts, is applied, a tablespoonful to each hill; and he says not one hill is touched by the worms.

LITERARY AND PERSONAL.

Fearless Railway Threshing Machine.

We call the attention of farmers and threshers to the advertisement of the Fearless Horse-Power and Thresher and Cleaner, elsewhere in this number of our paper. This machine is the only one that received an award on both horse-power and thresher and cleaner at the Centennial Exhibition, Philadelphia, and ranks as best of its class. An ex-President of the New York State Agricultural Society said of Harders' Machines, "they are the best ever made," and the same testimony has been borne by equally good authority time and again. For further information send to Minard Harder, Cobleskill, N. Y.

THE SCIENTIFIC FARMER.—"In the interest of profitable agriculture." Boston, Mass. E. Lewis Sturtevant, M. D., editor. This journal, to our apprehension, is absolutely the best on our exchange list. Its matter is solid and practical, entirely divested of that irrelevant garbage which usually fills the columns of more sensational and pretentious agricultural publications. Although it usually contains a moderate number of illustrations, yet its letter press is compact, its typography plain and distinct, and its contents, both original and selected, of the highest order. It contains nothing but what relates directly to practical husbandry and domestic economy. We believe it has never yet resorted to the expedient of publishing a sensational premium list, and we hope it never may.

THE MATRIMONIAL ADVOCATE.—Published monthly in the interest of love and matrimony, Mount Vernon, Ohio, June, 1878. George W. McWherter, editor, and issued at 50 cents a year by the United Publishing Company. This is an 8 page quarto, No. 1, vol. 1 of which is now before us. It is the highest toned journal devoted to its peculiar specialty that has ever come under our observation, contemplating the subject not merely from a business standpoint or a mere *matter-of-money*, but from moral principle. It proposes to engage in what may be appropriately deemed the greatest undertaking of the age, and if steadfast in principle that, "Without me ye can do nothing," it may possess the possibilities of effecting some much needed good to poor, blind, self-willed and sensuous humanity.

WESTERN INVENTOR, a monthly journal devoted to the interests of engineers, machinists, inventors and manufacturers. Office, No. 11 Pike's Opera House, Cincinnati, Ohio. Price, 50 cents a year, in advance. This is an exceedingly well gotten up and finely-illustrated quarto of 16 pages, the fifth number, for June, 1878, of which is on our table. It is exclusively devoted to the subjects enumerated in its title, and its low price we think cannot but make it

acceptable to a large number of readers who may desire such a journal at a lower rate than that demanded by the *Scientific American*, which has heretofore almost exclusively monopolized this special field of journalism. The illustrations are equal to those of the great journal named, and we must wonder how so excellent a paper can be furnished at so low a price.

FIRST ANNUAL REPORT OF THE PENNSYLVANIA BOARD OF AGRICULTURE for the year 1877, with an appendix. A remarkably well gotten up royal octavo volume of 336 pages of letter press, with a copious index, and a large number of well executed illustrations. We are under obligations to the Honorable Secretary for copies of this excellent work, which far surpasses anything heretofore published by the State, and is a credit to the young and progressive institution organized for the purpose of advancing the agricultural interests of the commonwealth. The papers in this volume are all of a practical character, and the tabulated statistics very elaborate and satisfactory. As the initiator of what the State Board may accomplish in the future, it is certainly very promising to those who feel an interest in the organization of such an institution in the interest of agriculture.

EMPLOYMENT FOR LADIES AND GENTLEMEN AT HOME.—Our attention has been called to some new and labor-saving cooking utensils—recently invented; one of which, the Universal Weight and Measuring Utensil, for weighing flour, sugar, butter, and measuring molasses, milk and all kinds of liquids used in cooking, entirely superseding expensive scales. The Patent Centennial Cake Pan, the best and most convenient cake pan ever made, and which every housekeeper will have when they see its advantages over all others. Also, the Kitchen Gem, a plated wire boiler to hang inside of an ordinary pot, for boiling all kinds of vegetables, eggs, etc., which, when done, can be removed at once perfectly dry without lifting the heavy sooty pot off of the stove. These goods are sold exclusively through agents to families, and offer a splendid opportunity to some reliable lady or gentleman canvasser of this county to secure the agency for a very profitable business. For terms, territory, etc., write to L. E. Brown & Co., No. 242 Elm street, Cincinnati, O.

HARPER'S MAGAZINE FOR JULY, 1878.—*Harper's Magazine* for July finds a novel field for the portrayal of character and the description of scenery in the lowlands of Virginia—the old aristocratic "tide-water" region, rich in historic associations, and exceedingly picturesque in its memorial relics of the old time. The opening article of the number devoted to this subject, and entitled "Some Landmarks of Old Virginia," is contributed by Allen C. Redwood, who uses his pencil as effectively as his pen.

Of especially humorous and pathetic interest is Mr. Rideing's paper about Hospital Life in New York, with sixteen bright illustrations by Reinhart, Abbey and Rogers, effectively representing every phase of hospital life from the coming of the ambulance to the period of convalescence.

Porte Crayon contributes one of his characteristically illustrated papers on "Old-time Militia Masters," full of the racy humor belonging to the ancient "general training-day," the scene being laid in Virginia.

In his charming story, "Owlet," John Esten Cooke also takes us to Virginia, and the interest of his romance is heightened by Mr. Pyle's beautiful illustrations.

The engravings illustrating the paper on Van Dyck—another of the series of "Old Flemish Masters," are in every way worthy of the subject.

Among the characteristic domestic sketches presented in this number, "Daddy Will," by Charles D. Deehler, stands out in bold, strong lines—a familiar but striking picture of the trusted and faithful servant so well remembered in many Southern homes. Especially impressive is the scene between Daddy Will and little Kate, which the artist has selected as a subject for illustration.

There are two illustrated papers on foreign subjects. A. H. Guernsey contributes one on the peculiar features of the worship of Juggernaut in Orissa. The other, entitled "A First Week in England," introduces us to the quaint old houses and rows of Chester, to Ludlow Castle, where Milton wrote his "Comus," and to the fine old cathedral at Hereford.

Dr. Abel Stevens contributes a timely article, entitled "Anecdotes of Voltaire among the Swiss," full of fresh materials furnished by Gaberel, an *ancien pasteur* of Geneva—materials wholly ignored by Voltaire's recent biographer, Mr. Morley.

Benson J. Lossing, with the "Glorious Fourth" evidently in view, contributes a spirited narrative of the vindication of John Peter Zenger, a poor German printer, who was arrested by the order of the Provincial Governor of New York in 1734, and tried for the publication of seditious articles in the New York *Weekly Journal*.

The serial stories by William Black and Thomas Hardy are continued. Charles De Kay contributes a vivacious short story, entitled "A Wife-Hunt;" and James Payn humorously describes an "Adventure in a Forest," in the vain search for Dickens's Maypole Inn.

The Editorial Departments are full of entertainment and timely information. Among the many funny things in the *Drawer*—including another remarkable "colored debate"—is a very taking poem by John Vance Cheney, entitled "Collie."

PETTENGILL'S NEWSPAPER DIRECTORY AND ADVERTISERS' HAND-BOOK FOR 1878, comprising a complete list of the newspapers and other periodicals published in the United States and British America; also the prominent European and Australian newspapers. New York : S. M. Pettengill & Co., publishers, No. 37 Park Row. An excellently well gotten up royal octavo volume, printed on fine tinted calendered paper, with 332 pages of letter press and 44 pages of advertisements, together with fine portraits of distinguished literary and newspaper men. This work is not only beautifully printed, but it is also admirably arranged geographically by States, and alphabetically by towns; with time and days of issue, politics or distinctive features, names of publishers, circulation, etc.; together with such information as to the advantages offered by newspapers as has been furnished for the purpose by the publishers; including sketches of prominent newspapers, and statistical and historical notations of hundreds of others throughout the body of the work; and also architectural illustrations of some of the great newspaper establishments. This book recognizes ten newspaper publications in Lancaster city and twenty-seven in the county. Many interesting items may be gleaned from this book. For instance, there is but a single county in Pennsylvania in which but a single newspaper is published, namely, Sullivan; in all others they are duplicated. Lancaster county leads "Old Berks" by a majority of seven. The city and county of Philadelphia issues periodically 163 newspaper publications. This, of course, includes newspapers and magazines. What would Ben Franklin say if he now could witness what is going on in the newspaper realm in this nether world? It doesn't seem so long since his prospective mother-in-law thought that Philadelphia would be "crowded" with two papers in it. But, if we are surprised at Philadelphia's publications, what must be the nature of our emotions when we learn that in the city and county of New York there are 443 newspapers and magazines published periodically. New York leads Philadelphia much farther than Lancaster does Berks. This certainly illustrates that the art of printing constitutes a great factor in the industrial interests of our country.

The portraits—that of S. M. Pettengill is a most exquisitely executed piece of art, and exhibits an intellectually cut face and a well-formed and "level head," the outlines of which are brought out all the more prominently by the absence of the usual profusion of hair. That of Geo. W. Childs is almost equally well executed, but lacks the life-like shading. Mr. C. looks like a healthful, good-natured and well-balanced man. We had imagined his features angular, but they are symmetrically rounded and well formed. He seems to be unquestionably intellectual, but to our apprehension the affectional predominates. Bayard Taylor; well, everybody that reads knows Bayard Taylor, but we had looked for another sort of head and face. Mr. T. has sojourned so long and so often in Europe that externally he seems to have become Germanized. If no name had been attached to his portrait, we should have said that that man had once upon a time had drunk a glass of "bier"—could do so again if occasion required it, and probably would do so, rather than appear mawkishly eccentric. On the whole, he reflects "a sound mind in a sound body," "the right man in the right place." James Gordon Bennett has an approximation to the Jeff. Davis face. Was he oblique-eyed? (cross-eyed.) The portrait makes him so. It seems to be a very clever wood-cut. Of course, he was a man of intellect, energy and enterprise, but seems to have a finer texture than we thought he had, as reflected through the *Herald* and the commentaries of his contemporaries.

Samuel Bowles, of the Springfield *Republican*, is more practical and artistic in appearance than any of the foregoing, and with exhibiting intellect and energy of character in an eminent degree. Of course these random cogitations relate to the pictures, and not to the men themselves, for we have never seen any of them. Bret Hart ranft—no, no, no, not that—we mean BRETT HART. If the name had not been attached to this portrait we might have taken it for Gov. Hartranft, or his brother, or his son, or brother's son, and bnt for the mustachios, for his father, in his earlier days. He looks, however, as if he was fond of fun, satire and wit; and that he might have written "Truthful James" and the "Heathen Chinee." The features are large and heavy in appearance, and although intellectual and knowing enough, yet it appears to us that we have seen and known half a dozen men that looked like him at one period of their lives.

The book we have been discussing no doubt fills an important place in the advertising and publishing concerns of the country, and its absence would create an uncomfortable vacuum in the business world; one of those vacancies, however, which so many enterprises are anxious to fill.

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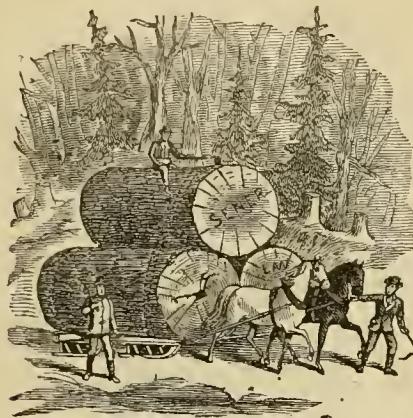
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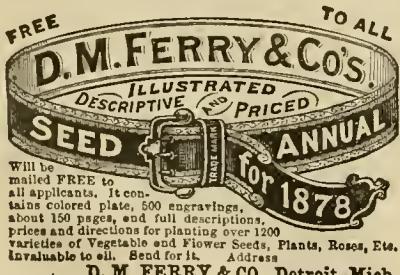
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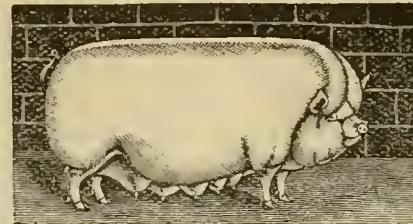


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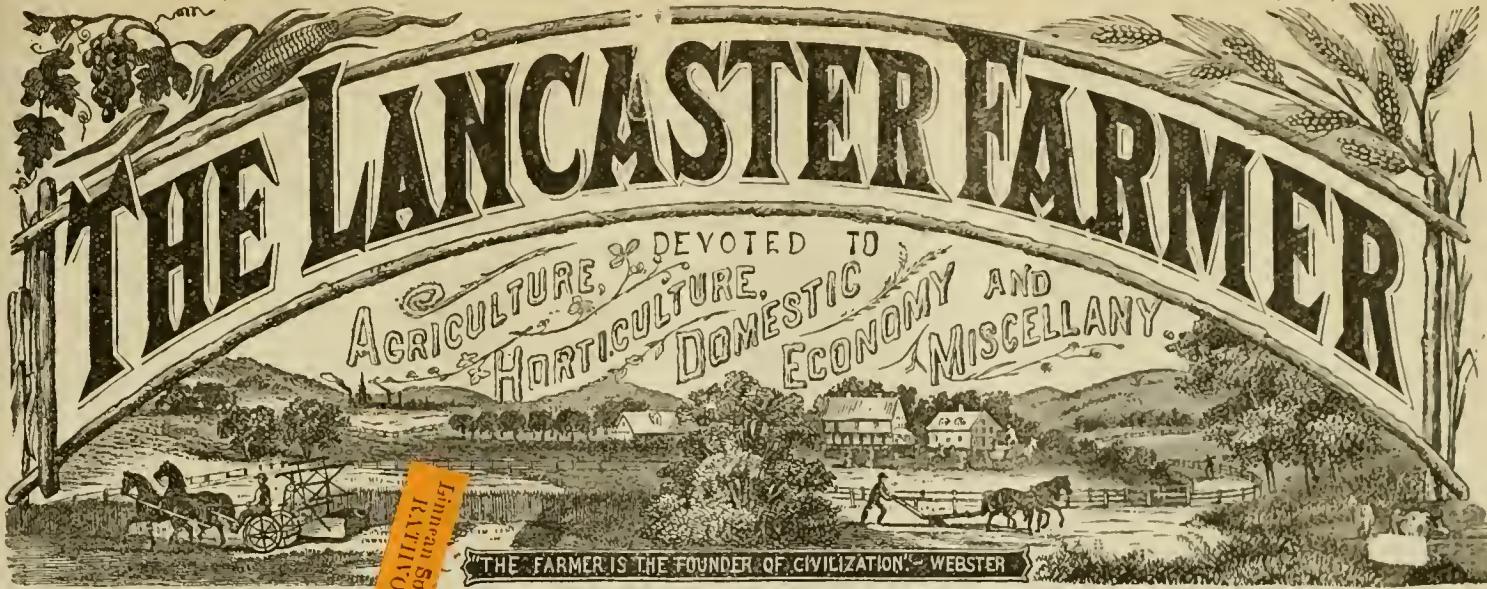
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LANCASTER JULY 15, 1878.

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Lancaster Sunday Journal
July 15, 1878

THE FARMER IS THE FOUNDER OF CIVILIZATION.—WEBSTER

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Edited by Prof. S. S. RATHVON.

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tisements, should be addressed to the publisher.THE LANCASTER FARMER having completed its ninth
year under various vicissitudes, now commences its tenth
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No. 2 via Columbia.....	11:20 a. m.	1:00 p. m.
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Columbia Accommodation.....	9:28 p. m.	3:45 p. m.	12:00 p. m.
Pacific Express.....	1:20 p. m.	5:00 p. m.	3:45 p. m.
Sunday Mail.....	2:00 p. m.	6:00 p. m.	5:00 p. m.
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10-2-4m]

The Lancaster Farmer.

Prof. S. S. RATHVON, Editor.

LANCASTER, PA., JULY, 1878.

Vol. X. No. 7.

MONEY! MONEY!! MONEY!!!

Those who know themselves indebted to us, for subscriptions or otherwise, will please kindly remember the printer—his needs are always pressing. See the little yellow labels and that will reveal the state of the case, so far as regards subscriptions.

INSECT PESTS.

In addition to the *aphids*, alluded to in another article in this number of the *Farmer*, there are other species of insects that are particularly abundant the present season; some of them no doubt unavoidably so, and others more or less through individual negligence; some of them remedially accessible, but others virtually unapproachable by a remedy, or nearly so. Amongst the COLEOPTEROUS species (Beetles) we have seldom noticed *Macroderactus subspinosis* more abundant than it was about the middle of June. The common names of this beetle are "Cherry-bug"—"Rosebug"—"June-bug," and sometimes also "Grape-bug," when it happens to destroy the grape-bloom; and we have known it to effectually do so, and not only the grape, but also the roses and the fruit of the cherry even in large town and villages, as well as the country. It is, however, partial to the elder bloom, and has been so ever since we knew it, and that is fifty years at least. We have seldom, as we said before, seen it more abundant than it has been the present season; and it has suggested to us the thought that farmers should encourage the growth of a goodly number of elders (*Sambucus canadensis et pubens*) on their farms as attractions for these insects, for their period is limited, and even at this writing (July 4th) many have passed their nuptial season, and by scores are dying. Their larvae or "grubs" live under ground and feed on roots, and if it were not that they fall a prey to the predaceous species of insects, parasites and small mammals and birds, they would increase beyond calculation and might do an immense amount of injury.

In Lancaster City—at least along East Orange street—the "Elm leaf-beetle" (*Galeruca canthonalea*) is very numerous, and at the present moment the larvae are coming down from the leaves, and are pupating, either around the bases of the trees, or in the crevices of the rough bark of the trunks and larger branches, or even between the bricks in the pavements, where the least protection is afforded. Hundreds of people, no doubt, are passing and repassing every day who do not notice them, and yet there they are in vast numbers, and possess the possibilities of being very destructive. Thirty or forty years ago, it is recorded, they became so numerous and destructive in Baltimore, that all the Elm trees in a public park had to be cut down in order to get rid of the insects. This beetle has been introduced into this country from Europe. As they always come down from the leaves to pupate, they could be prevented going up again as beetles. With a stiff hickory brush, similar to those used to clean gutters, they could be easily swept down from the trunks and larger branches, and those on the pavement swept up, and crushed or scalded, scrubbing the same parts with a saline or alkaline solution (pretty strong) would destroy those that cannot be reached by the whisks of the brush.

From different parts of the county we learn that the silver maple trees are seriously infested by a species of "woolly-aphids," greatly disfiguring and enervating them. This is probably the *Eriosoma imbricator* of Dr. Fitch of New York, if it is not a new species, and peculiar to the maple. They are so numerous in Martic township, in West Earl, in Manor

and elsewhere, that the white flooky and mealy substance that falls from their bodies covers the ground beneath the trees like a heavy coating of hoar-frost. They also emit a copious discharge of "Honey-dew" on the leaves below them and to this the flooky and mealy substance adheres, giving them a very unprepossessing appearance. When denuded of their wooly coating their bodies are of a light greenish or a honey-yellow color, according to age and size. They are both winged and unwinged, and are capable of a tolerable active but short flight. This gives them at least the ability to extend their domain. We have never noticed this insect on the maple trees before the present season. Heretofore, the "Basket-worm," and one or two species of scale insects, (*Lecanium*) were pretty much all that infested the maples epidemically. We have recommended coal-tar, tobacco, or sulphur fumigations, freely administered on a calm evening or morning, and continued until the evil is abated. A strong stream, through a garden engine, of an infusion of tobacco, or sumac flowers, or even "soap suds," would be beneficial.

The spring brood of the "Web-worm" or "Caterpillar" as it is commonly called, (*Hypenaria tector*) is also very numerous in some localities, and so far as our experience goes, the increase and despoilings of these web-worms are due mainly to neglect. Early in the season they may be included in a small cluster covered by a web, and not as large as a man's fist. If they were then removed and destroyed, the work would be accomplished with very little labor. But they are permitted to increase in size and extend their domain over a large portion of the trees, and then only do they become formidable and create alarm; another brood of them occurs towards fall. These are claimed by some Entomologists to be a different species from those which appear in spring and early summer. It is sufficient for the farmer, however, to know that they are both evils that he ought to rid himself of if he desires good and healthy foliage and fruit. The little spotted "Ermine moth" (*Spilosoma cunea*) is of similar habits and character. Clipping off the infested leaves and branches and burning them is the best remedy. Fumigations as recommended above, or an ignited swab, saturated with coal oil, turpentine, or melted sulphur, at the end of a long pole and held under them, and not too near to burn the branches, will extinguish them.

THE CHERRY CROP.

Early in the season there were apprehensions manifested that the cherry crop would be a failure, and it was so reported before a meeting of the Lancaster County Agricultural and Horticultural Society, by one or more of its members. Those members may have been mistaken, or they may have reported the true state of the case as it existed on their individual farms; but the cherry crop has been by no means a failure in a very large portion of our county, and many persons now express some astonishment at these reports, for they allege that they have rarely known the cherry crop to be more abundant or the cherries of a finer quality than they have been the present season. So far as our personal observation extends we must confess that we endorse these views, for we have been unable to see the apprehended failure, either in the town or the country. Indeed the town crop has turned out to be all that any one could reasonably desire, and many from the country have assured us that their cherries were seldom ever more plentiful or better in quality.

We have no cherry trees of our own, but we are flanked by two neighbors on the north and

south who have, and judging by their trees, both in quantity and quality, we should record the crop as "A No. 1." A few robins and other birds visit the trees and devour and carry off some of the fruit, but they do not seem to murmur at this, for under any circumstances they have enough for themselves, their friends and the robins to boot. We have specifically mentioned "Cock-Robin," because recently many complaints have been made against him by very intelligent and influential parties, but we venture to say that the "Cherry-bird" or "American Wax-wing," devours ten cherries to the robin's one, and being more gregarious in its habits, it will "strip" a tree in much less time than the robin. There is one consolation, however, in the fact that these "Cherry-birds" usually only attack the early varieties of cherries. They appear suddenly in flocks of from twenty to fifty and make sad havoc with the early cherries, and then as suddenly disappear, going apparently farther north or in less frequented districts, where they breed and rear their young, and through their absence the late cherries usually escape. But they return again in late summer, when wild cherries, gumberies, cedarberries, &c., are ripe, and then feed on them.

The robin, as we have often stated, is, perhaps, as much frugivorous as he is insectivorous, but he is also a good bird for the pot; and, therefore, under certain game law limits, he should be protected; but his reasonable destruction and appropriation should not be arbitrarily prohibited; and as it is desirable that all game birds should increase in numbers, let him "multiply and replenish"—let him fatten on your fruits, and then at the proper time pot him, just as you feed, fatten and pot your chickens and your pigs. That would solve the problem for a time. This is not, however, unqualifiedly *our* sentiment, nor yet *our* recommendation, but is only suggested as an alternative, and in deference to the opinions of some very competent authorities, who seem to entertain sentiments adverse to the robin. We refer our readers to an article entitled "Robins' Food," in the July No. of the *American Naturalist*, written by DAVID ALEXANDER LYLE, because we are able to corroborate the greater part of it, which we shall transfer to our columns as soon as seems convenient, if not in the present number.

But to return again to the cherry crop. It is true, we have not visited many districts in the county, but wherever we have visited we have found cherries good and plentiful. We have had them sent to us from the North, the South, the East and the West, and all to the same effect. Mr. John Grossman, from Warwick, brought us three branches of cherry, each about twenty inches in length, on Wednesday morning, June 26th, and these three branches had forty-five fruit spurs on them, all but two of which had clusters of cherries numbering from five to twenty, besides a good many single or in pairs distributed along the branches. These branches were from two different trees, both of which were about three feet in circumference, and well laden with fruit. The fruit of the one was red, rather small in size, but very sweet, and also very clean and healthful, not an aphid appearing on it—a seedling. The fruit of the other was of medium size, blackish in color, somewhat tartish, also full of fruit, but full of aphids—a grafted variety, and not as much exposed as the former.

The first was a slow grower, never failed to bear a good crop, and never was infested with aphids. The other was a remarkably rapid grower, sometimes failed in an abundant crop and always was more or less infested by

aphids, but they did not seem to diminish the quantity of the fruit, nor yet materially injure its quality, or retard its growth. The present season the aphids were most abundant on the upper branches, the lower ones being comparatively free from them. We give these items merely for their local value, and not as reflecting the status of the cherry throughout the entire county; but if there has been a total failure anywhere, and from any cause, we have not yet heard of it.

In connection with this subject would it not be well for members of societies to qualify their statements more carefully in making their crop reports, and for newspaper reporters to do the same? The proceedings of our societies are noticed in other places remote from the county, and we confess it is not pleasant to see a failure or a success in Lancaster county announced abroad of which we are entirely ignorant at home. There are millions of cherries almost every alternate year in Lancaster county that are never consumed at all, not even by the birds—many of them dry upon the trees or become food for *curculios*.

If farmers were to plant cherry trees here and there on their farms, or along the roadsides, as shade trees for "man and beast," they might hit "two birds with one stone." They would furnish a luxury for the poor, a feast for the birds, and an attraction to many of their insect enemies which now infest their other fruits, and still leave them an abundance for their own use and behoof.

WHEAT HARVEST.

As we go to press the wheat crop is entirely gathered and housed, and the oat harvest in process—or soon will be so—of completion. If prices do not utterly break down in the wheat market the results will be greatly to the interest of the farmers, for it is not often that they are blessed with such abundant crops as those of 1878. The two leading novelties connected with the wheat crop in Lancaster county, the present season, were its drill-cultivation and its "raking and binding" attachment to the reaping process, involving question of an increase and decrease, both of which are intended to redound to the interest of the farmer, whatever effect they may chance to have upon the interests of others. Of course all in relation to these two features in agricultural economy is not entirely satisfactory to the whole farming community, but they surely are experiments that have been crowned with as successful an initiation as usually falls to the lot of new enterprises and inventions. Making "two blades of grass to grow where only one grew before," is certainly a matter of deep interest, both to the producer and the consumer, but a contrivance by which one man can perform the labor of five, in the same length of time, may be regarded by a great many as clashing with the interests of the laboring men—provided it even does the work as well, about which there seems to be room for various conflicting opinions.

We have witnessed the process of cultivation, which we have noticed in various places in former numbers of THE FARMER. The binding process we have not witnessed, (arriving on the ground "in time to be too late,") but we saw the sheaves after they were bound.

We confess that we were not as favorably impressed with the compactness and tidiness of the sheaves as we expected to be, although in this age of rapid conversion and appropriation the work may be sufficient to bear their conveyance to the stack or barn, and from thence through the threshing. The additional power necessary to propel the binding attachment, of course, involves the necessity of an additional horse, or horses, and therefore the question of economy is one that seems to fluctuate between "man and beast"—whether it would be cheapest to hire men or to keep additional horses in a matter that is of so short and special a duration as the wheat harvest has gotten to be. We, however, must confess our latent sympathy in progressive agriculture, and hence, as an illustration of

what the self-binder has done, we append the following from the *Marietta Times* of the 29th instant:

Trial of a Self-Binder.

On Wednesday last, Mr. T. Frank Evans, of Lititz, this county, agent for McCornick's harvesting machines, had a trial of one of their Self-Binder Harvesters on the Park farm of Col. James Duffy. This is probably the most complete harvesting machine ever invented. The Harvester is the well-known and long-tried McCormick machine, which has stood the test of years. The self-binder attachment is attached to it in the place of the binders' stand and platform, they being left off, and a wood frame being first bolted to the Harvester, upon which the automatic binder is placed. The weight of the entire attachment is less than the weight of the binders' platform with two men, that are required for hand-binding on the Harvester. The operation of it is very simple, and quickly understood by any farmer. The material used for making the bands is No. 20 annealed wire, and is furnished to the farmer, wound on spools that contain about twenty pounds each. Two of these spools are required to run each machine, and from two to four pounds of wire—according to the heaviness of the straw, and the size of bundles made—will bind an acre of grain. The binding is done much tighter than can possibly be done by hand, and the sheaves are much evener and easier to handle; fewer of them come unloosed, and in stacking they make a much nicer stack than any hand-bound grain. These bands can be removed before threshing by patent shears, that are made for that purpose, so that not one of them need be left in the straw; but most farmers cut them with a sharp hatchet, and let them pass through the machine. All threshers say that the wire does not injure the machine, and the grain is easier to handle and thresh than hand-bound grain. The mode of compressing the sheaf enables them to bind much tighter than can any other machine, and thus the farmer uses less wire; and also leaves his grain in better shape. The manner in which the binder delivers the sheaf on the ground is a strong point in its favor; each bundle pushing the previous one off the table, causes it to drop easily upon the ground, and thus avoids shelling, where the grain is dead ripe; and the sheaves are left in a continuous straight line, butts forward.

The machine cuts nice and clean, leaving little or no straw behind it on the ground to be raked up. It is a great labor-saving invention, the binder doing the work of five men. The trial on Wednesday was very successful, and Mr. John Stauffer, Colonel Duffy's farmer, was very much pleased with its workings. Col. Duffy has a ten-acre field of wheat near the Cemetery, which is very much tangled and fallen, which he will cut with this machine next week.

A trial between this machine and the Osborne came off on the farm of Jacob Swarr, near Quarryville, on Thursday, when the McCormick came off victorious. A letter from Mr. Evans says that Mr. Swarr decided in favor of the McCormick, and bought the machine.

THE TOBACCO HORN-WORM.

A Virginia correspondent of the *American Farmer* writes as follows: There is a diversity of opinion with growers of tobacco concerning the tobacco fly; some contend that worms produced from the first deposit of eggs made by the fly each year, about the first of July, and spoken of by planters as the first glut, when full grown, descend into the soil, and change to flies in time to make the deposit of eggs which produce the second glut of worms which appear during the full moon in August.

Others believe that the worms produced by the deposit of eggs made in July, when fully grown, descend into the soil and there remain until time to make the first deposit of eggs the following July, and so of the second glut.

I belong to the second-class theorists, and thought that a case of such practical importance should be reduced to a test. Accordingly, on the 18th day of July of last year, I put into a box filled with soil one

full grown horn-worm, and on the 24th inst. I put into the same box three others of full size, and placed the box in a shaded place, leaving the top sufficiently open to admit the rain to keep the soil in the same condition as to moisture as other soil; thus giving the worms, as near as possible, the same chance they would otherwise have had to undergo transformation.

Upon examination at different times I found them changing rapidly, the worms soon assuming a brown color and chrysalis state; and on the morning of the 21st of August following, upon examination, found one full-winged fly ready for work and one in the chrysalis state, which in a few days would have become a fly, and two others which had perished in the chrysalis state; from which I infer that many of them die in passing through the change. From this experiment it appears that the tobacco horn-worm undergoes transformation in about one month. Is not this rapid transformation peculiar to this species of fly or worm, and worthy of further investigation? Will not some entomologist enlighten us concerning this matter?

Now for the practical bearing of the question: Since having ascertained by experiment that the worms produced by the first deposit of eggs, when they have attained a full size, are transformed to full-winged flies in one month, is it not very important that all of the first glut of worms be killed? Because by so doing we effectively prevent the second deposit of eggs, which produces the second swarm of worms, which are the most destructive, as they prey upon the leaves which remain upon the stalk of the plant after it is topped.

By exterminating as many of these as possible from year to year, and by also killing the fly produced by the worms which escape our vigilance, we may in time get rid of a pest which is vexatious, expensive and most damaging to our tobacco crops.

If any of our readers entertain the same doubts, or are troubled about the identity of the tobacco worm, (we believe the Southern name of "Horn-worm" should be adopted by our tobacco growers, as it is known now that different kinds of worms infest the tobacco plant,) we would respectfully refer them to our essay, commencing on page 37, March number of THE LANCASTER FARMER for 1877. And they will also particularly bear in mind that there are two distinct species, at least, of these "Horn-worms." One comes much earlier than the other, and this one also attacks the tomato, the potato, the egg-plant and other solanaceous vegetation. This species (*Sphinx carolina*) we have captured as early as the middle of June in the winged state. The other species (*Sphinx quinquemaculata*,) confines itself almost exclusively to the tobacco plant unless no tobacco is accessible, and then it will also attack the potato and tomato. But in Lancaster county, at least, there is only one brood during the year of either of them, although the appearance often is that it is otherwise. But this appearance is owing to the fact that the adult female moths do not deposit all their eggs in one day, nor yet in one week, or perhaps in one month. They feed and deposit their eggs in the evening or at night, and only a few here and there on the plants at a time. These eggs hatch out the worms at different times, and these times may also differ from the different periods of deposition, owing to varied surrounding circumstances or meteorological contingencies, and hence there may appear to be a dozen or more different broods during the summer. Those that feed on the honey of the "Jimson-weed" can be destroyed by poisoning the honey of that plant, but those that come before that plant is in bloom cannot be captured in that way, but may be struck down with a paddle or be captured with a hand-net attached to the end of a pole.

THE LANCASTER CHERRY.

We had hoped to be able to have published in this number of THE FARMER a regular description of this cherry, with an illustration of the same, but the time was too short to secure a cut properly representing it. By reference to the proceedings of the last meeting of the Lancaster County Agricultural and Horticultural Society it will be perceived that Mr. Daniel Smeich, of Lancaster city, exhibited a cherry which he had raised from the seed, and as it had grown on an unusual place on his premises, without his own planting, he had familiarly called it the "Bird Seedling,"

meaning that the seed may have been carried thither by a bird; at all events, that it was purely accidental. Nothing is known of its origin beyond this apparently spontaneous production of it; but the whole society united in their approval of its fine size and color, but more especially of its super-excellent quality. No fruit of the kind had come under the observation or experience of any of the members that excelled it. As we intend to publish an illustrated description of the tree, the foliage and the fruit, we need now only say that the berry is large, red in color, and the pulp very juicy and luscious to the taste, and we hope to see it extensively cultivated, as it deserves to be.

POLAND CHINA HOGS.

Poland Chinas, like the Chester Whites, are a native breed of swine, and being produced by careful and judicious selection from a number of crosses of foreign blood they are now so developed that they claim a front rank among all our breeds of swine. They are extremely popular in the West and South, where they are extensively bred for market, while in the East they already have many admirers and are gaining friends every year. Many hogs of this breed were inclined to be coarse and large boned, but by careful selection of

far above the average, yet there is room for improvement in many herds.—*W. Atlee Burpee, Philadelphia.*

REMINDER FOR JULY.

IN THE MIDDLE STATES, this, like June, is a month of labor in the garden. Weeds are in rapid growth, plants are to set out, seeds saved, and various matters require attention. Beans, plant for succession. Beets, the Long Blood and Sugar; also Mangold Wurzel may be planted for stock, as late as first of July. June is, however, much better. Beets, for late Winter and Spring use, may now be sown. Cabbage, plant. The Winter sorts of Cabbage should now be planted out; where many are to be transplanted it is proper to await a suitable time—a heavy rain or showery weather; but in a small garden Cabbages may be transplanted almost at any season, by careful watering, and, if need be, shading. Celery, plant. Endive, sow. Peas, a few may be sown; they seldom do well at this season. Turnips, sow.—*Landreth's Ru. Reg.*

GENERAL SUGGESTIONS.—The "heated term" is upon us with its activities, affluence of vegetation, and possibilities of acute illness. Now the plainest food, with an abundance of good fruit, fresh from the bushes and trees,

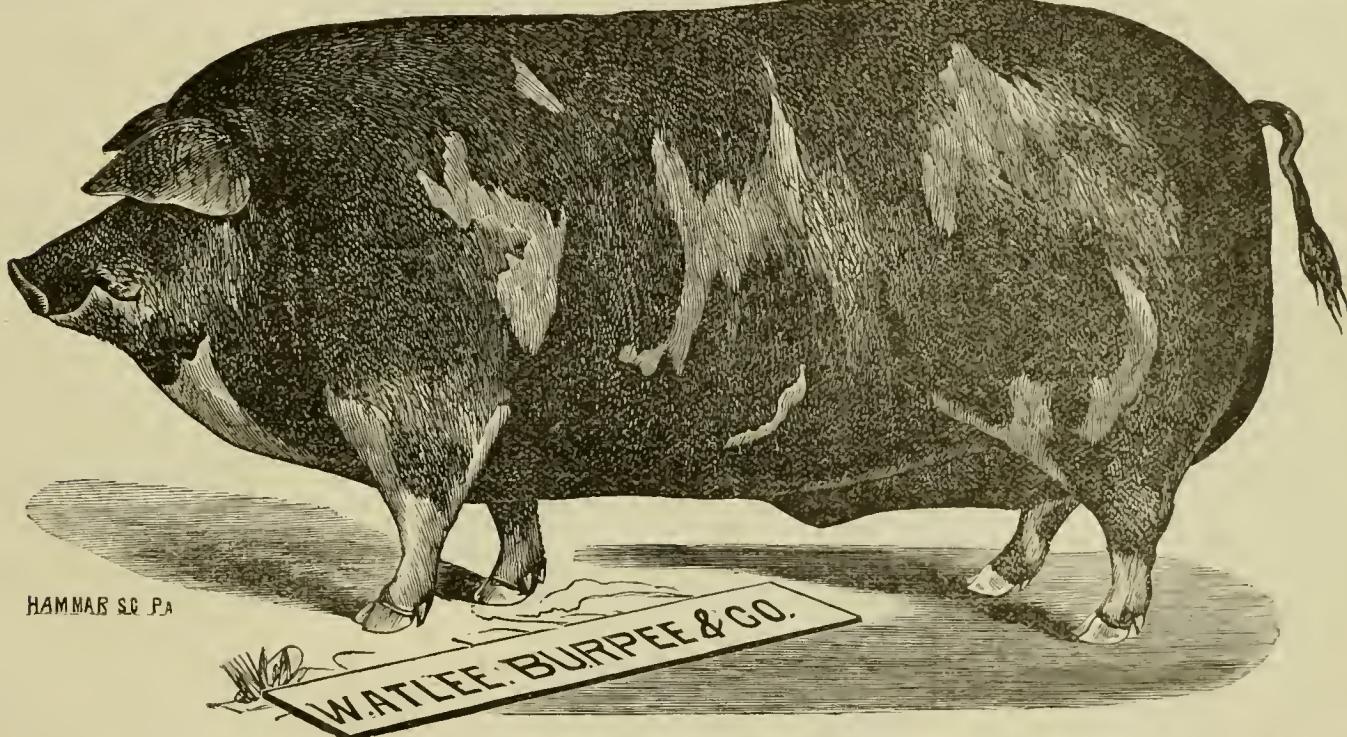
flies, and not keep out the fresh air and sunshine. Bud your fruit trees; allow no vines or fruit trees to overbear. Use the hose vigorously; allow no weeds to go to seed.

Don't drink ice-water. It is injurious. The cook who pours water upon her fire while she is getting dinner, knows that the potatoes in the pot will stop boiling, and the meat in the oven will not be fit for food. The same results from deluging the stomach with ice-water. The process of digestion will be arrested, and will not be resumed until the water is raised to the temperature required to carry it on again.

CORRECTION.

OFFICE OF PENN'A BOARD OF AGRICULTURE, }
HARRISBURG, PA., July 3rd, 1878. }

Editor Lancaster Farmer: In a recent number of THE FARMER, in the report of the action on the fence law, at the late meeting of our Board, I am reported as having said: "The value of the fences in this State amounts to over \$79,000,000, and that it required a dollar's worth of fence to keep a dollar's worth of stock in place." This is an error of \$100,000,000. What I did say was this: "The average of the whole farm land of the State (Pennsylvania) shows that the fences cost at the rate of \$1,124.25 to each one



HAMMAR & CO.

breeding stock they have been so improved that now they can be procured nearly as fine as the Berkshire, with small bones, (compared with size of body), fine skin, and ears so thin that the light will shine through them. They grow to very large size, and when well bred, as we have just described, fully illustrate that adage that while a "good little pig is good, yet a good big pig is better." They are of great length of body and easily fattened at any age; good mothers and free breeders. In color they vary from almost solid black to white, with a few black splashes. The color generally most approved is black with white splashes over the body, as shown in the accompanying fine illustration of a Poland China boar.

In concluding, we would only say that this breed of hogs and the Chester Whites, both being originated by American farmers, are naturally well suited to our needs, and should become so generally distributed as to drive all mongrel, "hazel splitters," long-snouted, long-legged hogs out of the country. It is a wonder to us how some farmers can be so "penny wise and pound foolish" as to longer breed the ordinary pigs which are found in so many sections of the country. While the swine of Lancaster and Chester counties are

should be eaten. Vegetables are coming in freely, and are delicious if rightly served. Tomatoes and corn are now in order. Of all the soups in the world, there is no better one for this season than the simple "Potato soup." See "Hygeian Home Cook Book" for recipes of a character appropriate to the season. Parsnips are delicious if stewed until slightly browned and served in their own juices. Parsnips vs. pills for constipated bowels. If the weather is oppressively warm, a sponge bath every morning will be found refreshing and strengthening for the day's work. If the baby have gripes or colic, put a warm wet cloth, covered with a dry one, around its abdomen, and don't crowd its stomach.

A word with reference to entertaining company. If you prefer the methods of hygiene, and practice them in your family, don't be ashamed to carry them into effect when you have guests. Don't play an inconsistent, false part before your children—otherwise you will be to blame for their errors and perversities in dietetics.

What the parents eat, the children will crave. Home life should be much out-of-door life this month. Plan work as much as possible to be done out of doors. Have nettings to doors and windows so as to keep out the

hundred acres, or 955 rods at \$1.15 per rod, making the total fences of the State cost \$179,834,404, enclosing an area of 16,374,641 acres. By the same data it would seem that our National fences cost the country \$1,747,549,931, or that in round numbers the value of our National live stock, the cost of our fences and our interest-bearing National debt may be represented by nearly the same figures, or in other words, it requires one dollar's worth of fence to keep one dollar's worth of farm stock in its proper place."—Respectfully, Thos. J. Edge, Sec'y Pennsylvania State Board of Agriculture.

QUERIES AND ANSWER.

"Danaus Archippes."

To Master Willie F. Connell, corner of Lime and Lemon streets, Lancaster, Pa. The beautiful green cylindrical object, with gold-like spots, which was sent to me for examination, is the chrysalis of the "Danaus archippes," a large reddish-brown butterfly, with black body, feet, and antennae (or horns) and many small white spots upon it. The caterpillars are greenish, and traversely striped with black, and have two penciled tufts of black hair projecting from each end. They

feed on the "Asclepias," or wild cotton, and other plants of the Milkweed family. The chrysalis is always found suspended by the terminal segment of body to a horizontal branch, a fence-rail, or some other object similarly situated, and the fly issues from it within ten days after it forms, if all the surroundings are favorable; but, if the transformation takes place late in the season, the chrysalis will remain in "status quo," and the butterfly will not appear until the following spring.

W. U. H.: The mineral from Quarryville which you submitted to us for determination is a beautiful specimen of *Calcareous Spar* (a crystallized carbonate of lime) with a narrow transverse vein of the sulphuret of copper penetrating it nearly through in the middle. At the end it exhibits traces of *specular Galena* (sulphuret of lead), and also there and elsewhere traces of common quartz rock. We shall duly install it in its proper place in the museum of the Linnaean Society, and record the thanks of the society to the generous donor.

We hope the Linnaean Society may be deemed a worthy and safe depository for such scientific and historical objects as a liberal public may be willing to delegate to its custody and care. It has no pecuniary or speculative end in view, but desires—so far as the means and opportunity are accorded to it—to benefit mankind, and especially the community in which it is located. The new departure of the society—at considerable expense—ought to be taken as a manifestation of its ultimate aims.

CORRESPONDENCE.

Aphids, and What They Are.

MOUNT JOY, June 21, 1878.

The enclosed insects were taken from an early cherry tree. Some of the sweet and sour cherry trees in our town are affected with them. I thought it would be of some interest and satisfaction to the public if you would give the name and particulars of these insects, where they come from, and whether they will kill the trees they attack, if not driven away by some means.

The extreme ends of the limbs are the place, where they have started on, which they use up as the ones enclosed are used up. Their work seems to be the same as that of the caterpillar, only, instead of making a web, they get wings and fly away, and the query is, where do they go, or in what shape, until they are seen again? Respectfully yours,

A. G.

DEAR SIR: Your insects on the leaves of a cherry twig were duly received and we immediately, after examining them, committed them to a street sewer, as the most convenient means to destroy them. They belong to the great family of "plant lice" (*Aphididae*), of which there are a very large number of species, almost every tree, shrub and plant having a species peculiar to itself. Some of them are indiscriminate feeders, but others confine themselves to a distinct species or genus of plants. The family has been very numerous this season almost everywhere, owing, we think, to the mildness of last winter, and the early and abundant succulent vegetation the present spring and summer. The species you sent us is the "cherry aphid," sometimes called rather indefinitely the "black aphid" (*Aphis cerassi*), and it probably confines itself to the various species of the cherry—including the wild cherry—and their varieties. In an excursion to Lampeter township on the 12th ult., we explored a ten-acre enclosure of woodland, in which there was much rank undergrowth, both annual and perennial, and there, in the very middle of it, we found a young cherry tree about five feet high (planted, no doubt, by some bird), nearly every leaf of which was crumpled and black with the same species of aphids, although we did not detect a single specimen on any other plant in the whole enclosure. This may illustrate how very local they are in the choice of their food-plant; although these, or a species very nearly allied to them, also infests the plum. In the early part of the season the "Peach Aphid" (*Aphis persicae*) attacked the first leaves of the

peach trees, and it appeared as if the crop would be destroyed; but fortunately they came too early, did very little damage to the blossoms, enervated the leaves, so that through the cool weather, winds and rains, the leaves were early shed and a new crop started, through which millions of Aphids were dashed to the ground and perished. Peach trees, therefore, now look thrifty, and if the crop fails, it will be from other causes than the Aphids.

These little animals have a very peculiar history, and perhaps there are very few others that are endowed in the same degree with the elements of proliferation and perpetuation; therefore, so long as vegetation germinates and grows on this earth, we may expect the presence of aphids. No doubt their creation was permitted for some use, although we may have failed to discover it. They at least furnish food to a multitude of other animals that we wot not of, and may also serve to check a too redundant vegetation in many cases. We believe we have noticed aphids every season for the past sixty years, and still vegetation goes on.

"Where they come from"—well, they come from very minute eggs, previously deposited on the branches of the trees they infest—so minute indeed that they cannot be detected by the naked eye, unless the sight is very sharp and the observation very close. They are not, however, uniform in their habits. Those infesting trees and woody shrubs differing from those infesting succulent vegetation. They have a very complex procreative function, adapting them to the climatic influences by which they are surrounded. The first brood in the spring are excluded from the eggs which have been deposited the previous autumn, and these are generally all wingless and highly prolific females. From thence forward, during the continuance of warm weather, they deposit no more eggs, but become viviparous, bringing forth their young alive and perfectly formed, just as mammals do theirs, with this exception, however, that they are born fertile and do not need the intervention of a male. In twenty-four hours after maturity the second brood will be in a condition to bring forth young; and so on during the whole season. Of course these operations may be disturbed or retarded by unfavorable contingencies, but from ten to twenty distinct germinations or more, are produced during the season, and if the warm weather continued up to Christmas or longer, and they were supplied with the necessary food, they would continue to multiply.

But when the cold winds of autumn approach, when juicy vegetation ceases and the trees begin to drop their leaves, a brood of winged males and females is produced; re-fertilization is effected; the females oviposit on the smooth young branches; both sexes die, and the winter is bridged over by an embryonic brood securely encased within the shells of the eggs, which are secured to the branches by an insoluble coating of mucilage, and invulnerable to the effects of rains, snows, frosts and icy winds of winter. Of course, through various casualties many of these eggs may be destroyed, but still enough remain intact to perpetuate the species the following season.

"The query is, where do they go, or in what shape, until they are seen again?" They are very tender and fragile animals. Slow travelers and awkward fliers, and the winged females during the summer fly to other trees, or to other branches on the same, and continue their reproductions there; but millions of them are destroyed by small birds—on the wing by swallows—such as wrens, fly-catchers, orioles, sylvias, and also by spiders, lady-birds, lace-wings, syrphus flies and a number of parasites much smaller than themselves; especially species of "Thrips" and "chafers," but perhaps the larger number of those flying abroad are beaten down by heavy rains and perish. If there were no natural checks to their multiplication, their injuries to vegetation might be fatal.

The wheat about Chambersburg, Pa., the

present season, and also some fields in Lampeter township, in this county, which we examined, was more or less infested by the "wheat aphid," (*Aphis cerasalis*), but that which we examined contained also an antidote in the form of a minute fungus, which destroyed more than one-half of them, and the winds and rains destroyed a large number of the others. About ten years ago the "oat aphid" (*Aphis arena*), very materially injured the oat crop in Lancaster county, but they passed away, and only a few have appeared at intervals since. *Aphis brassicae*, infests the cabbage; *Aphis rosea*, the roses; *Aphis malii*, the apples; *Aphis prunus*, the plums, &c., &c. "Will they kill the trees?" They are not likely to kill large and healthy trees, but the *Aphis persicae* has been known to kill or render unfit for use thousands of young nursery stock early in the season. Of one thing we may be well assured, they will never do the trees any good, for they live on sap, the very life blood of plants, and when they once penetrate the tree or plant they commence to pump up its juices and hang on while life remains, or until they become helplessly gorged, like so many hungry leeches, and they seem to be always hungry.

"The remedy"—Well, there are a great many remedies for destroying Aphids, but we do not risk much in saying that for every Aphid destroyed by a remedy, artificially applied, there are a hundred thousand that fall victims to casualties in the economy of nature, and if it were not for these, all human effort would be but feeble in effecting their extinguishment. Still, we may sometimes have a favorite tree, shrub or plant, that we desire to save or relieve from these noxious pests by an immediate remedy, and in such a case a tobacco decoction, a saponaceous solution, or an infusion of sumac, thrown on the plants through a garden Engine with power, will dislodge and kill the most of them. For this purpose also diluted carbolic or creosolic acid will be effectual, and in some cases even a strong stream of water is beneficial. Pulverized tobacco, lime, ashes, hellebore, Paris green, or even road dust are more or less effective. Aphids, however, like many other insects, occur in inexplicable cycles of time, which are by no means regular in their intervals. For one or two seasons or more they may be present in abundance, and then almost entirely disappear for a number of successive seasons, and then suddenly reappear as numerously as before, and so on, perhaps until the end of time.

LEBANON, June 28th, 1878.

MY DEAR SIR: I found a specimen of an insect on my plum tree, and being unable to ascertain what it is, and its habits and qualities, I was advised to send it to you for information. I send it by this mail. Will you please give me such information as you have on the subject. Yours truly,

GRANT WEIDMAN.

Your box and insect came duly to hand. It is the pupa form of a species of "Lady bird," (*Coccinella*) but it had received some injury in transit, and therefore died before the beetle could be developed; therefore, we cannot determine the species. From its size it may possibly be the *novem-notata*, or "Nine-Spotted Lady-bird." All, or at least many, of the genus *Coccinella* are aphidiphagous in their habits, feeding largely on plant-lice. They are amongst our most efficient insect friends, and therefore their presence on vegetation should create no apprehensions prejudicial to their economical status in the general harmony of nature. Wherever *aphids* abound, these little beetles, both in their larval and perfect states, will be found more or less numerous, and they devour many of them, and thus in some measure check their multiplication. If we have mistaken the specific status of this pupa, we have no hesitation in saying that it belongs to that "ring" at least. There are some of the *COCINELLIDÆ*, (Lady-bird family) however, that are vegetable feeders, and in the *imago* state probably most of them are polonaceous, when plant-lice are not accessible, and conspicuous amongst them is the large yellow, black-spotted "Tortoise

Beetle" (*Epilachna borealis*) or Northern Ladybird, but your insect is certainly not that species. If you find another, or any small number, we should like to have them for identification of species.

BRIGHTON GRAPE.

On page 51, April number of THE LANCASTER FARMER, we gave illustrations and description of this excellent and beautiful grape, which is rapidly coming into popular favor; and in order to enhance that description and convey a better idea of its size and form, both in relation to the berry and to the cluster, we superadd to our former notice a cluster of the natural size. We have very little more to add to our former description, except that the expectations of its patrons are in process of a satisfactory realization, and it is meeting with an increased demand. There is one consideration we may, however, be justified in repeating in this place, and that is *its early ripening*. Whether it is grown for home consumption or for the domestic market, an early fruit is always most relished and most profitable, whatever the kind or quality may be. Early fruit always commands the best price, and is rarely if ever subjected to that competitive glut of the market, which the later varieties often encounter. Those who have grown the "Hartford Prolific" know how that variety compares with other popular varieties in regard to the time of ripening, and the Brighton runs parallel with the Hartford in that respect.

Grown and for sale by Edward J. Evans & Co., York, York county, Pa. A cross between the CONCORD and DIANA HAMBURG, remarkably perpetuating the good qualities of the parent varieties. Price--One year old, \$1.00; two years old, \$1.50, by mail, including postage.

*OUR WHEAT CROP.

There was a time in the history of our country when this cereal was of less importance than now; when the poorer classes considered wheat too expensive for daily consumption; when rye entered largely, and with some almost exclusively, into their daily fare. That day has gone by, as the great majority of the poor as well as the rich would consider it beneath their dignity to eat rye bread. This feeling also pervades the older countries to a great extent.

Not only is wheaten flour required, but the best article that can be had, by all that can afford it, and by many who hardly can. The vast amount which is exported annually, besides that consumed at home, has stimulated wheat growing in the West to an unusual degree; in fact, to such an extent that an Eastern farmer with his high-priced land can no longer compete with his brother on his cheap virgin soil. A crop like the present one will, however, go far toward compensating the Eastern farmer, provided prices do not run too low.

Wheat being properly termed the "Staff of Life," it is of the utmost importance that farmers should endeavor to secure regular crops and market them in the best possible condition. It is but a few years since the question of wheat culture was discussed be-

fore this society, when the sentiment prevailed that we can no longer grow such wheat crops as our fathers did, and in addition, that Lancaster county flour does not stand so high in the city markets as formerly. This season's crop has dissipated the former notion completely, since the present is probably the largest that this county and no doubt the largest that this State has ever produced; and as to quality, with the improved machinery, *that* can be more than regained, provided we handle our harvest as our fathers did theirs. This brings up a question which must be fully and squarely met in order to decide the matter.

In the days of our fathers harvesting was more laborious, in the absence of the labor-saving machinery which is brought to the relief of the farmer now. Population then was more sparse, which made the force for harvesting not equal to the emergency, as now;

taking the side of late cutting, I do not feel like letting his theory and arguments stand forth as the sentiments of this entire society. When he says that wheat should be cut as soon as it passes from the milky to the doughy state, I fully agree with him, but when he says that it should be so ripe that it may be hauled to stack or into the barn so soon as in sheaf, then I emphatically dissent; for when it is cut just as it has passed the milky state, it requires from three to five days of fair weather to dry sufficiently for gathering in. Of course, if it is left lie in the swath or bunch to dry before binding, the case is quite different, but the farmer can take no surer method to injure the quality of his wheat than to cut it in the doughy state, and let it lay in the hot sun to dry quickly.

Now, as to the reasons for the theory of early cutting:

1st. When cut as it reaches the doughy state, the bran is thin and elastic, and can be separated more closely from the flour; when dead ripe the bran becomes thicker and more brittle, and cannot possibly be separated so well without being cut by the burrs, and a portion will pass through with the flour.

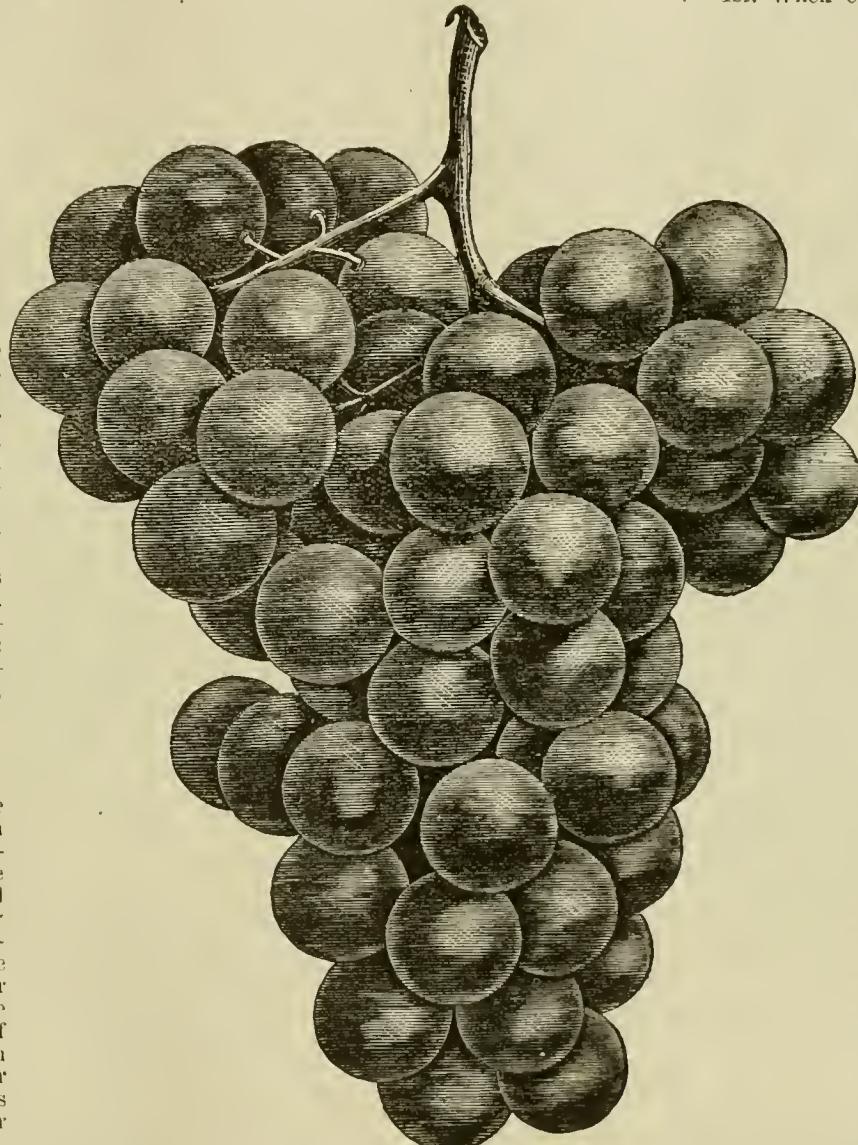
2nd. In addition to the flour being finer from the early cut wheat it will also be increased in quantity in consequence of the bran being lighter than when dead ripe, for in the latter case more flour will have to be carried off with the bran in order to make flour that will stand inspection.

3rd. The great saving of wheat which is otherwise lost by shelling in the field from being over ripe.

4th. The saving of room by binding and packing more closely than when dead ripe.

All these advantages will more than overbalance the risk of its getting wet, and consequently more difficult to dry than when fully ripe, which seems to be the strongest argument against cutting it early. The essayist referred to says, harvesting wheat too green will cause it to lose in weight as well as in flavor, but I claim that it is not too green when in its doughy state, and will no more shrivel than corn, when cut off and set in shock partially green, but either will shrivel some if cut young and laid down in the hot sun for one day, while that same wheat or corn may not shrivel a particle if set together, butts down as soon as cut.

The above essayist says further, "the premature gathering of any vegetable substance interferes with its maturity, and whatever injures its growth injures its taste," and refers as an argument to the peach, cherry and gooseberry, which is not a fair comparison; but let it pass. We will take corn, which comes nearer to wheat, and let him answer how much flavor green corn will gain by letting it get ripe, and as he has compared wheat with fruits, of which he is not ignorant, he must admit that nine-tenths of the pears improve in quality by house-ripening, and apples in nearly as great proportion, and neither will lose a fraction in bulk or weight, when full grown. To carry the comparison further, I would ask how much would peas, snap beans and cucumbers improve in quality by letting their seed get fully ripe, or how would cabbage, beets, turnips or asparagus be relished after their seeds are fully ripe; but enough of this.



consequently, the harvest would be entered as early as it would possibly allow, and seldom was any hauling off done before all was cut and set in shocks, and a large proportion was capped. By this custom wheat stood in shocks from one to three weeks, subject to whatever rains might fall during that time. Those were the days of that excellent flour whose decadence many at present bemoan, and strange that they cannot see the cause of it. The present custom is well known. With his improved machinery the farmer can wait to suit himself, then cut his harvest in a few days, and he is then ready to haul it off. He generally waits until it is fully ripe before cutting, so as to avoid rains; thus there are but a few days between cutting and hauling; in many cases it is even left lay in the hot sun so as to dry more quickly. As the question of early or late cutting is still a mooted one, and as one of the members of this society read an essay at our last monthly meeting

In discussing this question of wheat, it is not considered from a hygienic, but from a popular standpoint, for it is the candid belief of the writer that it would contribute largely to the health of mankind if all who eat bread would include the bran or at least a large proportion thereof. I believe, further, with a writer on hygiene, in referring to the folly of mankind for separating their wheat and feeding the best part to their pigs and the rest to their children.

From a popular standpoint, however, I am just as confident that early cutting and proper curing of wheat will make a finer flour and more of it, than when cut over-ripe, and that one of the prime causes of so much inferior flour being huckstered throughout the country is owing largely to the custom of letting it get over-ripe before cutting, as also from too rapid drying after it is cut. Another mistake is that of putting it in stack or barn to dry, which leaves it harsh and brittle, as all good millers know, and many of them will sprinkle or by some method dampen such wheat before grinding, if they wish to make a good grist of flour. Another fact is well established; wheat that gets a good rain while standing in shocks will be improved in its quality for making fine flour.

The wheat crop of 1878 deserves more than a passing notice, as it is estimated the largest in the history of this country, or, perhaps, of the world. It is rather early to be too positive of such a conclusion, but present indications point strongly that way. Should such prospects be realized, prices must certainly decline to a figure below which it can be produced without loss to the farmers, and of which they should not complain, as they have for several years reaped fair crops at full prices, and have been less affected by the panic than any other of our industrial classes. From what the writer can learn, there is a strong disposition among farmers generally to thresh out and sell off their wheat crop as early as possible, in order to realize the best prices. This advice is given generally by agricultural journals, and may not be out of place as a rule, but there are two sides to this, as well as to most other questions.

We may, or rather we *will* not be likely to see such a general good wheat crop for a time at least, and possibly another year may bring with it quite an offset to this bountiful crop, which would be nothing unusual. With these possibilities would it not be better not to rush off too large a proportion of the present crop at once? Should there be only a moderate foreign demand it will have to remain in the country at any rate, and would it not always be better for the producer as well as for the consumer if the greater proportion of the surplus was held by the farmer instead of by speculators? It would certainly prevent the sudden fluctuations, which are so common when any article of commerce is largely in the hands of the latter.

In reference to future crops, I would like to dissipate the prevailing notion that we can no longer raise wheat crops, such as our fathers did. That the seasons have much bearing upon our success or failure to raise good crops I fully admit, but we also know that the Supreme Ruler has adjusted the laws of nature in such a manner that they do not prove strictly uniform each season, and that our forefathers' efforts to raise wheat were subject to these same irregularities, and they had no special advantages over us except a larger proportion of virgin soil; but one thing we had better keep in mind is, there has been scarcely a season in a score of years that there were not some fields of good wheat, even in a year of general failure, which should teach us this lesson, that the cause of our failure is not altogether owing to climatic influences; either our fields were not in proper condition, or our seed was not all right, or something else within human control was wanting.

No thanks to him who raises good crops in favorable seasons, but he who always or generally succeeds in raising fair to good crops when all around him fail; it is he who deserves

credit for overcoming the obstacles which have caused failures with his neighbors. Such instances may be seen all over the country, not only applicable to wheat, but to other crops as well. Now, if our soil is to some extent exhausted for the purpose of raising certain crops, and we make efforts to extract therefrom what is not in it, we deserve failure, since we have access to fertilizers which contain the necessary ingredients to mature any crop we wish to raise. All that is required is to ascertain what is lacking therein, and apply such deficiency, and we may just as well put ourselves squarely down to some process of this kind; for bountiful mother earth will not be cheated of her just dues without giving us fair notice when we tax her too heavily.

THE DEPRADATIONS OF INSECTS.*

I am at a loss to understand why this subject was not assigned to the Entomologist of the Board, whose greater ability to treat it satisfactorily no one will question. That all the tillers of the soil should be more familiar with their insect enemies and friends will no doubt be conceded, but to select as your essayist one who has given this matter so little attention seems altogether out of place, and he trusts that all errors in his attempt to discharge the duty assigned him will be overlooked.

This subject is so extensive that even a practical entomologist could not in one short essay do more than merely enter the threshold thereof. It has been recently stated by some writer upon the subject that the value of crops destroyed in the United States by insects would in five years pay our National debt. I have no data from which to verify the correctness of this estimate, but would readily concede it to be within bounds, for their name is "legion," and their number, if not incalculable, is at least incomprehensible. We simply refer to a few of our insect enemies, and will mention them by their common names, because of our inability to Latinize them. By the most prominent we do not wish to be understood as meaning the largest, for the greatest damage is often done by the very minute insects, and it is their very minuteness that tends to so much indifference on the part of many whose crops frequently suffer largely from their depredations.

If all destructive insects were as large and did their work as openly as the Colorado beetle, or the Rocky Mountain grasshopper, their ravages would be more determinedly counteracted. The latter, however, we hope will never cross the Allegheny Mountains.

Of all farm crops grown in this country grass is estimated of greatest value, and has at least in this section of the country but few insect enemies. The wheat crop, however, we may consider of greatest importance, and this has in some seasons been greatly injured by the ravages of insects, and by none more than by the Hessian fly. Although a foreign intruder, it has found its way into almost every State in the Union, and the worst feature of the case is that thus far there has been no effective remedy found to destroy them, or scarcely to counteract their ravages. Late sowing is advocated to prevent its multiplication rapidly, but this remedy very frequently amounts to little, for when it is on hand, only an unfavorable season for its reproduction will keep it in check. It has been claimed by some that it multiplies rapidly in wheat that grows up between harvest and seeding time.

The Field Weevil formerly curtailed the wheat crop largely in some sections, and the only counteracting remedy seems to be the sowing of varieties of wheat that mature early. In some parts of the United States the chinch bug is very destructive to wheat, as well as other crops, but our State has suffered but little, if any, from this enemy. Indian corn is almost entirely exempt from insect depredations, if we except the "cut worm" in its early stages. This enemy sometimes

makes great havoc, but fall plowing in this latitude is generally a preventive.

The Colorado beetle is one of our most important insect enemies, yet it may to some extent prove a "blessing in disguise," since the application of Paris green is all that is necessary to keep it fully under control. I trust I will not exaggerate by saying that we now raise better crops of potatoes, as they require closer attention than formerly. They are also planted at more appropriate seasons, *i. e.*, early and late, instead of mid-season, as was often the case heretofore. The application of fertilizers with Paris green, such as gypsum, lime, ashes, &c., also has a tendency to improve the crop.

The Green Cabbage Worm has been very annoying as well as destructive for several years, and requires close attention to keep the crop uninjured. Various remedies have been applied against them, but withal there is much loss from their ravages. Wood ashes, quick lime, salt, bran and other ingredients have been applied with more or less effect, but in our experience not altogether with satisfactory results. Pieces of board or lath placed between the rows, a few inches from the plants, will attract the worm to pass its chrysalis state, and many can be captured in that way, but more will escape. Hand-picking is a certain remedy so long as the cabbage is small, but very tedious and uncertain when heading. For several years past I have paid boys a certain price for all cabbage moths captured on my grounds. This season I offered a penny apiece for all captured before the first of May I invested about two dollars, since which time I have seen very few. I think that the brood that survived the winter was almost entirely destroyed, and scarcely a sign of worms can thus far be seen. I consider it the best preventive and most satisfactory method that I have yet tried.

The Striped Cucumber Beetle is one of the most provoking of all insect enemies; not that the crops which they destroy are of so much value—except melons in some sections—but they often come so suddenly and in such numbers that a lot of plants, be they ever so promising, are frequently destroyed in less than twenty-four hours. After once attacking the plants they are not easily driven away by any application; but they may occasionally be prevented by dusting the plants with slaked lime, wood ashes, or even road dust. Our latest and most effective remedy is the same as for the Colorado beetle, *i. e.*, Paris green applied in advance of their attack.

As regards insect depredations upon fruit crops, the Codling Moth and Curelio are most prominent. The former, perhaps, destroys more fruit than all other insects combined; not that the Curelio is less destructive in its way, but because apples are more generally grown in our country than any other fruit. The Curelio also attacks pip in the absence of stone fruits, while on the other hand the Codling Moth also propagates its kind in stone fruits. The latter operates only at night, and many can be destroyed by placing a light over a tub of water, or filling jars or wide-mouthed bottles with sweetened water, and hanging them on the trees, but some friends as well as enemies will be captured by these methods. Many of the larvae may be destroyed by tying hay-bands, canvass or old clothing around the stems of fruit trees, in which the larvae will seek shelter to pass the chrysalis state. These must be removed and burned, or the larvae crushed not less than once in 12 or 14 days, commencing not later than the 1st of June. By picking wormy and fallen fruit continually, or having stock in the orchard that will eat it, a large portion of the larvae will be destroyed, which would otherwise multiply rapidly. For the destruction of Curelio there are many methods advocated, but thus far none well established except the jarring system, properly and regularly attended to. The hanging of corn-cobs, saturated with coal tar, upon the trees, is claimed to keep off the enemy, but I have noticed this season upon a neighbor's

*Essay read by H. M. Engle, of Lancaster, before the State Board of Agriculture.

plum tree where the "little Turk" has left his "crescent" quite close to the saturated cobs. The most plausible method, aside from jarring, would seem to be the burning of coal tar, turpentine, pitch, or any other substance under the trees that will make a sooty smoke, which adheres to the foliage and fruit. This method, repeated as the rains wash away the soot, is claimed to be an effectual remedy.

Caterpillars are very destructive some seasons among fruit and other trees, and we believe no effectual remedy has thus far been devised except by destroying the eggs, which we find deposited in crotches of the trees and branches, and covered with a white web. If neglected at this stage the next best remedy is to follow the trees and destroy the nests in the first stages of development, which may be done with a pole with some sort of swab on the end saturated with coal oil.

The familiar Rose Bug (by some called "June bug") has been very annoying some seasons by destroying the foliage of some trees, more especially the cherry. Birds or domestic fowls seem to have no relish for it, though it is easily captured. One of the easiest methods of destruction is to shake or jar the trees on a cool morning and trample the insect under foot.

The various Species of Aphis do far more injury to trees and plants than the casual observer imagines, as they operate under as well as above ground and their capacity to multiply with almost incredible rapidity, makes them a very prominent enemy. Wherever they can be reached, however, the smoke or liquor of tobacco is sure death to all of them.

Leaf-Hoppers, or Thrip, as they are generally termed, play an important part in injuring the foliage of trees and shrubbery, and especially of the grape. Occupying the under side of the leaf, and as the mature insect will fly, it is very difficult to destroy them or even keep them in check. A dry season seems to be favorable to their operations.

These are some of the insect enemies that are quite common and figure largely in reducing and in many instances entirely destroying the brightest prospects of the farmer, and yet how few, comparatively, of the tillers of the soil who think it worth while to make themselves acquainted with the habits of these their certain enemies. If those directly interested in this matter would apply part of the time devoted to severe muscular labor to the study of entomology, their success would be more certain, with less wear and tear both of body and mind.

CROP REPORT.*

Our report of the crops in Warwick and vicinity is about like the average reports from other parts of the county. All crops are good, except corn, which has so far not shown that progress it usually makes by this time in the season. There are a few fields that may be called good, none very good, still with proper weather it may yet make an average yield.

Hay and wheat were never better, at least in Warwick and Manheim townships, both in quantity and quality. The average yield of hay is from two to two and a half tons per acre, and is so plenty that farmers are compelled to seek for buyers at from ten to fifteen dollars per ton. Many stacks were made and buildings filled that were not filled for years.

The new grass crop is also excellent. Wheat is a full crop, both as to quality and quantity. The Clanson and Amber have done well, perhaps the best.

Harvest has fairly commenced and one week of fair weather, such as last week, will see most of the wheat gathered, and will be one of the best and largest harvests for many years in Lancaster county.

Oats will also be a good crop, from present appearances; the straw will be long and stiff, and the heads full and perfect, but is a little back yet, hardly come to the turning point, or yellow color.

Rye is well filled, the straw fine and flexible, and is good in every respect.

Potatoes are good; some nearly ready to take up. The bugs have not been very injurious this season.

Cherries were in abundance and cheap, but, on account of wet weather, were soft.

Peaches promise a good crop.

Strawberries were also in abundance and perfect.

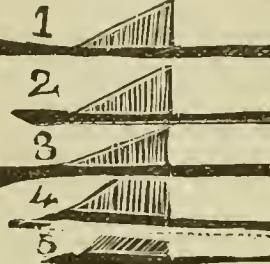
Blackberries and raspberries appear to promise a good yield of good fruit.

Tobacco is only middling; some patches are forward while others are backward. The roots are affected with what some call "black roots," but it is rather early yet to say much concerning this crop.

FOR THE LANCASTER FARMER.
SETTING A PLOW.

There is a great deal in the setting and sharpening of a plow to make it work easy for the plowman, and hardly one out of ten is set properly. I plowed many years, when I was young, with great fatigue, and had sore arms every night. But now I sharpen my own plows and have a blacksmith shop on my farm, and can plow with ease.

The way plows are usually set is, as shown in Fig. 1, with the point of the nose about two inches wide. It runs well enough for a while, but then, after plowing some time, it fails to take furrow enough. You then regulate it on the elevis, or on the beam. After this it goes a little better, but soon you will have to regulate more, but still find that the plow wants



to go in the old furrow, and you must hold it all the time straight, and the duller the plow gets the harder you must hold, and the land side of your plow-share becomes like a sleigh runner, pointing out of the land, as

shown in Fig. 2. Of course, then you take your plow to the smithshop to get it sharpened, and you tell the blacksmith to give it a little more land, when he will set it as shown in Fig. 3. But the smith gives it too much land in the beginning, and when about half dull it is about the same as it was before. He should have put in no "groove," as it drives it out too far.

I set my plows as shown in Fig. 4. I make the point of the nose only three-quarters of an inch wide, but a little thicker than usual, in order to give it strength; then at the point of the wing of the share I bend it out, and then in again about the one-third of the length of the point, so as to come in a line with the hind end of the land side, when I hold a rule on it. I make the hollow place from one-half to three-quarters of an inch; you can see it by the line marked *rule*.

If a plow is set in this way it will not have too much land at first, and will have enough until it is dull. The bottom I make straight, except where hard, dry land is to be plowed. If I have a plow that is apt to run too shallow I give it a little "drawth." The point soon gets round and as sharp as a needle, and when the plow gets to run too shallow I lay a stone under the point near the end, and take a hammer and knock it down a little once in a while. When it becomes dull, it is as shown in figure 5. I do not make the point as hard as usual, so that it will not break when I knock it down. It is better to have the point a little softer than usual for this purpose. Of course they wear out faster, but if it is so very hard it is apt to break in knocking it down, and must be sharpened sooner than when left soft. Plows set in this manner will run steady, and are easily guided. When hard and dry ground is to be plowed this arrangement is necessary, but when the soil is wet and loose, it does not make much difference how a plow is set. I have used different

kinds of plows, and found that all of them run best when set in the manner I have described. At present I have in use the Root Plows. On coarse gravel, or on land full of small stones, it makes a difference almost as distinct as that between day and night, with the same plow. Plows set in the old manner must be held hard all day, and even a strong plowman will have sore arms at night, and as to boys of fourteen or sixteen, it is impossible for them to manage the plow so as to make good work. But it is very difficult for a farmer, who has no blacksmith shop of his own, to get his plows set in this manner, at least I found it so. I have sometimes taken plows to the blacksmith shop, and have told the smith how I wanted to have them set. But when I was away, and he went at the work of sharpening and setting, he seemed to have forgotten all about my instructions, or did not care about encouraging anything that was different from his own ideas on the subject, and therefore I would find my plows set in the old way again. In short, they don't like to set a plow in the manner I have described; "it's not the fashion;" it is not *their* way, and therefore cannot be a *good* way, and they won't have any faith in it, and so keep on in the old 'rut.' Instead of doing a man's work in the manner he wants it done, and which his own experience has taught him is the best way for him, the smith—and perhaps a good many other well meaning people—will try to persuade you that this new way cannot work well, and that they would not have such an ugly-looking plow standing before his shop, or on their farms. They fear it will spoil their trade, and that those who pass by the shop will see it and talk about it. Mechanics in general, think that whatever belongs to their line of business, they know all about it better than anybody else, but they are sometimes mistaken, with all their routine knowledge. Farmers who use the implements often know more about them, and how they ought to be made and adjusted, than those who make them. The difference is one between experimental and merely theoretical knowledge. A man, for instance, may read a scientific book on swimming. He may learn how to spread out his arms and kick out his legs—may know all about the relations of his own weight and the sustaining qualities of the water—what muscles are brought into exercise, and all about their expansion and contraction, and when he plunges into the water he may find that he can't swim. Why is this so? Simply because all his knowledge was based on mechanical theory. There was something about the practical part of swimming that his book did not teach him, and never could teach him.—J. G., Warwick, July, 1878.

FOR THE LANCASTER FARMER.
THE HONEY-BEE.

MR. RATHVON—*Dear Sir:* Permit me through the columns of your valuable paper to make a few remarks on the habits and customs of the honey-bee. Through strict attention to their habits I have learned what I always believed to be, what I have proven to my own satisfaction, to be a fact: that is, one queen bee is not sufficient for each hive or stock. With one of my strong stock I made the experiment or an examination on May the first; on opening the hive I found five queens and four queen cells; on the eighth they swarmed, alighting on a branch of an apple tree. I was with them at the commencement of their coming out; I saw two queens, and they being almost the last to leave the hive—in fact the workers were alighting before the queens left home. Not being entirely satisfied with this, I put them in the new hive very cautiously, a few at a time; I soon found one queen, and put her under a glass tumbler; pretty soon I found another, serving her the same way; I had now got about two-thirds in the hive; I gave them one of the queens; the other I put in another hive. I had now made up my mind to divide the swarm, and as usual, pushed

*Read by Peter S. Reist before the meeting of the Lancaster County Agricultural and Horticultural Society, July 1st, 1878.

them off a few at a time; at one end of the branch there was a small cluster of bees; leaving this for the last, I scraped them in my hat, and on spreading and running out I spied the third one; this one was somewhat larger than the others; I gave her to the smaller number. Both stock did well; in fact, they are both working on the frames and boxes. I then examined the mother hive, and found three queens, all young, and three queen cells almost ripe for hatching. On the tenth day after, from the same hive, I had another swarm, and determined to conclude my examination. I found two queens, and again looking into mother hive, I find four queens and no cells; they being cut off, as they were of no more use, as they were stuck on the edge of the frames, and of a round shape on the inner side, not six-square, like all others. On the fifth day after the second swarm they threw off the third, it being small and contained but one queen. Looking in mother hive again, I find but two queens; perhaps the third gave me the slip, as they are very shy, not wishing to be seen. There was no more queen cells, and have been none since; this part of the breeding for the season is done. I made this examination to gratify my own opinion, never believing that one queen was capable of rearing so many bees as to keep up the supply of deforms, cripples and natural deaths, which is only six or seven weeks of life duration during working season, and also give three swarms and leave a large family at home, all in two or three months. If there is but one queen, what is the use of from four to eight hundred drones in each old stock. Divide those drones in each swarm, allowing one hundred for each queen, there is none too many. Some writers say that the queen meets the drone in the air; I never saw a queen leave the hive or return to it, except when swarming, and they are then the last to leave home. I had a bee-keeper to tell me, the other day, that if the queen was not pregnant within twenty days after coming off with the swarm she never would be, but she would lay eggs that would hatch drones, and drones only. I said to him, this would suit those who breed game cocks for the pit, as they need keep nothing but the hens, as they will assuredly lay eggs, and hatching nothing but cocks it would be a saving of expense, and no risk to run in hatching what is wanted. The queens will not leave the mother hive until they are pregnant, as we will see on examining the new swarm the next day—we find an egg in every cell, although they are not more than a quarter of an inch in length. There are many things yet to be learned about the honey-bee. Book agriculture is of but little use, self-experience is the best always.—Yours respectfully, Wm. J. Pyle, June 1st, 1878.

FOR THE LANCASTER FARMER.

BLACKBERRY CAUSALITY.

FRIEND RATHVON: The branch of a species of blackberry left with you by John B. Erb, Lime Valley, after a thorough inspection, I agree with you, as you surmised it to be, is "a morbid aftergrowth, which is making an effort to run into a second crop of flowers and fruit, and is injuring the first crop." I have quoted your words, having substantially come to the same conclusion. I will now give my reasons.

1st. The excrescence-like appearance of a dense conglomeration of vegetable growth from the axillary leaf buds, of a rusty color and dry, scorched appearance, reminded me of a rose bush infested with a red fungus (*Coleosporium pingue* is one of the names given to it), attacking the rosaceous plants in May and June; the above name refers to the European species, but on comparison with the illustration, I could detect no difference. However, on closer inspection, I had to abandon the idea of fungoids discoloring the stipules and leaves. Then I queried, could it be caused by the sting of an insect, causing a flow of sap and diversion in the normal development, so as to induce an excrescence? I found, however, the central axis of growth and cells healthy or green, and the outer only dry,

snuff-colored and shriveled up; no sign of an egg or larvae, hence I had to abandon that supposition. Now for the true cause. If we study cell formation and growth in plants we find the formation and development follow certain laws of plant life if not arrested, checked or interfered with. These checks and interferences are also governed by laws, and thus antagonism is experienced, which nature, in its prolific life-forces, attempts to overcome, by putting forth renewed activities. For instance, an early warm spring starts the sap, the buds swell, the leaves unfold their tender tissues and develop cell after cell according to the pattern and ultimate design of the plant; thus, in its precocious venturing forth by the stimulus of the warmth and moisture of early spring, it has thrown off its winter safeguards and a sudden cold snap or chilly weather will cause the tender vessels to shrink; a cold rain may cause a check and produce like results. It only needs a check, a few days dry or warm weather acting on the exposed portions of the plant. Without sending a reinforcement from the soil the aqueous or volatile portions of the sap will exhale or evaporate, causing the external cells or tissues to collapse and become agglutinated, by converting the ligneous or wood-forming portion of the sap into a tough mass, clogging up, so that the subsequent flow of sap cannot penetrate the outer tissues; these now dry up or are imperfectly developed; but as the fruit or blossoms appertain to the central axis of growth, they may continue the struggle and attain to some degree of development, as seen on the branch in question. Yet, to account for the dense conglomeration in the axil of the older and lower leaves, we find in some cases adventitious buds or young branchlets, where the compression of the cells causes the elemental vitality used normally in a gradual elongation of the stem in its growth to produce in succession out of the leaf—the calyx, corolla, stamens and pistils to the berries in forming the fruit. These are all represented under the microscope in an undeveloped state, and seemed pressed out of place laterally, causing a confusion and conglomeration. I find the rudiments of pistils and stamens comprising the yet green and growing centres, traces of the corolla and calyx, leaf-like in the medley, with the leaves proper having died off, and of a snuff-brown color.

The molecules of matter taken up and used in the normal growth of the plant by the life forces, become refractory, and the building up, in this particular, becomes a "babel of confusion," and an abnormal development through conflicting forces evidently existing, in the vegetable as in the moral or animal kingdom.

This, then, is an evil, that without protection to the plant after it has thrown off its winter suit, and is not prepared for a chill—I advise a covering of some sort to meet cases like this.

A young man went to the tip-top house, on the White mountains, New Hampshire, a week ago, on one of our warmest days in June; he was glad to pay a painter at work there for the use of a heavy overcoat, while on the mountain. Circumstances alter cases.

P. S. Will Mr. Erb inform us whether bushes of the same species, behind some shelter, or some protection against cold wind or rain, were affected in like manner.—J. Stauffer, Lancaster, July 2, 1878.

[Having thoroughly examined Mr. Erb's blackberry branch, we could detect nothing that appeared to have its origin in insect infestation, and deeming it a subject that would come legitimately under vegetable physiology, we turned the matter over to our friend, Mr. Stauffer, as coming more fully within the scope of his specialty. We would suggest, however, that when such a morbid growth appears, we should act in the case as we do when "suckers" appear on corn, or any other plant; for when the fruit is set on bearing branches made the previous season, all efforts of the plant to bloom and bear another crop in the same season, will render both crops abortive.—ED.]

FOR THE LANCASTER FARMER.
REVU OF JUNE NUMBER.

Lancaster County Cattle.—The establishment ov the Royal family ov Manor must be a grand affair. The netnes and clenlines described is worthy ov imitation by ane won hu keps stock, specialy for the Dary, Tobaco and pigs in won bilding sut very wel together. The smel ov both is alwas obnoxious to unperverted olfactories.

The Robin Doomed to Death.—When grt doctors disagre the comon pepl hardly no what to do with the robins. We lik ther music, but wen tha tak our cherries, we fel quit nutral whether the birds or insects destroy them.

The Cultivation of Wheat.—The New York Tribune thot it smeld a Yanke in the whet cultivation in yur counte, but he seems to hav turnd out a comon Pennsylvania Dutchman. The Tribune barks up the rong tre somtims.

Lancaster County Farming.—Messrs. G. & D., tu farmers from Berks county, hu pad a visit to the farm of Levi Groff, in Lancaster county, mak a very favorabl report ov his what cultivation. Tha beter report to the Tribune that tha found the obscure Yanke.

Haymaking.—Ther seems to be much interest manifested in the tim to cut gras to mak gad ha, and the tendency seems toward cutting erly.

How to Save Plums and Gooseberries.—If this proces shud prov a certan remedy aginst the little turk, he ma yet be banished. It is worthy ov trial. And why not hav thos fin larg goosberries, if tha can be gron by such an esy proces.

Sixty Thousand Species of Bugs.—No wonder we sometimes get alarmed when we think how rapidly tha multiply. Hu cud calculat ther numbers.

Thin Out Your Fruit.—This articl, with the editor's coment, is so ful ov instruction, and ov such vast importance, that it is never out ov plac. The thining can be don with advantag until the frut is nerly ful gron, but beter erly.

Game and Fish Law of 1878.—We fer the stat wil own al the fish and fowl by and by. It makes no provision for a man to fish on his own premises.

Plymouth Rock Fowls.—Thes ar fin birds, perhaps non beter, but yu no pepel will not be satisfid with any thing nativ. Fowls as wel as other things must hav som foren twang to mak them popular. What folly.

Best time to Harvest Wheat.—This question is ov more than ordinary importance to the producer as wel as the consumer. P. S. R. seems to occupy both sids ov the question, so we hardly no which he favors most. Perhaps he tut both sids so as to be sur he's rit.

Local Fruit Nomenclatur.—This is a sensibl articl. Yur counte has a far list ov gad fruts already, but stil mor ar coming.

The Tomato.—This has becom such an important articl ov diet, that ther may alwas something nu be sad about it.

Rambing Thoughts.—A. B. K. seems alwas to hav a stor ov exelent ideas whether rambling or otherwise.

Around the Farm.—We infer that Ruralist must alwas hav his bisnes in gad trim, as he is continually around the farm.

A Simple Refrigerator.—Ice having becom so much an articl ov necessity, that any discovery whereby it ma be economised shud be fully tested, hu nos but ther ma be as much rum for improvment as in electricity.

Utilization of Waste Matter.—This is won ov the most important subjects, and wil apply in so many cases. Chemistry is continually making nu discoveries, and we ma sun conclude ther is no such thing as wast. In Agriculture the dran by wast is simply enormous.

State Board of Agriculture.—We ar watching that institution with a critic's i, but hav thus far found nothing to condem. We predict for it a grand futur.

How to Use Fertilizers.—The Scientific American puts this question in the proper lit. No dout it wil pa to us fertilizers, if farmers just nu what and how.

Hoeing Wheat.—The reasoning on the *Practical Farmer* is very convincing, and shud induce many farmers to experiment with first opportunity.

Value of Hen Manure.—Any farmer hu lets this fertilizer go to wast, shud emigrat to wher no fertilizer is neded.

Protecting Corn Fields from Birds.—We hav quit planting corn without a slit eoting ov col tar, and then roled in gypsum. We rest esy sius adopting this plan. The birds let it severly alon after puling a fu stocks. Wire-worms ar a grar musans in som soils. If sut wil drif them of, it is wel worth saving.

Protecting Trees Against Worms.—If bandaging wil drif them of it shud be made non to every tre planter. Many, no doul, wnd aply it.

To Keep Cabbage.—In order to hav coleslaw in May, Major Freas recomends to kep it rit sid up, insted ov the comon wa ov inverting it when put into winter quarters.

Is the Strawberry Wholsome.—This question is also from the *Germantown Telegraph*, ansered partially in the negativ. We beleve that thos hu wil become afected with pimpls and boils from eting strawberies wnd better contine eting them, as wel as plenty ov other fruts, until ther systems assume a normal condition.

Success of an Exposed Orchard.—This eas seems to xplod the comon ide ov protection necessary to orchards. We put it down as a mooted question.

Uses of the Lemon.—According to this articel this frut has hitherto bin undervalued. If it wil cur consumption let it be mad non. Ther wil be no want ov eases to try.

Cellars.—The articel under this hed, if closly observed, wud prevent a vast amount ov sickness and many deths. Can pepel not be educated to a noleg ov the magazines ov misery and deth beneath ther fet.

Habits of Curculio.—If the little turk does his mischif at nit, it is hi tim we no it. Hencforth folo him with lanterns.—*Von Humbolt.*

FOR THE LANCASTER FARMER.
RANDOM THOUGHTS.—No. 2.

Improper use of Paris Green.

I see it recommended in some papers that Paris Green be used to destroy insects on house plants, with the instruction that it be mixed with water, the idea being that it is not so dangerous in this manner of application. It is bad enough that we must use so powerful a poison in our fields, and it is little short of insanity to use it in a dwelling. Time and again have cases been brought forward of all the members of a family becoming sick, and on the cause being traced up, it had been found to result from the wall paper which had the green shades or figures printed with a preparation of Paris Green. If this poison, when fastened to paper with oil or varnish has so deleterious an effect, what must be the consequence where it is used merely suspended in water, the latter evaporating in a short time, leaving the poison free to be wasted by every little movement of the air from persons passing to and fro in the room.

Poisons are useful in their place, but be assured that Paris Green is *not* in its place when used on house plants.

A Time to Plant.

Our present spring has brought many of our pushing tillers of the soil to grief. We had very fine weather, summer weather in fact, in April, and this so worked on the feelings of those who want to be ahead of everybody else with their work, that they put out tender crops from three to four weeks before the ordinary time. The result is that many things, like sweet potatoes, peppers and the like froze outright, while the more important crop of corn has been coming up very irregular, and what is up of this early planting is yellow and puny.

While no crops should be delayed in their putting out when the season is at hand, it should be remembered that in all tender crops there is no gain in putting them out before

the time, but they are actually later in coming to maturity. It is at all times better to be a week or ten days late in corn, &c., than so much too early.

Those Fruit-Eating Birds.*

In the last few weeks I have read two artiels, one against the cat-bird and the other against the robin.

The first article was copied from *Harper's Magazine* into *THE FARMER* for May, and the comments of the editor appended, who has even a worse opinion of the bird than the writer of the article copied. Both admit his better points of singing, familiarity, &c., but from one he steals cherries and from the other he steals Clinton grapes.

We will admit that he does take some cherries and grapes; he will even take strawberries and currants without asking your leave, but if your cherry trees are of any size all the cherries taken will hardly be missed, and of the other fruits enough should be raised both for the bird and yourself, for if you destroyed these birds (the cat-birds and robins,) insects of all kinds would soon be so plentiful around dwellings that you would not have even a taste of fruit.

The "spring and breeding season" is not the only time they are insectivorous, for when such fruit as they eat is a failure or out of season then they certainly feed on insects, as they must have something to eat, and I never saw them at seeds of any kind.

What is said in favor of the cat-bird can also be spoken for the robin, even in a greater degree, the *Germantown Telegraph* to the contrary notwithstanding. According to this journal it would seem as though the robin eats very few insects, but lived principally on fruit. In the fruit season the robin will probably eat fruit mostly, but he will at the same time hunt for insects, as I have repeatedly seen.

When it is remembered how long a time the so-called insectivorous birds are with us each year, and in what a short period of that time there is any fruit ripe that these birds will surely eat, we should have only words of commendation for servants and friends that appropriate a few tidbits for important services rendered.

Progressiveness.

Von Humbolt does not seem to have a very good opinion of the progressiveness of the majority of farmers. Now, it has to be considered that farming, like any other calling, is usually followed to make money, or at least what is called "a living," and most of those following this business invest *their own means* in it, and this itself usually makes a very careful and conservative business man. As long as farmers make money surely, though it may be rather slowly, it is to their interest to keep on in this way until they are certain that there is some other crop or improved variety that pays better and just as certain of returns. Just so soon as this line of policy is ignored just so soon has the farmer's business become speculative, and then we will hear of as large a percentage of failures as there is among the mercantile profession.

We often hear of the "progressive ideas" of the western farmers, and instances are given of how many thousand acres in wheat or corn this, that or the other "agriculturist" has under way, and how much profit there has been in it. As a rule we are given long and glowing accounts of the successful ones only; those not successful, and whose failure drags friends and acquaintances along into bankruptcy, are given a short paragraph, or no notice at all appears, except at the court-house of the county that has had the honor of one of the "progressive" kind.

Let me not be understood as meaning that there was dishonesty in such cases as the latter, but as soon as a farmer gets outside of the pale of conservatism, just so soon will the chances of his failure be greatly multiplied.

*This was written before the issue of June number of *THE FARMER*, and covers about the same ground as the editor's article in the number mentioned. By constant hammering even a piece of cold iron will at length take the desired shape.

While I hope that our farmers may be wide-awake to take advantage of every implement, or of every improved method of culture that is sure to safely increase their profits, I also hope that they may never be infected with the fever of "progressiveness" as this word is now usually understood, taken in connection with farming.

Mixing Varieties in Cultivation.

I have never been very much in favor of sowing different kinds of wheat on the same ground, nor planting corn in the same manner.

I think I saw a statement a few years ago of a man who was uniformly successful in getting his ears of corn filled out, and he ascribed it to planting two varieties, one being some two weeks later in maturing. It is well known that some years the pollen is shed before the ends of the silk (the stigma) is sufficiently advanced to be fertilized, or the silk may have become too old when the pollen was ready. In either case the result would be "nubbins" and poorly filled ears. The idea was that by planting two varieties, blossoming at different times, the chances that the silk and the pollen would be matured together, in part, at last, would be greatly increased. The argument looks very plausible, and might increase the average yearly yield.

This season I had the fortune to see a field that was sown to two varieties of wheat, mixed about in equal proportions. The varieties were "Improved Mediterranean" and "Fultz."

In the moister parts of the field the Mediterranean "tilered" most, and I suppose there were twice as many heads of this variety as of the Fultz; in the higher parts they seemed about in equal proportion; but right at the brows of the elevations, the Mediterranean was nearly a failure, there being but little else than Fultz seen.

In this case there was certainly a benefit in mixing the two varieties, for where one partially failed, the other succeeded, and thus the average of the field was greatly increased.

In fact, I hardly know what objection can be urged against mixing varieties in the planting so long as they suit together, for it might happen that a very robust or tall variety might be mixed with a slower grower, and the latter be choked by its more powerful neighbor.

In clover and the grasses, this practice is universal, and the crop thereby increased, and no doubt so soon as it is intelligently applied to other crops, such crops will be surer and the average yield greater.—A. B. K.

ENGLAND'S GREAT FARM.

Important Results to the World of the Agricultural Experiments at Rothamsted.

[From the Special Correspondent of the N. Y. World.]

LONDON, June 11.—The experimental farm of Rothamsted has won a world-wide fame from the great value and long continuance of the field experiments which have been conducted upon it. Having enjoyed the opportunity of a run over this remarkable property, in company with Messrs. Lawes and Gilbert, whose names are synonymous with Rothamsted and agricultural progress for more than forty years, the writer believes that a summary notice of the origin, plan and results of these field experiments will be read with interest by all intelligent persons in the United States, whether they are personally concerned with agriculture or not. Of course our notice must necessarily be brief and very general of a research which covers so great an extent of time and many thousand carefully conducted experiments both in the field and the laboratory, and the literature of which is of itself quite a library already, though but a small part of the results have been published. To an American the Rothamsted Farm offers attractions aside from the interest which it has won from the great research of which it is the theatre. It is a great entailed estate of over a thousand acres of excellent land in Hertfordshire (familiarly called Herts), twenty-five miles from London, on the Mid-

land Railway, near Harpenden Station. Entering the property by a drive through an extensive park of noble old oaks, such as can rarely be seen out of England, the visitor is brought by a dense bower of laurel bay, which completely hides the house and lawn, suddenly in view of an old English mansion of the Tudor style of architecture, the older part of which dates from the days of Edward IV., and which has been extended in the same style during the reign of James I., and in more modern days until it has quite an extended range, ending in a beautiful modern conservatory opening upon the lawn and the lovely garden. The whole front of this interesting house was, in the early days of June, covered with a profusion of the most beautiful roses, trained to the eaves on trellises, almost hiding the quaint old windows, with their antique glass and thick-set mullions. The construction is brick, with rounded battlements. We cannot pause to describe the ancient oak carvings of the great hall, or the banqueting-room and library, all paneled in English oak and ornamented with old family portraits and curious historical relics, for we have to do now chiefly with practical results of the most remarkable series of experiments in agriculture which the world has seen at the hands certainly of any private individual.

John Bennet Lawes, Esq., was the founder of the Rothamsted experimental station, and, although in full vigor, has passed a long and active life in prosecuting his work, with the aid, since June, 1843, of his well-known associate. Dr. J. H. Gilbert, F. R. S., &c., and a well-known member of the leading scientific bodies of the United Kingdom. Coming into possession of his hereditary property in 1834, Mr. Lawes commenced his experiments with different fertilizing materials, first in a small way with plants in pots, and soon on a larger and increasing scale in the field. This, it will be observed, was before Liebig commenced his renowned labors in agricultural chemistry, and when, aside from the early labors of Davy, there were scarcely any available researches in this line except those of De Saussure. Happily for the cause of scientific agriculture everywhere, Mr. Lawes was moved to devote his abundant wealth and all his time and talents to a systematic course of research, for the love of it and for the good of mankind, commencing at a time of life when the traditions of English country life a young man is expected to devote himself chiefly to horses and hounds. Disconnected with any external organization, and relying solely on his own resources, Mr. Lawes has steadily for nearly half a century prosecuted his researches with an unflinching assiduity and a clear-sightedness, independence and success rarely indeed found in any department of original work. Feeling, as he expressed to the writer, that he has after all these years only commenced a work which will demand many lives yet to its completion, he has set apart a fund of £100,000 and a certain breadth of land for the continuance of these investigations when he is dead and gone.

To give those unacquainted with the subject some notion of the object and mode of conducting such investigations it will suffice to say that the problem presented was to determine the actual relations of the various crops grown on farms to the soil, and the various manures or fertilizers used to promote their growth, and to do this on a scale of such magnitude, both for area and time, as would settle upon a strong and safe basis the fundamental principles of agricultural practice. It is difficult to overestimate the value and importance of such researches, if properly conducted, as they affect the very foundations of national prosperity and individual happiness in all civilized communities.

In 1854-5 the researches of Messrs. Lawes and Gilbert had already attracted so much attention that a new laboratory was built for them by public subscription among agriculturists and presented to Mr. Lawes in July, 1855, from which the old barn-laboratory in which the work was begun was abandoned,

and it has since been carried on in the new one, which has become so well known to chemists the world over. Dr. Gilbert has had the direction of the laboratory since 1843, aided by a considerable staff of assistants—two or three chemists and the same number of general assistants, one of whom is usually employed in routine chemical work. The general assistants superintend the field experiments, the making of manures, the measurement of the plots of land, the application of the manures and the harvesting of the crops; also, the taking and preservation of samples for analysis and for the museum of collections, contained now in about 30,000 bottles, all systematically classified and accurately catalogued, forming an amazing record of persistent and well-directed industry. These assistants also superintend the experiments made on the animals. As occasion requires there is a botanical assistant, aided by half a dozen boys, and at times also by one of the general assistants, who may at other times undertake the botanical work. There also are two or three computers and record keepers, who are occupied in calculating and tabulating field, feeding and laboratory results, copying, &c. Besides the permanent laboratory staff, chemical assistance is frequently engaged in London or elsewhere. In this way, for some years past, Mr. R. Richter, of Berlin, has been almost constantly occupied with analytical work sent from Rothamsted. In addition to all this are the laboratory servants, while the field experiments and feeding employ a considerable number of agricultural laborers. This statement will give some idea of the extent of the work and how thorough and systematic it is. The investigations naturally fall under two distinct heads: First, field experiments—those on growing plants, &c.—and second, experiments on animals, &c. The general scope of the field experiments has been about as follows: To grow some of the most important crops, which were usually grown in rotation, each separately, year after year for many years in succession on the same land, and to do this (1) without manure, (2) with farm-yard manure, and (3) with a great variety of chemical manures; the same manure being, as a rule, applied year after year on the same plot of ground and on the same crop. These experiments have been varied by an actual course of rotation with different manures. It will readily be seen that to follow out such a system thoroughly and obtain from it the utmost information which it is capable of affording must involve no small labor and many details, reaching over long periods of time and demanding a perfect system of account and record to prevent loss and error from the failure of memory or the confusion of data. For example, wheat has been thus grown for thirty-five years in succession on thirteen acres of land, divided into thirty-five plots, and this has been varied on other plots with various kinds of wheat and with wheat alternated with fallow for twenty-seven years on one acre in two plots. In like manner for barley, oats, beans, clover, turnips, sugar-beet, mangel-wurzel and potatoes for various areas and times, as high as thirty-two years in succession and for like times.

On permanent grass land, for centuries in grass, similar treatment by use of different manures and no manure, always on the same plots, has been carried on for twenty-three years. Now, from all these experimental plots samples of the crops grown are carefully taken and brought to the laboratory, where weighed portions of each are dried and preserved in systematically labeled bottles for future reference and analysis. Duplicate portions of each sample are desiccated at 212 degrees Fahrenheit, the loss of weight determined and the dry matter burnt to ash (*crematio*) upon sheets of platina in muffles of cast iron maintained day and night, and at all times, at low red heat. Then the amount of ashes is accurately determined, and the ashes themselves preserved in glass bottles for future reference or analysis. By this laborious process, conducted

with scrupulous exactness, are the materials obtained upon which are founded conclusions from which there is no escape. In a large number of cases—many thousands—the nitrogen is determined, and more than five hundred complete ash analyses have been made to illustrate the influence of season, manures, exhaustion, &c., upon crops. Even the good Dr. Gilbert by turns becomes a miller and spends days in the flouring mill in selected cases of experimentally grown wheat, to determine by milling process the proportion of milling products, the exact chemical composition of which is afterwards determined in the laboratory. The experiments upon permanent meadow or park grass land have been continued over twenty years and have been attended with curiously instructive and useful results. It appears from a careful botanical scrutiny by actual count of all the product cut upon a given area of land which had been in grass for centuries, and enriched only with barn-yard manure, that the flora contained about fifty species of plants, which were tabulated according to their respective abundance by actual count and with their systematic names. It is found that the more worthless of these meadow plants are subordinated by treatment to the more useful in such a way that, in case of the continuous treatment by certain mineral manures only, while the annual average clip for twenty years has risen from twenty-one and a quarter hundred weight produce per acre, weighted as hay, to sixty-two and a half hundred weight per acre, the number of species of plants has diminished from fifty to about twenty, and these the most useful of the grasses, &c. Not that the other thirty have been exterminated, but rather that they are smothered and subordinated by the vigor of the more valuable plants, although in the case of some of the most noxious weeds they seem to be exterminated.

Those curious in such matters will wish to know what the exact treatment in this case was, and the facts are of sufficient interest to merit the attention of any thoughtful reader. The treatment was exclusively by mineral manures, without a particle of any kind of vegetable or carbonaceous substance whatever. For example, in this particular case the annual quantities per acre employed were as follows, viz.:

	Pounds.
Sulphate of potassa.....	300
Sulphate of soda.....	100
Sulphate of magnesia.....	100
Superphosphate of lime 3½ cwt.....	392
Ammonia salts, equal parts sulphate and muriate of ammonia.....	800
Total per acre mineral manure.....	1,692
To this quantity was added on another equal plot silicate of soda.....	400
Total.....	2,092

The silicate of soda was commenced only in 1862, or thirteen years after the series of experiments were entered on. Its effects are most marked, for while the average for the first twenty years of hay cut was about 61 hundred weight, it rose for the twenty-second season (1877) to the enormous aggregate of 110 hundred weight! But it should be stated that in this year there were two cuttings or crops of 60½ and 48½ hundred weight respectively, and that the continuously unmanured ground next adjoining gave in the same season also two crops of, respectively, 19½ and 25½ hundred weight, or a total of 44½ hundred weight. In other words, the land continuously fertilized with mineral manures of the above composition gave 5½ tons of hay per acre and the adjacent unmanured gave 2 1-5 tons. It will be seen that the only source of nitrogen added by this treatment was from the salts of ammonia, while the carbon was evidently obtained by the plants from the carbonic acid of the atmosphere, since not a particle of carbonaceous food was supplied and the soil had become practically exhausted of carbon. The chemical composition of the soil in this, as in every case, for each 6 inches in depth to a total depth of 54 inches, was carefully determined, and also the dry heath ash, nitrogen, woody fibre, fatty matter and

composition of ash of the crop, and the percentage by weight of each species of grass and other plants in the mixed herbage accurately determined.

It is impossible in any reasonable limits of space to follow the details of those most important and interesting experiments which it has required so many years to carry out, not even if we confine ourselves to a single example like the one selected. But we can say in general that the most important results obtained at Rothamsted by the treatment of the grass crops are as follows: No single fertilizer, whether mineral or organic, is capable of producing the highest attainable production of hay; that barn-yard manure alone will carry the production only to a certain point, where it remains stationary at about half the maximum attained by mineral manures alone, as in the example just cited above. This maximum for barn-yard manure alone is about 49 hundred weight of hay per acre. The old notion that a certain amount of humus, or decomposing organic matter, is essential to enable plants to assimilate carbon is an error, since the highest results attained have been reached and maintained steadily without a particle of carbonaceous substance added to the soil. Nitrogen, the most essential element of fertility, perhaps, for both cereals and grasses, is supplied most readily by the use of ammoniacal salts, but its highest effects are not attainable by the use of such salts alone, since the effect of such nitrogenous fertilizers is much enhanced by the use of silicate of soda; and ammoniacal salts alone do not effect the same results which are attained when they are used in connection with certain alkaline salts, whether sulphates or nitrates. The same or a larger amount of nitrogen in the form of nitrate of soda or potassa fails signally to promote, on grass land, the production attained by the use of the sulphates of the same alkaline bases when ammoniacal salts are used as the source of the nitrogen. The question of whether plants can assimilate directly free or uncombined nitrogen was carefully investigated at Rothamsted by our lamented countryman, Dr. Evan Pugh, many years since, and was decided in the negative. Dr. Pugh's memory is tenderly cherished in the place where he worked so long and so well.

The wheat field called "Broadbulk," of about thirteen acres, offers a most instructive and interesting study, as we saw it on the 8th of June, under the guidance of Messrs. Lawes and Gilbert. It needed no skill to see the immense disparity between the several plots of grain growing side by side and under treatment for over a quarter of a century by different fertilizers. It is notable that this old field upon the English chalk, left unmanured continuously for the whole period of time of these experiments (there are two such plots upon it), yields an average of 14 bushels of wheat per acre, and this is just about the average of the unmanured wheat lands of the United States; the total wheat lands with us averaging, if we do not mistake, about 15 bushels to the acre.

At Rothamsted each plot of these 13 acres has its own under-drain and has been subject all these years to a separate and distinct treatment. The results are most instructive and worthy of careful study. Many cherished notions of certain theorists are completely demolished by the quiet logic of facts, while others are confirmed. Thus 14 tons per acre of farm-yard manure have raised the average yield of this land from 14 to 35 bushels of wheat to the acre. The addition of 200 pounds of sulphate of potassa, 100 pounds each of sulphate of soda and magnesia and of 3½ hundred weight of superphosphate of lime resulted in raising the average yield of this land to only 16 bushels to the acre, a result quite insignificant, and discouraging, it would seem, to agricultural chemistry. But the one element of success was wanting, namely, ammonia, and consequently we find when this is added to the same mixture just enumerated, in quantity of 200, 400 and 600 pounds respectively of ammonia salts, there was an increase of yield to 25 $\frac{1}{2}$, 34 $\frac{1}{4}$ and 37 $\frac{1}{4}$ bushels of

wheat respectively. That it was the nitrogen of the ammonia which did the work was most evident, since it appeared when an equivalent quantity of nitrogen was used in the form of nitrate of soda in place of the ammonia there was almost an identical maximum yield of wheat, all other things remaining quite the same. Nor was it sufficient to use the ammonia salts alone, for then the best result attained was the production of under 22 bushels of wheat. Even the addition of the superphosphate to the ammonia salts raised the product only to 27 $\frac{1}{2}$ bushels, and it is clear from all the experiments that a combination of mineral manure with superphosphate of lime and ammoniacal salts is essential to the production of the highest condition of fertility.

Careful laboratory work follows all these experiments. The ammonia in the rainfall and in the drainage water is carefully determined, and the soil, as well as the ash of the plants, is analyzed in an exhaustive manner to obtain all the data needful to discuss the results, and to determine likewise the questions relating to the value of the products for the fattening of cattle and other animals.

Time fails to recount the experiments with oats, with barley, and a most curious series with leguminous crops and with red clover, nor can we review at present the results with potatoes and with root crops.

It remains also to consider the results obtained in the fattening of animals, but these must form the subject of another letter.

Such an example of self-sustained, painstaking, persistent, intelligent use of scientific investigation applied to the solution of problems of such practical moment to the most important of all human industries is, we believe, without a parallel, and while these experiments are familiar to most agricultural chemists they are comparatively little known to the great mass of intelligent readers.

Mr. Lawes has shown his real regard for the welfare of his farm-laborers and tenants by his efforts to promote their happiness in various ways. We chanced to be with him on occasion of the anniversary of his allotment system, when all the tenants, to the number of about one hundred and sixty, were assembled to partake of an entertainment provided for them under a tent. We may take occasion to recur to this again as an interesting example of a social experiment looking to the amelioration of the working classes.—B. Silliman.

THE MILLERS' CONVENTION.

The Pennsylvania Millers' State Association held its second convention in Reading on Tuesday, July 9. The following persons, among others, were present:

Charles A. Miner, President, of Wilkes-Barre; A. Z. Schoeh, Secretary, of Selinsgrove; Saeger Bros., Allentown; John Barnitz, Mt. Holly, Lancaster county; S. Z. Hawbecker, Williamson, Franklin county; Stein & Trough, Pottsville; Freck & Co., Millersburg, Dauphin county; Isaac M. Thomas & Co., Wilkes-Barre; Schoeh Bros., Selinsgrove; Hancock & Co., Wilkes-Barre; Lewis Buchler, Tamaqua; C. Burkhardt, Chambersburg; J. H. Gehry, Catawissa; P. A. and S. Smail, York; Duncan, Hale & Co., Phillipsburg; B. F. Elenbury, Huntingdon; Manning & Co., Big Springs, Cumberland county; S. G. Luck, Ilanover; S. G. Earl, Reading; John McFarlan, Watsontown; William Younger, Catasauqua; Daniel Shepp, Tamaqua; A. B. Sprenkel, Wrightsville; Jacob F. Newman, Bedford; T. M. Beels, Scranton.

Pennsylvania is an extensive manufacturer of flouring and grist mill products. At the last census there were 2,985 milling establishments within our borders, 572 of them were run by engines aggregating 13,733 horse power; and 3,280 mills were operated by water wheels of 60,192 horse-power. There were at that time 6,427 persons employed in the business, of which 6,400 were males above the age of sixteen years, 4 were females above the age of fifteen years, and 23 youths. The capital invested amounted to \$20,393,620, and these mills paid annually in wages \$1,278,146, consumed \$41,763,255 worth of material, and their combined product was \$49,476,245.

The subjects considered were improved machinery, insurance, transportation, the grading and inspection of grain, etc. In the cheapening of milling machinery, special reference is being had to the Cochran patent on purifying the product of mills by the blast process. Mr. Cochran is a resident of Harper's Ferry, and he has brought suit in a number of States, and threatens Pennsylvania to something like \$8,000 for

every run of burrs in each mill where his claimed inventions are used, whether in connection with other patents or in the most primitive mills. This claim is grounded on a United States Court decision, which was obtained by Mr. Cochran in a suit wherein the party sued, through ignorance or indifference, made no defense. In other States where there are millers' associations each member has been assessed \$25, and to save a much larger individual loss in Pennsylvania the millers to-day were appealed to to come to time in the association and form a common pool to fight a prospective common enemy to millers in this country. The members of the convention are about to rebel against the rates of insurance exacted by stock companies, and a step was taken to-day towards the formation of a millers' mutual fire insurance company for Pennsylvania, the millers of the association to encourage the National Insurance Company of Millers, located somewhere in the West, until the new home company is under way. A lively discussion was had on the least quantity of wheat for a barrel of extra flour, but the opinions were as numerous as the speakers. The meeting adjourned last evening, to hold the next convention at Lancaster in January, 1879.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The regular monthly meeting of the Lancaster County Agricultural and Horticultural Society met on Monday afternoon, July 1st, in their newly fitted up room, on the third floor of the City Hall. The room has been handsomely papered and undergone a general overhauling, and now is a very inviting place for the society to hold its meetings.

The following members and visitors were present: Calvin Cooper, President, Bird-in-Hand; H. M. Engle, Marietta; Dr. S. S. Rathvon, city; Daniel Smeych, city; S. P. Eby, city; Peter S. Reist, Lititz; J. M. Johnston, city; W. W. Griest, city; Clare Carpenter, city; F. R. Diffenderfer, city; Win. McComsey, city; A. B. Groff, West Earl; D. W. Hollinger, Warwick; John B. Erb, Strasburg; Levi S. Reist, Oregon; David Greybill, Petersburg; A. F. Hostetter, Oregon; Ephraim Hoover, Manheim; C. L. Hunsecker, Manheim.

The meeting was called to order by the President, Calvin Cooper, Esq.

In the absence of the regular secretary, on motion, F. R. Diffenderfer was nominated and elected secretary pro tem.

S. P. Eby, Esq., to whom was entrusted the fixing up of the meeting room, made his report. On motion, action on the report was laid over until next meeting.

The above action was reconsidered and a motion to pay the bills incurred made and carried.

Report of Committees.

President Cooper, as one of the committee appointed at the last meeting of the society to inspect Levi W. Groff's wheat, reported that the committee visited Mr. Groff's place, and fully endorsed the latter's method. He had no doubt it will pay, and pay handsomely, to cultivate wheat. He is satisfied it will increase the yield, and produce a stronger, straighter and taller stem. The fields, he thinks, will yield from 40 to 45 bushels per acre. He thinks cultivation retards the ripening of the crop; it is greener than any other he saw that day. Earlier varieties will have to be planted if this method is used.

W. McComsey was also one of the committee. He thought the advantages of cultivating the wheat crop are beyond all doubt. He thinks the system retards the maturity of the crop. It was more uniform than any he ever saw, and also longer in the straw, exceeding the uncultivated by far in this particular, and also in having longer heads. He believed earlier varieties should be sown, or else the usual varieties be sown earlier. If rust had not attacked the crop, the yield would have been still greater. The danger from rust is increased by its slow maturing, and this fact should also induce the planting of early varieties. He believed in a less favorable season the advantages of cultivation would have been still more apparent than they are as seen to-day on Mr. Groff's farm.

H. M. Engle endorsed what the other gentlemen had said. He believed there is a slight retardation in cultivated wheat. He has found such to be the case in experiments tried by himself. He did not believe in sowing earlier. By that plan you are apt to be attacked by the Hessian fly. Late ripening is no great disadvantage. Slow ripening gives us a finer, plumper grain, and this he believed is secured by cultivation, as the ground retains moisture better. Early wheat is the safest to grow, other things being equal. All the wheat ripens more slowly this year than usual, because of the cool season. With such weather as has prevailed during the past few days all will ripen early enough.

Reports of Standing Committees.

H. M. Engle said crops all promise well; there are no indications of a contrary kind; the wheat crop is probably the largest ever harvested in this State.

Potatoes are very fine. Small fruits are only tolerably abundant.

Peter S. Reist, of Lititz, said corn is backward, but few fields look well. Hay is plenty; the yield is from two to two and a half tons per acre. Wheat is a full crop. Harvest is fairly begun, and another week will see it safely housed. Oats promises to be tall and good. Potatoes are very abundant; some are nearly ready to take out. Tobacco is not very far advanced, being affected with what is called black root. Many barns are now filled with hay that never were in that condition before.

Mr. Reist's remarks, in detail, will be found in a paper read by him, and published on page 103 of this number of THE FARMER.

H. M. Engle read an essay on "Our Wheat Crop," which will be found on page 101 of the present number of THE FARMER.

Levi S. Reist remarked that this season proves that mother nature herself knows what is best for the soil to grow fine crops. All our fine farming cannot bring about such results as nature has shown herself capable of producing. Her processes are always better than man's. Not only is our wheat crop the best ever known, but all our other crops are also first-class.

Calvin Cooper made a trip of about thirty miles during the week and saw but one poor wheat field. He never knew of a season where the promise of the crops was so uniformly good.

D. W. Bollinger agreed with the essayist in his views. He believed in putting grain on shock at once; that gives us better bread. We don't make as good bread now as they did years ago because we let the wheat get too ripe and allow it to lie in the field too long.

S. P. Eby said wheat ground in March, when the weather is often damp and heavy, makes the best flour. Wheat must not be over-dry to produce the best quality of flour. New processes for grinding wheat to overcome the results of over-ripeness have been patented—made necessary by our present method of harvesting.

H. M. Engle said seed that sprouts quickest is the best. That which is cut before it is too ripe sprouts better than the over-ripe. He believed our object should be to get good crops, not only in favorable seasons, but every year. This is the point we should strive after.

Peter S. Reist said the comparisons made by the essayist between vegetables intended to be eaten green and cereals intended to be harvested when fully ripe, were not legitimate ones. Peas must be pulled in their season, and wheat in its own. There can be no comparison between the two.

Mr. McComsey both agreed and disagreed with the essayist. Vegetables and cereals cannot be compared properly; the former are intended to be used in their green condition, while grains like wheat are required to attain maturity. Ripe wheat, no doubt, has more bran than green; but is not the bread made of it more wholesome? Was it not intended by nature that it should be so? He was satisfied from his own experience that it was so. He also believed if people ate more rye bread there would be fewer dyspepsies. He did not believe in cutting wheat in its green or doughy state; it is a perversion of a great gift.

Peter S. Reist said it was the best fields and the best farmers that produced the best wheat, and not Providence all the time, as some believed.

H. M. Engle announced that Prof. S. B. Heiges, of York, will address the next meeting of the society.

On motion, the discussion on the "cultivation and marketing of vegetables" intended to be taken up at this meeting, was continued until next meeting.

New Business.

S. P. Eby called attention to the fact that white oak posts if put in the ground green will last twice as long as dry posts. Also, that newly cultivated ground attracts the dew more than that which has not been disturbed. Also, the experience of a farmer who washed his trees at least once a year with lye and found the process to result beneficially. He also presented some fine German walnuts from a tree growing in Hon. H. G. Long's garden, and recommended it to farmers as a valuable addition to their fruit crops.

Levi S. Reist joined in the recommendation that we should grow more nut trees. He related a case where a man realized more from some nut trees than from his farm products themselves, showing how valuable they are to the farmer.

H. M. Engle also advocated the growing of nut bearing trees. He called attention to the chestnut as a most valuable fruit; they are so easily grown, and can be put almost anywhere—on ground too poor to grow anything else. Chestnuts are in demand and always command a ready sale. They could be made a most valuable crop.

Ephraim S. Hoover brought two specimens of wheat to the notice of the society for a name. The seed of one was brought from Maryland, but this was grown in this county. Another sample was grown by Thos. Fordney, and is expected to yield from 40 to 45 bushels to the acre.

Daniel Smech, of this city, exhibited some seedling cherries which were uncommonly fine—equal to

the very best in the books, both in size, flavor and productiveness.

H. M. Engle proposed that the name of the owner be given to this cherry.

Other members suggested that Mr. Smech name the cherry himself.

After some discussion the name of *The Lancaster cherry* was given to this very excellent fruit. It is worthy of remark that it is now in the fourth week of ripeness, and is still firm and solid. For a detailed description of this magnificent fruit see page 98 of this number of our journal. No fruit has been brought before this society for a long time—if ever—which elicited such an earnest approval by all the members present as this fine and delicious cherry.

On motion of Dr. S. S. Rathvon, the names of Casper Hiller and Henry M. Engle were added to the Committee on Nomenclature.

The rain fall for the month of June, as reported by H. M. Engle, was 4½ inches.

There being no further business before the society, it was, on motion, adjourned.

LINNÆAN SOCIETY.

The Linnaean Society met on Saturday, June 29th. President Stahr called the meeting to order, with seven members present. After attending to the opening duties the donations to the museum were examined and found to consist of a fine mounted specimen of the horned owl (*Bubo Virginianus*), captured and donated by Mr. J. Paxton Hamilton, of Green Postoffice, Lancaster county, Pa. Malformed hens' eggs, from Mr. J. P. Knight, of Christiana; also from Mr. May, of Paradise township, two eggs of the snapping turtle (*Chelydra serpentina*). From Mr. Joseph Windolph, Marietta, two small gold-fish (*Cyprinus auratus*), the golden carp, common in aquariums, from Mrs. Rathvon, city. Two fine "green ground beetles" (*Calasoma scrutator*), captured in the city, and presented by two little girls. Mr. J. C. Linville, of the Gap, sent the corn cutworm (the larva of *Gortyna zea*) and its foe, the soldier beetle, a species of *Telephorus*, both alive; the latter killed the former, however, when put together. The larva and pupa of the helgramite (*Corydalis cornuta*) came from George F. Rathvon, Columbia. A small water snake (*Nerodia sipedon*) was left by a lad not known.

Minerals were as follows: Three specimens of kyanite, from the farm of Mr. Joseph Armstrong, near Bethesda, per James Galen; calcareous spar, having a vein of copper, quartz and lead, from Quarryville, donated by Mr. W. U. Hensel; an undetermined mineral, from Martic township, by Mr. Geo. S. Lambert. Rev. John S. Stahr had for inspection a specimen of limestone, penetrated through its entire body with a delicate deposit of a moss or fern-like branching figure of a dark color, belonging to Mr. Hager, found at Cornwall. A crystallized silicate of iron and magnesia; and a roll of tin-foil, marked by the needle of the phonograph, the wonder of the nineteenth century, were also presented.

Historical Collections.

The deposits and donations were 29 German maps, Nos. 1 to 33, including a framed map of Lancaster and vicinity and parts adjoining Lancaster county, it being one of three executed by William Reichenbach, of Franklin College, in 1787, when Lancaster was proposed as the site for the Capitol of the General Government; donated by Mr. Chas. A. Heinrich; six envelopes, containing 65 historical clippings, per Dr. S. S. Rathvon; a copy of the New York *Graphic* of May 31, 1878, illustrating certain places in and about Lancaster, Pa.; sundry coins and tokens.

To the Library.

To the library were donated the first annual report of the Pennsylvania Board of Agriculture for 1877, per Thomas J. Edge, secretary of the board; a copy of the biennial United States register; one copy of the report of the Board of Education; the May and June numbers of THE LANCASTER FARMER; book catalogues and circulars. Dr. S. S. Rathvon gave notice that he had received quite an extensive collection from Miles Rock, of the United States Astronomical Department, made during the years 1870, '71, '72 and '73, from Cordova and Laconcho, Argentine Republic, etc., South America, which was not yet assorted and classified. It is to be made into three divisions of duplicates; one for the Linnaean Society, one for the University at Bethlehem, and one for Mr. Rock himself. On motion, the society gave a cordial and unanimous vote of thanks to Mr. Rock for the valuable donation. A vote of thanks was also offered to Mr. Rathvon for furnishing an inkstand, and to Mr. Baker for providing pens.

Papers Read.

An illustrated paper was read by J. Stauffer, No. 495, on a fish parasite (the *Argulus*), showing that the one found to infest the shad (*Alosa sapidissima*) and that taken from a mullet or sucker (*Catostomus aureolus*) were the same species, and questions whether the so-called *Argulus alosa* and the *Argulus catostomi* are not the same species, simply infesting the different fish. Dr. S. S. Rathvon deposited a paper, No. 496, on specimens donated, and read a paper, No. 497, on the results of a day's hunt in

company with J. Stauffer, June 12, 1878. A communication, No. 498, was read from W. B. Bolton, on honey dew found, caused by aphides.

Resolutions.

Mr. Rathvon then introduced a package of printed tickets, and offered the following resolutions:

Resolved, That the tickets exhibited be adopted and recognized as the only legitimate tickets of the society, and that they be indorsed on the back by the treasurer, and that they are not valid without such indorsement.

Resolved, That any holder of one or more certificates of ownership in the stock of the society, whether he is an active member or only a subscriber, shall be entitled to one ticket, which shall not be transferable.

Resolved, That all correspondents who are now subscribers, on application, shall also be entitled to a ticket, and that hereafter a ticket shall accompany the notice of election of correspondents in all cases where it is deemed advisable by the society.

Resolved, That the tickets shall be placed in the custody of the treasurer for safe keeping, and that application for them be made to him until ordered otherwise.

On motion the foregoing resolutions were adopted without debate. Dr. Baker proposed Messrs. M. L. Davis, M. D., and John Baer, M. D., of Millerville, as active members; the ballot being passed round they were severally unanimously elected, and having subscribed and paid, their certificates and tickets were filled out.

No further business offering the society adjourned to Saturday, July 27, 1878.

MEETING OF FULTON FARMERS' CLUB.

The regular meeting of the club was held at the residence of E. Henry Haines, Fulton township, July 1st. Visitors, Jefferson Haines and wife, of Cecil county, Md.

C. S. Gatchel exhibited some early cherries for a name—Franklin Tollinger had the same cherry, and it is of the Amber variety.

The committee appointed at a former meeting to examine and report on the result of cultivating wheat, not being ready to make a full report, was continued. E. H. Haines, a member of the committee, however, stated that since the appointment of the committee he had tried cultivating some of his own wheat, in two different parts of the field—one of them where the wheat was good, the other where it was poor. It was done by harrowing up alternate drills and working deeply by a common corn cultivator, with some of the teeth taken out. It had made no perceptible difference on the good wheat, and had been a decided injury to the poor wheat. He did not attach much importance to the experiment, as the proper implements were not used. He had also visited Boyd's farm, in Drumore township, who was trying the experiment of cultivating according to the method of J. M. Heiges, of York county. He found the wheat poor, rusted and much fly-eaten—the cultivated wheat no better than the rest of the field.

Day Wood asked how can early cherries be protected from birds?

Josiah Brown: If the tree is near the house hang sleigh bells on it, which can be rung by a string.

R. B. Gatchel: Bells will not do much good unless a Paddy or scare-crow is placed in the tree with them.

S. L. Gregg: Birds are not much afraid of scarecrows; they often build nests in them.

J. R. Blackburn: Birds rather like scarecrows; they want them to set on while they eat the cherries.

Wm. P. Haines: The best plan is to plant plenty of trees, so there would be plenty of cherries left after the birds are satisfied.

Josiah Brown: Is this the right time to trim apple trees? Most of the members were in the habit of doing the work in the winter, or early spring, when they had more time, and the leaves being off the trees, the work could be better done. It was generally thought, however, the wounds would heal better if done in the summer.

Wm. King: Is there such a disease as black teeth in small pigs?

Day Wood does not think that there is; the teeth are sometimes blackened by disease, but they do not cause it.

Josiah Brown: Give them feed enough and they will not be troubled with it.

C. H. Haines had a pig that had them and he knocked them out, but it did no good.

J. R. Blackburn had never seen them on old hogs. Had pulled them out of small pigs without any good results.

Montillion Brown: How can birds be kept from taking up corn? Answer: Soak corn and put in bunches in different parts of the field and cover slightly. The birds will find it. Or sow corn over the fields before the corn comes up. Birds will not pull up corn if they can get it without pulling.

Solomon L. Gregg: Would it pay better to put corn ground in wheat than oats?

Several of the members thought that oats was an uncertain crop; but putting wheat in after corn made a great deal of work and was mostly roughly

done. Besides, if the ground was not highly manured the crop would be likely to be poor, as it is difficult to get it in the ground in season. The practice of following corn with oats was generally preferred.

Ann E. Wood: Is there any remedy for the rose slug? Mary Haines had tried a recipe, lately published, viz.: 1 pint of salt, 1 pint of soft soap and 3 gallons of water; but it failed to do any good. She had killed them with tobacco-water last year.

Emily A. Blackburn sprinkles ashes over them when they are wet. It will kill or drive them away. Repeat it when they reappear; soapsuds are also good.

R. D. Gatchel sprinkles them with soapsuds; begin early in spring.

Rebecca D. King: Is it better to put tomato vines in frames, or let them lie on the ground?

Wm. P. Haines: Tried both ways, and could not see much difference. If let lay, put straw or corn-fodder under them. Straw is best. Most of the other members preferred to let them lie on straw.

Charles S. Gatchel: If ground is manured and plowed now, would it be advisable to plow a second time before putting in wheat? None of the members advised a second plowing, as the manure would be likely to be in the way. They would keep down the grass and weeds by cultivating.

After dinner the male portion of the club made the usual inspection of the farm and live stock, accompanied by the host. After reassembling in the house criticisms on the manner of conducting the farm were called for.

The live stock were reported in good condition, particularly the cows, and growing crops looking well.

An addition to the house, which was in course of erection when the club last met at the place, was finished, and the host and hostess were much complimented upon the judgment and taste displayed in its arrangement and the neat yard and pretty flowers and shrubbery surrounding it.

The host next read an interesting essay giving an account of his visit to the May meeting of the Experimental Farm Club.

Mary A. King read from *Rural New Yorker*, "How to interest boys in farming!" C. S. Gatchel read from *Practical Farmer*—"Selling out," by T. Leonard. Ann E. Wood read from *Household*—"See ourselves as others see us," and "The Farmer's Wife" was recited by Emma King.

S. L. Gregg read from the report of Pennsylvania State Agricultural Society an article by J. B. Garber, giving an account of the manner of cultivating wheat practiced by J. M. Heiges, of York county. He plows deep wheat or oats stubble, manures heavily, plows still deeper the second time, pulverizes thoroughly, then prepares it into ridges and depressions, the latter twelve inches deep, ridges ten inches wide, sows the wheat broadcast, then drags and makes thoroughly level. Cultivates three or four times. By this method he has raised seventy bushels to the acre.

The following question was then selected for discussion at the next meeting:

Resolved, That the female portion of the farmer's family is more oppressed by labors and cares than the male portion.

Adjourned to meet at the residence of Franklin Tollinger, regular time in August.

AGRICULTURAL.

Sowing Rye Among Corn.

A correspondent, writing in the *Country Gentleman*, strongly recommends the sowing of rye among corn, so that it will make a fall and spring growth for feeding or to be plowed under for green manuring. The writer asserts that he has done this on several occasions. At the last cultivating of the corn he sows ahead of the cultivator about $1\frac{1}{2}$ bushels of rye to the acre, which is cultivated at once, and sometimes twice by cross cultivation. The rye will only give a spindling growth until the corn ripens and is taken off, when it will spread and grow rapidly, giving a dense growth before winter. He has had to commence to stalk up in the fall, keeping the ground so warm that he plowed it under in the winter when the adjoining lands were frozen hard. The ground was greatly benefitted. In order to sow among standing corn go back and forth between every third space. It requires skillful work when the corn is large. The idea is certainly a good one and ought to aid every enterprising farmer in his plans in securing the best results and largest returns. To clear the ground at cutting time, although very heavy work, and then plowing and sowing, for late fall or early spring pasture, might also do well. Much would depend upon the quality of the soil. If it was of poor quality it would be benefitted by plowing the crop under. In farming, to make it profitable, there is nothing like keeping the land all the time occupied in doing its best.

Drilling Corn.

A few years ago, on the strength of an experiment or two by one of our so called agricultural colleges, which seemed to show a gain of from ten to fifteen

per cent. in the product of drilled over the hill system of planting corn, a number of farmers at different points adopted the drill system, and for one or two seasons thought it the best; but we believe nearly all of them have now abandoned it and gone back to hill-planting. We were satisfied at the time of the experiments alluded to, that being experiments, much extra care had been bestowed upon the crop, that they did not furnish reliable information, and that the old way could not be improved on. And this has turned out to be the case. In this section, in noticing hundreds of cornfields the present year, we have not yet encountered one that has been drilled.

It is so with a great many new ways and things. They are sent forth with a loud blast of the trumpet, and they everywhere find more or less believers, who will not be convinced that they are going to make a worthless investment until they find their fingers burnt. Then they heap curses loud and deep upon those who had made money out of their credulity, when they had nobody to blame but themselves. Farmers as well as other people should keep their eyes wide open as to new ways and things involving money.

Chemical Fertilizers.

If commercial or chemical fertilizers are ever to get into more general use the farmers of the country must have some satisfactory assurance, made by official analysis, that they are what they are represented to be. It is true that a purchaser will not be likely to be taken in twice with the same manufacture, but very many individual purchasers may be, and then, too, there are scores of different kinds. The farmer wants something more than the word of the seller, whatever his standing may be. Articles selling at the high rate per ton as a fertilizer should have a known, stamped statement of its contents, and then purchasers can invest in them with a degree of knowledge of their value for their particular lands, which will afford them necessary aid in making a selection.

In England fertilizers find no sale unless a guarantee analysis accompanies it. Until this security was obtained the quantity of fertilizers sold had greatly diminished; but since the sales have largely increased. All that our farmers demand is a correct statement of the component parts of the fertilizer. They are unwilling to buy a "pig in a poke," and they are right. Give them a good article and they will freely invest.

The Wheat Crop.

We see it stated in local papers here and there that the crop of wheat this season is seriously damaged by the Hessian fly; but the damage by this insect is not, as these papers suppose, universal or at all general. The fly in some sections has done some damage—but altogether its depredations are, in the aggregate of but little account. What has done serious damage, however, especially in the south and southwest, is the rust. This is owing to the protracted cool, wet weather; but even this, so far as we can learn, will not sensibly diminish the crop, as the average this year in wheat is much larger than ever before, and the aggregate yield will perhaps be more than ever before.

The seedling of wheat is now done so early in September that in mild, moist autumns like that of last year, the young wheat grows so rampant as to subject it to the attacks of the fly before winter sets in, and they are more destructive than they are in the spring. The particular advantages of very early sowing we have never learned. Fifty years ago the seed was seldom in the ground before October, and as late as from the 10th to the 15th.

A Wheat Crop Saved by Skunks.

The skunk is one of the best friends of the farmer. I sowed eighteen acres of wheat a few years since, and while fitting the ground noticed an unusual number of white grubs, and when the wheat came up the grubs began to work in it, and the skunks began to bore their sharp noses after the grub until it seemed as if there was not a place four feet square in the field where there was not a little hole bored, and a grub taken out; and I harvested 550 bushels of wheat, which I sold for \$2.11 per bushel; so I am indebted to the skunks yet. Your last correspondent made it clear that it was not necessary for him to stand on his feet to work the muscles for his brimstone extinguisher. I had a friend who supposed that if you held a skunk by the tail you were holding the safety valve; and so, finding one behind the partition in a basement, he took him by the tail and started for the woods with a dog to kill him; after he had gone about ten rods Mr. Piebald drew a Creedmore lead on him and hit him just under the eye; in a short time he let go of the skunk's tail, and has not tried that plan since.—From a *Farmer's Letter*.

Grass Seed for Mowing Lands.

In reply to a correspondent who asks how much seed must be sown in seeding an acre of stubble with June and orchard grass mixed, for mowing and not for pasture, the *New England Farmer* says: "For

land that is in good condition, we should sow two bushels of orchard grass and one bushel of June grass to the acre, and it would be well to sow on clover, also, in the spring, if there is a prospect that it would germinate, as all these grasses mature nearly at the same season. Orchard grass should be sown as early in autumn as possible, as it is a little tender the first winter, if very young when the ground freezes. The June grass will not make much show the first year, but will hold out, probably, longer than the orchard grass. Both will pay well for annual top-dressing of stable or commercial manures, and each will produce two or three heavy crops per year, if the land is both moist and fertile on which it grows. Orchard grass should not be covered by water or ice, in the winter, but should be grown upon moist, drained land. Then it will give satisfaction."

Dressing Grass Land with Fish Scraps.

Some of our farmers already begin to talk of turning over old sward and stubble for seedling to grass this fall. On either soil there should be applied a liberal dressing of some kind of manure before seedling to furnish assistance for a good catch and a fine crop of grass next spring. To supply this need, if any one has to buy fertilizers, we would suggest to those who have not tested them that they use fish scraps. Not alone, however, as they contain only nitrogen and phosphoric acid, but in connection with sulphate of potash, applying about a ton of scraps and seventy pounds of potash to the acre—if more scraps, then potash in proportion. The plan we have pursued in the past and shall again this fall is to broadcast the scraps on the furrow, harrow, sow on the potash as you would oats, and harrow till ready for seed.

Scientific Potato Culture.

A French agricultural journal, the *Basse Cour*, describes the result of some experiments in potato-growing recently conducted by some scientific men in Germany, in which it is demonstrated that the "eyes" at the top of the potato produce a much more vigorous offspring than those in the lower part, and the consequence is, that those agriculturists who cut their potatoes in half before planting them are not well advised in cutting them vertically, but should always divide them horizontally, planting the upper half and using the other as food for the cattle. But the best plan of all is to plant the tuber whole, cutting out, nevertheless, all the "eyes" except those in the top part.

How Superphosphate of Lime is Made Ineffective.

Superphosphate is simply insoluble phosphate of lime that has been treated with sulphuric acid so as to separate a portion of the phosphoric acid from its base, the lime, and render it free and soluble. If the superphosphate is brought into contact with lime, as on newly limed land, the free phosphoric acid at once unites with the lime, goes back or "reverts" to the condition in which it was previously, and becomes insoluble and inert. Therefore, when superphosphate is used on land that contains fresh lime, it is practically useless, and is lost so far as present effects are concerned. Superphosphate should not be used until the second year after lime.

Field Mulching.

The Germantown *Telegraph*, a reliable authority, gives the following seasonable advice: In removing the hay from the field the "rakings" should be allowed to remain, for two reasons: One is that it will not pay for the labor in gathering them up; the other that it does pay, and twice over, in being scattered over the field and acting as a mulch to the exposed roots of the stubble. It keeps the roots cool and moist and will add largely to the next year's yield of timothy or orchard grass. Many first class farmers already do this, but there are so many who do not that it may be worth while to remind them of the advantages of it.

Late Sowings of Grain.

Haberlandt continues his researches as to the value of the late sowings of grain. His conclusions for the last two years are decidedly unfavorable to spring sowings. He finds that, in proportion to the lateness, so does the quality and quantity of the grain diminish; that the stems, roots and husks alone are benefited; that the plant is more liable to be attacked by rust, and, in the case of rye, by ergot; and the grain thus raised will, if employed for seed, be remarkable for its slow germinating powers.

The great error in wheat husbandry consists in this: Sufficient time is not suffered to elapse between plowing for wheat and seedling to admit of that packing of the soil and that preliminary decomposition of crude vegetable matter which, on most soils, is an indispensable prerequisite to a good wheat crop.

CALIFORNIA farmers are cultivating fig trees for the sole purpose of raising and fattening hogs. This fruit contains large quantities of saccharine matter, hence is very fattening. The fig tree, once well started, requires little attention, bears several crops a year and is very prolific.

HORTICULTURAL.**Thinning Fruit.**

The earlier this operation is performed the better for the tree and for the specimens that remain. The only advantage in deferring it, is that the poorest, or those which are knotty or defective may be picked off, and the largest and fairest may be left to grow. Those who have not given this practice a trial erroneously suppose it is attended with great labor or expense. On the contrary, the labor is actually lessened. If a tree has a thousand specimens on it early in summer, and these are allowed to grow and ripen, one-half may require picking out to render the other half saleable. The whole must therefore be carefully assorted after all have been picked. It is much easier to strip off the half when one-tenth grown and with no careful handling. The scrubby ones taken out in autumn, have impeded the growth of the good ones; but if picked off in June, free growth is allowed to all the rest. It may not be that the proportion of poor specimens to be assorted out in autumn is equal to one-half; but the diminished size of the rest would be an equal loss. A neighbor removed, early in the season, two-thirds of the pears on a part of his trees of Louise Boone of Jersey; these gave as many bushels, from the increased size of the pears, as the unthinned trees; but still there were too many left, and he was satisfied it would have been better to have taken at least three-fourths. A successful peach raiser obtaining as many bushels from his trees after severe thinning as before, the peaches being so much larger as to make up in bulk the difference in number, while the price received for the large and excellent specimens was triple that received from the small and poor fruit on crowded branches. Owners of orchards have often observed that the last peaches on a tree are finer in flavor than those which ripen first while the branches are crowded, the few days of ripening with ample space, producing a striking difference in quality. Still greater would be the difference both in size and flavor if the ample room is given early in the season.

We used a system of experiments to determine accurately how much space should be given for the different fruits. When, for instance, there is a full crop of peaches, they often touch each other. Let a number of trees or branches on the same tree be selected, and on one thin the peaches to four inches distance; on another to six inches; on another to nine inches, and on a fourth to a foot. When the fruit ripens, weigh and count the specimens, and observe their appearance and quality. Try similar experiments on apple, pear and plum trees. This may be easily done, and it may give, by several repetitions, valuable information as to the result. It should be borne in mind that the fewer the number which are left on the tree, other things being equal, the less the tree will be injured by exhaustion, and it is not advisable to attempt, therefore, to get the largest number of bushels, but rather to preserve the health and vigor of the tree.—*Country Gentleman.*

Restoring Old Trees.

I was pleased to see your account of "old trees dying" restored to vigor and productiveness by manuring. This was, of course, where the soil needed it, else there would have been no benefit. I have in many cases (and never one failed) secured the same result by more attention to the top, removing the dead and ailing limbs, and permitting only the more thrifty and healthy to grow. In these old and declining trees there is much sap wasted on the decaying branches, which, upon their removal, is saved and concentrated upon the more healthy and surviving shoots, while new shoots, entirely sound and vigorous, will start out. In all these cases the soil was well drained and of good depth and richness, little or no cultivation or manure being given. The roots seemed to have found room and fertility enough to sustain a sufficient growth. But in the great majority of cases the soil of our orchards is not of this character, but apt to be more or less wet, with the surface soil lacking in depth, the rest below unfit for successful fruit growing.

My experience and observation lead me to say that this difference in the soil is always to be kept in view in treating orchards, for it is probably as bad to have the ground too rich as not rich enough—avoiding the extreme in the latter case. The aim should be to keep up the balance between the wood and the fruit growth, which, in thin soil, requires attention both to the ground and the tree—to the tree alone where the ground is all right, keeping the orchard in sod.—*Country Gentleman.*

Budding Roses.

This is a simple process by which amateur cultivators often increase their stock. A sharp pen-knife, and the handle of a toothbrush, if ground down smooth, will answer for a spud to aid in lifting the bark. From the last of June to the last of August is the best time for this process, as the bark can then be more easily raised from the wood. Take a smooth stalk and make a horizontal cut across the bark through to the wood,

but not into it. From the center of this cross cut, make another cut straight down the stem, an inch or more in length. These two cuts should resemble a T. Slice off the bud you desire to propagate with one cut of the penknife, cutting it close to the main stalk. Now, with the edge of the spud, turn back the bark on each side of the straight cut and insert the bud on the wood of the branch to be budded, fitting it tightly to the crossed cut. With a bit of soft yarn bind down the bark, leaving the point of the bud exposed. A handful of dampened moss must then be bound round the stem, taking care to leave the tiny point of the bud exposed to the air. In six weeks the wrappings can be removed, but all other shoots must be kept from growing on the budded branch. By this means a rose bush can be made to bear half a dozen different colored roses.

Cabbage Grubs.

In old soils all the cabbage kind have a tendency to form club roots, owing to the attacks of the cabbage grub or larva, a small insect belonging to the beetle tribe. The damage it causes is often a serious matter for the gardener, as it nearly destroys whole crops, and makes serious gaps in the planting. When the grubs first attack a crop there is nothing to indicate their presence until the plants begin to turn an unhealthy color; then they flag in the sun, and in a few days the crop is lost. One of the best methods of preventing these invasions is to make each plant unpalatable to the grubs. In the spring procure some fresh-burnt lime, and let it become air-slacked, mixing it with an equal quantity of soot. In planting, the holes are made with the trowel in the usual way; each plant is dropped into its hole, an inch or so of the soil put over the roots, a good watering given first, then a moderate handful of the soot-and-lime mixture thrown in each hole and the remaining soil filled in. Equal parts of soot and fine garden soil, mixed with water to the consistency of thin mortar, with the plants dipped in the mixture up to the base of the leaves before planting, is used to prevent clubbing. Wood ashes mixed with water and put into the holes after watering has been tried with success.

Raspberries.

Those fortunate enough to have some raspberry plants in their gardens will now have finished gathering the fruit. After this enjoyment it is a good time to say something in regard to a little care they now need. Every one who has had them a year or two will know that the canes after bearing are of no further use, but it is not all who think enough to cut them out. But this is what should be done. These canes, if left to grow, only draw from the strength of the young canes for the next year's fruiting. The whole lot should be gone over at once, and all except the young canes cut down to the ground. Even some of these, if much too close together, should be thinned out to advantage. If this advice be followed the crop of fruit next year, if no accident happens, will be much finer than if the whole growth be left undisturbed.

Raspberries are often injured by having the soil disturbed around them. This they do not like, as it injures the roots; and all cleanings around them, if by the hoe, should disturb the soil as little as possible. If the soil is hard and seems to need loosening it is best to do it in the fall, using a digging fork for the purpose. Injure the roots as little as possible if you want good raspberries.

Wash for Fruit Trees.

The following is a wash used by Wm. Saunders, of the government gardens at Washington: Put half a bushel of lime and four pounds of powdered sulphur in a tight barrel, slaking the lime with hot water, the mouth of the barrel being covered with a cloth; this is reduced to the consistency of ordinary whitewash; add at the time of application half an ounce of carbolic acid to each gallon of liquid. Mr. Saunders says: "I generally applied it in the spring, before the leaves made their appearance, but am convinced that it would be more effective if applied later; but then it is difficult to do so when the tree is in foliage." Mr. Saunders applies the wash not only to the stem of the tree, but, to some extent, to the main branches.

Setting Out Strawberries on Parry's System.

Mr. Parry, of Monmouth county, N. J., adopts the following course as a good one in setting out strawberries: He ploughs furrows two and a half feet apart, and spreads along them equal parts of muck, marl, ashes and ground bone. They are to be mixed a fortnight before using. Three-fourths of a ton of the mixture per acre gives a luxuriant growth to the plants. This result might not be so successful on all soils. The rows are cultivated with a horse. He finds a good coat of stable manure, just before winter, of great importance. Where marl is not to be obtained a little addition of ashes makes the mixture good.

DOMESTIC ECONOMY.**Receipt for Making Currant Wine.**

For several years we made a ten gallon keg of currant wine, of as good quality as any we have tasted, and is generally so pronounced by those who have had an opportunity to judge. The mode of manufacture is simple and can easily be followed by any family having the currants and the disposition to make the wine. For general information as well as in reply to private inquiries, we again give the receipt after which we make it.

The currants should be fully ripe when picked; put them into a large tub, in which they should remain a day or two, then crush with the hands, unless you have a small patent wine press, in which they should not be pressed too much, or the stems will be bruised and impart a disagreeable taste to the juice. If the hands are used put the crushed fruit, after the juice has been poured off, in a cloth or sack and press out the juice. Put the juice back into the tub after removing any stems, skins or seeds remaining, where it should be left about three days, until the first stage of fermentation is over, and removing once or twice a day the scum copiously arising to the top. Then before putting the juice in a vessel—a demijohn, keg or barrel—any size to suit the quantity made: To each quart of juice add three pounds of the best yellow sugar and soft water sufficient to make a gallon. Thus, ten quarts of juice and thirty pounds of sugar will give you ten gallons of wine, and so on in that proportion. Those who do not like sweet wine can reduce the quantity of sugar to 2½; or who wish it very sweet, raise it to 3½ pounds per gallon.

The vessel must be full, and the bung or stopper left off until fermentation ceases, which will be in twelve or fifteen days. Meanwhile the cask must be filled up daily with currant juice left over, as fermentation ceases rack the wine off carefully, either from the spigot or by a siphon, and keep running all the time. Cleanse the cask thoroughly with boiling water, then return the wine, bung up tightly and let stand four or five months, when it will be fit to drink and can be bottled if desired.

All the vessels, casks, &c., should be perfectly sweet, and the whole operation should be done with an eye to cleanliness. In such event every drop of brandy or spirituous liquors added will detract from the flavor of the wine, and will not in the least degree increase its keeping qualities. Currant wine made in this way will keep for an age. We have some made in 1856, which is really an excellent article.—*Germantown Telegraph.*

Cooking Potatoes.

To most of us the food we eat is valuable because we like it, and not so much because we consider ourselves a machine on which profit and loss is to be nicely calculated in regard to what we eat. But, as perhaps some of our readers are chemically or financially disposed, and have desire to know to a penny what their bodies cost and to a grain the material of which it is made, we give the following about cooking potatoes from an English agricultural magazine: As food the potato is valuable on account of the potash and phosphoric acid it contains, and it is of the first importance that the potash salts should not be lost in the process of cooking, for it is to these salts potatoes owe their anti-scorbutic properties. Potatoes steamed with their skins on lose very little potash and scarcely any phosphoric acid; while if steamed after peeling, they lose 7 and 5 per cent. respectively. Similarly, potatoes, when boiled with their skins on, lose little more than 2 per cent. of their potash, and about 1 per cent. of their phosphoric acid; but if they are boiled after peeling, they lose as much as 33 per cent. of potash and 23 per cent. of phosphoric acid. Hence, if potatoes must be peeled, they should be steamed, not boiled; and, if they must be boiled, they should at least retain their jackets during the operation—the best way of all, from a scientific point of view, being to steam them before peeling, or to bake them in their skins.

Lancaster Potato Fritters.

Take of boiled and mashed potato pulp one pint; of grated raw potato pulp a half pint, (some prefer a whole pint); of wheat flour two or three tablespoonfuls; of cornmeal two tablespoonfuls; sweet milk half a pint; and of baking powder one teaspoonful; season with salt and pepper to taste. Mix all well to a batter, and drop by spoonfuls into a pan with hot fat, or butter and fat; flatten them down, and bake slowly until they are browned, and serve hot. The raw potato pulp gives them a peculiar and pleasant flavor, and the cornmeal a sweeter taste.—Contributed by J. F. W., Lancaster, Pa.

Aromatic Principles in Milk.

Professor Segelcke, of the Royal Agricultural College of Denmark, states that his experience, based on continued study and experiment, puts it beyond a doubt to his mind that the aromatic principles of butter do not exist in natural milk, and that it is the decomposition of the principles of this latter—prob-

bly or even utterly inodorous principles—that gives rise to the aroma of butter. To sustain this theory he states that if the temperature of the milk, when set for cream, be from fifty to fifty-five degrees or more, it decomposes, lactic acid and several other new principles, while it needs but to churn the cream to obtain an aromatic butter. If, on the other hand, the temperature of the milk at such time be near freezing point the decomposition for the production of aromatic principles is held in check, and consequently, the aroma of butter obtained from fresh cream is so feeble that it is not perceptible to persons accustomed to butter prepared as above indicated. But if it be desired to obtain a more aromatic butter, all that is required is to place the cream in circumstances favorable for lacteal fermentation, and a few hours will produce the required result.

The Use of a Microscope.

Look at a photograph through a microscope that magnifies sufficient to bring the picture to a life-size and you have before you a bust of the person as perfect as a piece of statuary. No one can tell the gratification it affords to thus view the photograph of a dear deceased friend.—*I. F. W.*

[The stereoscope produces the same effect, but with that instrument the photograph must be duplicated, and both should be exactly alike.—ED.]

Household Receipts.

In order to make rice cake, add to one pound of rice, when boiled, two ounces of chopped suet, a spoonful of flour, a quart of skim-milk, some brown sugar or treacle; bake in large can; fruit of any kind may be mixed with it.

PAIN IN THE STOMACH.—A teaspoonful of vinegar, well salted, and covered with a good coating of cayenne pepper. Stir together in a tumbler until well mixed, swallow quickly, and you will experience little further inconvenience.

RICE FRITTERS.—A quart of rice boiled soft, and a tablespoonful of butter added when hot; three or four eggs must be beaten separately until light, and added when the rice is cool. Now make up into fritters; fry, and eat with molasses. Boil the molasses, and send to the table hot.

To stop blood take the fine dust of tea, or the scraping of the inside of tanned leather, and bind it close upon the wound, and the blood will soon cease to flow. These articles are at all times accessible, and easy to be obtained. After the blood has ceased to flow, laudanum may be advantageously applied to the wound.

PREPARED GLUE.—In a half a pint of water in a wide-mouthed bottle put eight ounces of best glue, place the bottle in water and heat until the glue is dissolved. Then stir in slowly two and a half ounces of strong nitric acid. Cork tightly. The glue thus prepared is always ready for use, and may be applied to mending furniture, broken vessels and other articles not exposed to water.

THESE is great art in cleaning properly a marble mantelpiece. The mantelpiece must be washed with soap and warm water. If there are any stains, mix two ounces of powdered pumicestone with two ounces of powdered chalk and a quarter of a pound of soda. Sift these; then make them into a paste with cold water. Rub the marble with the paste, and afterwards wash it with soap and water.

TO KEEP NAILS FROM RUSTING.—Heat a quantity of them on a shovel, and throw them, while quite hot, into a vessel of coarse oil or melted grease. The nails should not be so hot that the grease will be made to smoke freely. Cut nails prepared in this manner are improved in every respect. They are rendered tougher, and they will outlast any kind of wood, even though buried in the ground; while unprepared nails are completely destroyed by rust in a very short time.

FRENCH MUSTARD may be made thus: Mix a quart of brown mustard seed with a handful each of parsley, chervil, taragon and burnet, a teaspoonful of celery seed, and cloves, mace, garlic, and salt according to taste. Put the whole into a basin, with enough wine vinegar to cover the mixture. Let it steep for twenty-four hours, then pound it in a marble mortar. When thoroughly pounded pass it through a fine sieve; add enough vinegar to make the mustard of the desired consistency, and put into jars for use.

PUTTING UP CUCUMBERS.—This is the way to put up cucumbers, to have them remain firm without using poison to accomplish it. Wash your cucumbers, taken fresh from the vine, in clear, cold water; put them into a porcelain kettle, with just enough to cover them, and add sufficient salt to season the cucumbers. Let them remain on the stove till hot, but not boil; then take them out and drain till perfectly dry. Put them into bottles and cover them with boiling vinegar of the best quality, to which has been added some red pepper, some mustard seed, a little horseradish, and sugar just to suit the taste. Cucumbers prepared in this way, if good vinegar is used, will keep a whole year, if properly sealed up.

LIVE STOCK.

Sheep and Soil.

The judicious adaptation of breeds to suitable conditions of soil and climate has enabled the Australian wool-grower to produce a superior article to anything grown in this country. The squatters now know exactly what each district will grow, and they know, too, how to grow it. They have "gone in for quality." Not only so, but they have learned to wash and pack their wools in a very superior manner. To see a bale of one of the best brands of Adelaide or Port Phillip wool opened, would be a very useful lesson to many of our very best flockmasters. With these realities before us, it is surely time to pay a little more attention to our home produce.

Wool may be considered to be the product of the soil and climate, rather than the distinctive characteristic of particular breeds of sheep. We are accustomed to regard Southdown and Leicester fleeces in connection with the animals from which they are taken, and not as the result of widely different conditions of soil and pasture to which these breeds are in a measure indigenous. No doubt this association of ideas has led to the cross, or rather mongrel breeding, which is the evil of the day in this country. The hard-earned and dearly bought experiences of patient and observant breeders have resulted in the establishment of certain well-defined breeds of sheep, which take the names of the districts in which they have been brought to perfection, or at least to a very high standard of excellence. These successes may be described as the development and perfection of animals whose requirements are exactly met by the soil, herbage and climate of these several districts, and whose flesh and wool are the natural result, so to speak, of these combined influences.

In other words, the different combinations of wool and mutton with which we are familiar, as Leicester and Southdown, are the products of two geological formations of opposite characters. Although these districts produce animals which are almost perfect of their kind, and English flockmasters have reached a stage beyond which it would seem difficult, if not impossible, to make any great advance, the bulk of those who may be said to merely "keep sheep" pay very little regard to the principles which have been worked out by the great breeders. Elements of the most heterogeneous nature are mixed up in their flocks. Rams bred anywhere are used with ewes bred anyhow, and as a matter of course the lambs are nondescripts. It is difficult to find more suitable terms for expressing the actual state of affairs which exist at the present time, more or less, all over the country. The idea of wool being the product of the soil is altogether lost sight of, and the natural result is a variable staple of poor quality.

Whilst the character of the wool thus depends on the nature of the herbage, its value is affected by various circumstances connected with the treatment the animals receive, and the details of their management. Exposure to the extremes of temperature which pertain to our climate, a reduction in the quantity or quality of the food, or any of the many causes which have the effect of giving a check to the thriving condition of the animals, results in a corresponding check to the growth of wool. The fibre does not cease growing, but its substance becomes weaker, and the staple readily breaks at this part when in the wool-sorters' hands; hence its value is greatly reduced. Care, attention, liberal treatment, and, if necessary, shelter, in fact, every requisite for keeping the animals in continually thriving condition would be well paid in wool alone.

Whipping Horses.

Human nature and brute nature are much more alike than people generally imagine, and if we were to apply the same general rules in the government of animals which actuate us in the control of children and grown persons our success would be much more certain, while the process would be far more agreeable to all concerned. If we desire a wayward child to do thus and so we do not take a raw-hide and lash him, but we simply indicate our wishes in an intelligent manner, and point out the reason why certain proclivities must not be indulged in. As soon as the child clearly understands ten to one it is ready to obey. It is precisely the same with colts and horses, only we cannot indicate plainly by words what we desire, we should resort to ingenious but always patient management. The whip is the parent of stubbornness in a high spirited animal, while gentleness will win obedience, and, at the same time, attach the animal to us.

It is the easiest thing imaginable to win the affection of animals, and especially of horses. An apple, a potato, or a few lumps of sugar given from the hand, now and then, will cause the horse to prick up his ears at the sound of his owner's footstep, not with fear, but with a low whinnying note of pleasure. The confidence of the noble beast thus gained will lead him to obey the slightest intelligent tone of voice or indication of the bit. There is no such thing as baulkiness to be found in a horse thus treated; he shows a desire to obey, whereas a few lashes of the whip, smartly applied, if he be a horse worth having,

will arouse in him a spirit of retaliation and stubbornness that may cost the owner hours of trouble, and possibly danger to life and limb. Horses are made gentle by kindness. They "believe" in the master they love, and his voice will calm them in a moment of fear or induce them to struggle forward even when overladen, and when a whip would be sure to bring them to a stubborn standstill.

No man knows the true value of the horse until he has won his regard and confidence, as it were. The whip will never do it. A kind hand and gentle voice will act like magic; thus we have known women who could handle and drive horses that would almost inevitably show some vicious traits in the hands of a male driver. These facts apply especially to the rearing and training of young colts, something which the Arabs understand better than we do. They do not "break" their colts; they adapt them; they fondle them from their birth and pet them always. An Arab would as soon strike his wife or his daughter as his horse, and no other animals in the world are fleetier, more enduring or more obedient.

Method of Judging a Horse.

The first thing to be looked at in a horse is his shape. A horse's head should be fine, broad between the eyes, and tapering toward the nose; the jaws should be clean and unencumbered with flesh, the eye full, bright and lively, the nostrils open, and of a bright red internally, (which generally denotes breeding and courage); the space between the jaws underneath should be roomy and void of lump or glandular swellings; the ears should be well set into the head and pointed forward. A horse's neck should be light, airy, well-curved and having a considerable sweep underneath at its junction with the jaws. In horses whose windpipe is curved where it is set into the jaws, they have generally better wind than others, inasmuch as the air in expiration has not to encounter the obstruction caused by the neck when it joins the head at a sharp angle. A long-necked horse is generally weak, swashy, frequently predisposed to be a roarer, and the rest of his shape generally partakes of the same type, his neck being long and his body none of the shortest. An upright shoulder generally marks the harness horse; a sloping shoulder is, therefore, as essential in the saddle horse. Plenty of room in the chest if a desideratum; nevertheless, many a narrow-chested horse has performed wonders. The back should be short, rather arched over the loins, having the tail set rather high. The body should be deep, well ribbed up—that is, between the last rib and the hipbone. A low-rumped horse generally puts his hind legs well under him when at work, and this is a good quality. A horse's thighs should be well clothed with muscle down to the hock; there and thence, to the hoof, all should be a considerable bend on the back part of the thigh. Horses that stand with the caps of the hocks nearly touching are seldom thought much of. The fore legs should be muscular down to the knee, and thence, like the hind legs, flat and sinewy.

Fat Horses.

There is a tendency at this season to feed much grain and get the horses too fat. This is done at the expense of muscle, because an animal kept constantly at work will not get "hog fat," the food going to furnish tissue and muscle used up and destroyed. Not so with an animal kept in a stall and give no exercise except, perhaps, that obtained while being led to water. The amount of grain fed should be reduced and a plentiful supply of hay kept in the racks at all times. When possible the horses should be given the free run of the yard every day. If only given their liberty occasionally they are liable to run and jump to excess. Many valuable animals have been lost by rupture or a fall obtained through giving exercise to exuberant animal spirits.

How to Choose a Good Cow.

A crumpled horn is a good indication, a full eye another. Her head should be small and short. Avoid a Roman nose, which indicates thin milk and little of it. See that she is dished in the face—sunk between the eyes. Notice that she is what stock men call a good handler—skin soft and loose, like the skin of a dog; deep from the loin to the udder and a very slim tail. A cow with these marks never fails to be a good milker.

Keep Horses Clean.

Cleanliness of the skin is as necessary for the health of a horse as for that of a man. The skin exfoliates or throws off in scales the used up portion, and this dusty matter should be brushed out of the coat. The irritation by the brushing stimulates the skin and assists this healthful action; but the irritation should not be too severe. A moderately hard brush is preferable to hard, sharp currycombs.

THE English feed for fattening sheep consists of cotton-seed and turnips. They claim that it will put on the most fat, is the safest feed, makes the best mutton at a less cost, and produces the best and strongest manure.

POULTRY.**Late Hatched Chickens.**

Too little attention is paid each season to the chickens hatched late in the season, nearly every breeder supposing that they will not amount to much, and that the care and attention bestowed on them is at best but poor pay. Such is not the case, if only a little extra care is taken of them, so as to get them well along before the cold weather sets in.

Nearly all the Asiatic breeds will do well if hatched as late as September, as their heavy feathering serves in a great measure to protect them from the cold. One precaution is necessary, and that is to keep them out of the cold Autumn rains. Half fledged chickens are very easily damaged by allowing them to get soaking wet in a cold rain, and are put back very much in their growth, even if they are not killed by roup or catarrh by the exposure.

A noticeable feature in late-hatched Asiatics is that they are generally finer in color and shorter in the legs, and that they are *largely pullets*.

In nine cases out of ten the early hatched chicks will be largely cockerels, and many of these will be coarse and leggy, while later in the season the reverse will be the case.

Sometimes the cold weather will check their growth completely, unless a very warm house is provided; even then they will make large chicks if generously fed through the winter, for as soon as the warm days of spring come they will, if in good condition—and they ought to be fat—commence growing rapidly and soon rival the earlier hatched birds. These late hatched pullets are often very serviceable, as they usually commence laying in April, when the early ones are all in a clucking mood, and will soon pay for the care that has been taken of them. Of course, it will not pay farmers to take this extra care with common fowls, or those designed for market; but the fancier who can find ready sale for eggs in April and May is sorely tempted to let them go, and if he can make use of eggs laid late in June and July and even August, he can well afford a generous supply of food and a little extra care.

These late hatched chicks should have all the corn they can eat as late at night as they can see to eat, and they may even be fed by lamplight; we have done it more than once—and a meal of soft food at daylight in the morning.

During the daytime, if food is left where they can have free access to it, all the better. Every grain of food taken which is not actually needed for the growth of the fowl produces fat, and this accumulation of fat renders them all the more fit for a successful wintering. A chicken that is well fed and well housed is far less liable to disease than that which is half starved and that is left out in the cold and storm.

During the severe cold weather they will not grow any, and many are thereby deceived, thinking that such chickens are stunted and will never grow any larger; but such is not the case, for soon as the grass starts in the spring they will commence to grow, and that very rapidly, and will soon "show their keeping" and make valuable fowls.

Moscow Pigeons.

The pigeons have it all their own way in Moscow, for no one dares kill them. They are looked on as the incarnate symbol of the Holy Ghost, and a Russian would almost as soon think of becoming a cannibal as of eating a pigeon. Up near the grain and flour markets there are thousands of them, and toward evening the roofs are black with them. The gilded domes and roof of the Kremlin seem to be also particularly dear to these birds, and if you go down to the river about an hour before sunset, and lean over the parapet of the bridge, you will see countless numbers darting and wheeling about the palace spire. It is just what is needed to finish the beautiful panorama before you. In the early spring I meet numbers of men selling cages of little birds. These people buy and liberate at Easter-tide. It is a relic of the old habit of freeing slaves at that time. When no more slaves were to be had, birds were substituted as a symbol by the church, and the custom still existed in Russia with all her serfs, without a thought as to what it meant, and how much better it would be to do the thing of which it was a type.—*Eugene Schuyler in Scribner's Monthly.*

Condiments in Poultry Diet.

Cayenne pepper, mustard or ginger can, with great benefit, be added to the food of fowls, to increase their vigor and to stimulate egg production.

This apparently artificial diet will be seen to be natural if we remember that wild birds of the gallinaceous species get access to very many highly-spiced berries and buds; articles that give the "game flavor" to their flesh. The ordinary food of the domestic fowl is not, indeed, entirely without some such addition, since there is more or less of an aromatic principle in wheat, Indian corn, and all other grains. Nevertheless, it is not sufficient in quantity to supply the place of the stronger species, a taste for which is part of the fowl's inherited constitution. A

moderate quantity of cayenne, etc., added to the ground grain is always productive of health and thrift in poultry.—*The Poultry World.*

Ordinary Hens' Eggs

Weigh from 785 to 1,000 grains, and when boiled hard weigh from 1,050 to 1,070 grains, the albumen representing nearly two-thirds, while the yolk exceeds one-third. The specific gravity of new laid eggs varies from 1.08 to 1.09. The white of an egg contains 80 per cent. water, 15.5 per cent. albumen and 4.5 mucus. The yolk contains 53.78 per cent. water, 17.47 per cent. albumen, 28.76 per cent. yellow oil or fat. Eggs contain 140 parts nutritive matter in 1,000 parts. Preserved eggs lose weight rapidly by keeping, through the substitution of air for the water that escapes.

Oyster Shells for Laying Hens.

Now is the time to secure and begin to feed oyster shells to our hens. Get the shells wherever you can most conveniently, enough to fill a box or barrel. Break up in small pieces near the feeding place, about a pound a day for every twenty or twenty-five hens. Make the pieces small enough for the hens to swallow. They will eat this amount clean every day, and it will furnish lime for the shells of their eggs. It is a small chore, but it will pay.

LITERARY AND PERSONAL.

HARPER'S MAGAZINE FOR AUGUST, 1878.—Harper's Magazine for August is a Number which has never been surpassed in the interest of its reading matter, and the beauty and artistic excellence of its illustrations.

The opening article, by F. KEPPEL, one of the most judicious art collectors in this country, is devoted to "The Golden Age of Engraving," a fit subject for a number which may fairly be said to be the best representation ever given of the achievements of this art. This paper is embellished with thirteen illustrations, representing the great masters of engraving—Gandolfi, Durer, Rembrandt (two of whose etchings are reproduced), Schongauer, Edelinck, Visscher, Wille, Drevet, Desnoyers, Bervie, and Sharp.

Life at the White Sulphur Springs is the subject of an interesting paper by JOHN ESTEN COOKE, with twenty fine illustrations of character and scenery.

CLARA F. MORSE, the author of "Blush Roses," just published in Harper's Library of American Fiction, contributes a beautifully illustrated and entertaining article on Tunbridge Wells, an "Old-fashioned Spa" in Kent, "the Garden of England." The literary and historical associations of the place are very interesting. Among the illustrations are fine pictures of Dordogne—the residence of Princess Louise and the Marquis of Lorne; Hever Castle, the residence of Anne Boleyn; and Penhurst, the home of the Sidneys.

Nothing could be more beautiful, or better suited to the midsummer season, than Mrs. CONANT's paper on "Birds and Plumage," with sixteen superb illustrations by Gibson. The paper treats of birds whose feathers are used for ornamentation. It describes the haunts and peculiar habits of the peacock, lyre-bird, various species of pheasants and birds of paradise, humming-bird, ibis, stork, toucan, parrot, ostrich, whidah-bird, trogan, grebe, ciderneuk, and egret—all of which are illustrated.

General EGERT L. VIELE, in "A Glimpse of Nature from my Veranda," an instructive and fascinating article, presents midsummer in its scientific aspects, with illustrations.

Three excellent short stories are given, each of which has a special interest. "Jenny Gridley's Concession" is by the anonymous author of "Justine's Lovers;" "Aunt Eunice's Idea" is a humorous story by Miss H. H. HOLDICH, with two illustrations by Abbey. "Manuel Menendez" is a very strong story, from the Italian of De Amicis, by Professor CHARLES CARROL, illustrated by Pyle.

THOMAS KNOX contributes a remarkable paper entitled "John Comprador," giving an inside view of Chinese mercantile life, not only in China but also in other countries, and exposing the methods by which the Chinese have gained in the competition with foreign merchants.

The number contains five poems: "Shipwreck," by Z. D.; "Who Knows," by ANNA C. BRAKETT; "In a Cloud-rift," by LUCY LAROOM; "A Summer Day" by C. E. BROOKS; and "The Cliffs at Newport," by RUTH DANA.

The serial stories—WILLIAM BLACK'S "Macleod of Dare" and THOMAS HARDY'S "The Return of the Native" are continued with unabated interest.

The Editor's "Easy Chair" treats of our Decoration of "All-heroes'" Day, the Women's Hotel, Mr. Murray's new Church enterprise, Lord Beaconsfield at Berlin, and Bryant. The other Editorial Departments are well sustained.

AYER & SON'S MANUAL FOR ADVERTISERS, containing carefully prepared lists of leading daily, weekly and monthly newspapers in the United States and Dominion of Canada, with valuable information regarding circulation and advertising rates, so ar-

ranged and classified as to enable an advertiser to select without difficulty the mediums best suited to any particular purpose, together with a list of all the cities and towns having a population of five thousand or more, giving exact population of each, the county in which it is located, its population and the principal papers of each place, with full particulars as to character, circulation and rates; also, very complete lists of Sunday-school, scientific and mechanical, educational, college, musical, medical and sporting publications, together with a catalogue of leading German papers, the various Sunday issues of the United States; a magazine list, and numerous special and very advantageous offers. Fifth edition. A tinted royal octavo of 164 pages, in paper covers. N. W. Ayer & Son, newspaper advertising agents, Times building, corner of Chestnut and Eighth streets, Philadelphia, Pa., 1878. The newspaper business of America is truly astonishing, and the material it consumes is a big item in the mass of human production.

EMPLOYMENT FOR LADIES AND GENTLEMEN AT HOME.—Our attention has been called to some new and labor-saving cooking utensils—recently invented; one of which, the Universal Weight and Measuring Utensil, for weighing flour, sugar, butter, and measuring molasses, milk and all kinds of liquids used in cooking, entirely superseding expensive scales. The Patent Centennial Cake Pan, the Best and most convenient cake pan ever made, and which every housekeeper will have when they see its advantages over all others. Also, the Kitchen Gem, a plated wire boiler to hang inside of an ordinary pot, for boiling all kinds of vegetables, eggs, etc., which, when done, can be removed at once perfectly dry without lifting the heavy sooty pot off of the stove. These goods are sold exclusively through agents to families, and offer a splendid opportunity to some reliable lady or gentleman canvasser of this county to secure the agency for a very profitable business. For terms, territory, etc., write to L. E. Brown & Co., No. 242 Elm street Cincinnati, O.

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EXPERIMENTAL FARMING, with special relation to fertilizing and fertilizers. It is very seldom that we see a more able or interesting article on this subject, than that from the pen of Prof. B. Silliman, giving the great work to which Mr. Lawes has devoted his life and his fortune, on his experimental farm at Rothamsted, England, and published entire in the weekly edition of the New York *World* for June 26, 1878. The *pith* of it, or the entire article in instalments—or as a whole—would furnish good agricultural reading at any season of the year, and we have carefully cut the paper out for our present number, see page 105.

NATIONAL AGRICULTURAL CONGRESS.—The next semi-annual meeting of this association will be held at New Haven, Conn., commencing on the 27th of August, 1878, for the reading and discussion of papers. By paying an annual fee of three dollars those who desire can become members and receive a copy of the printed transactions. Address Ezra Whitman, treasurer, editor *Maryland Farmer*, Baltimore, Md.; or Jonathan Periam, secretary, Chicago, Illinois.

The twenty-fifth annual meeting of the State Teachers' Association of Pennsylvania will be held in the City of Reading, Berks county, on the 23rd, 24th and 25th of July, 1878. The Association convenes in the First Presbyterian Church; and hotel accommodations can be obtained from \$2.25 per day down to \$1.25 per day. All the railroads in the State grant excursion tickets under the usual limits, and it is expected that the assemblage will be large, instructive and interesting.

THE GREAT WEST.—Devoted to the interests of Western emigration, Harrisburg, Pa., 1878; a double medium folio, very handsomely printed and on good paper, monthly, at \$1.00 a year. No. 1, Vol. 1, of this Journal reached our table too late to receive a reengagement in our June number. We commend it especially to the emigrant world, as containing information that they greatly need and will be to their advantage, morally and financially.

We call the attention of our readers in search of good homes in the West to the advertisement of S. J. Gilmore, Land Commissioner Kansas Pacific Railway, in another column, and advise all to send to him for a free copy of the *Homestead*, a paper published in the interests of all desiring cheap homes in a good country.

NEW MUSIC.—The latest and best Song and Chorus is entitled "Homeless and Alone To-Night." It is by Will L. Thompson author of the famous songs, "Gathering Shells from the Sea Shore," and "Drifting with the Tide." Kept at all music stores, and sent to any address for 40 cents. Published by W. L. Thompson & Co., East Liverpool, Ohio.

CAPE MAY AS A HEALTH RESORT.—Relative humidity and range of temperature. From the official data of the United States Signal Service, Washington, D. C., from 1874 to 1877, explodes the fallacy that Cape May is an unhealthy place.

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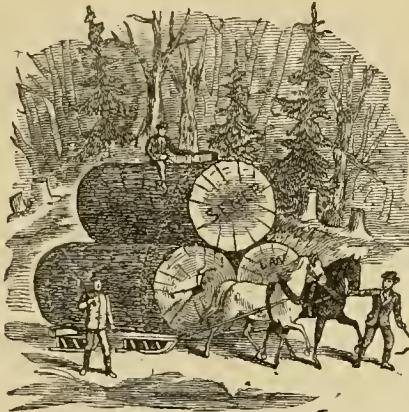
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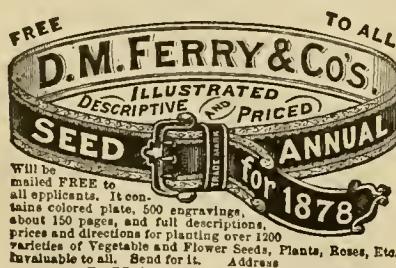
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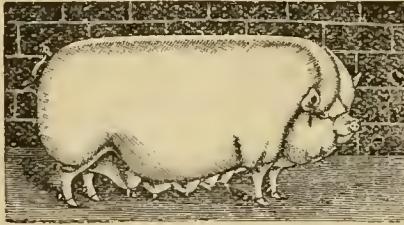
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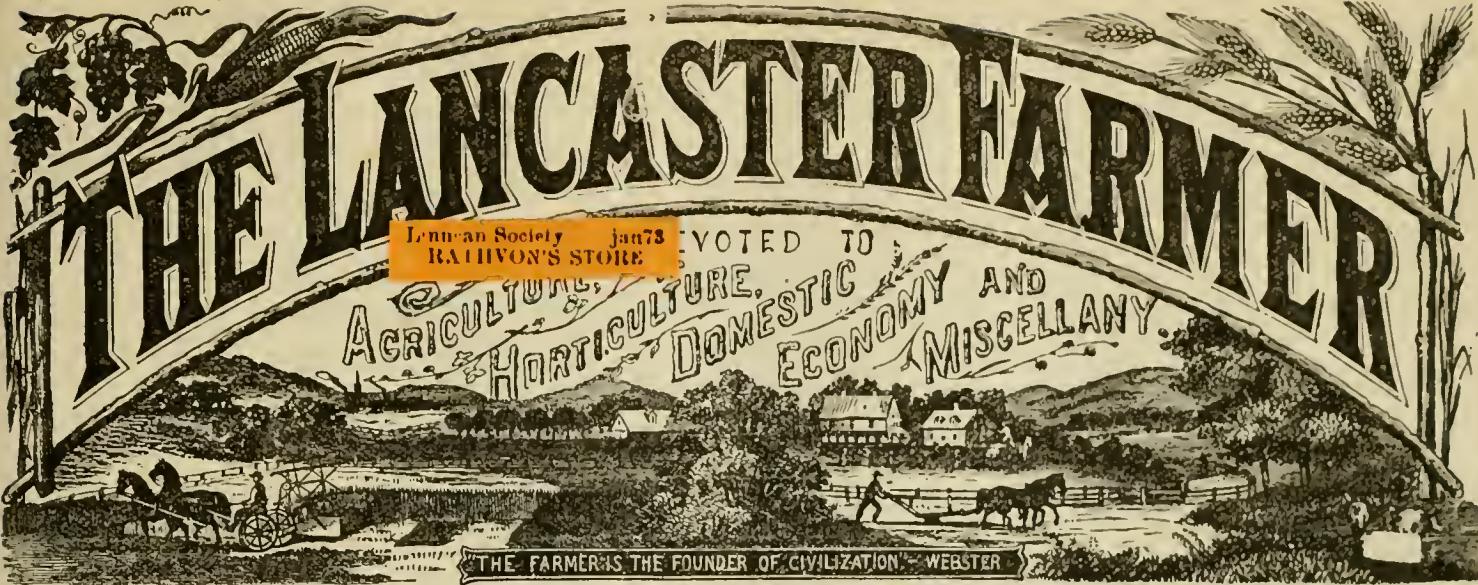
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Prof. S. S. RATHVON, Editor.

LANCASTER, PA., AUGUST 15, 1878.

LINNÆUS RATHVON, Publisher.

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Edited by Prof. S. S. RATHVON.

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

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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor.

LANCASTER, PA., AUGUST, 1878.

Vol. Z. No. 8.

MONEY! MONEY!! MONEY!!!

Those who know themselves indebted to us, for subscriptions or otherwise, will please kindly remember the printer—his needs are always pressing. See the little yellow labels and that will reveal the state of the case, so far as regards subscriptions.

CROP FAILURES.

It is very probable that some people—"level-headed" people too—may widely differ as to what constitutes a successful crop of—well, anything; but it is quite certain that there are many not well-defined views as to what constitutes "a failure." It has often been announced, in advance of the season, in the midst of the season, or after the season has gone by, that "this, that or the other" crop has been a failure, when in point of fact, rationally considered, there has been no such thing—indeed, so far as it concerns a man's own skill, industry and intelligent manipulation, his efforts may have been an entire success; and not only this combination of abilities in a certain direction, but also their results in the accomplishment of that which he intended. A man under skillful culture brings an acre of watermelons to perfection, and the night before he disposes of them a herd of hungry swine break into his enclosure and ruin or destroy all that it contains; it surely cannot be said that his crop of watermelons has been a *failure*. He may be a "failure" himself, but certainly his *crop* has been a success.

Again, through his own horticultural skill and industry he may have produced a promising crop of fruit, of whatsoever kind it may be, and just before he begins to gather and market it, it may fall a prey to birds, insects, storms or some other unforeseen casualty, which may be more or less attributable to his own want of precaution, his own negligence, or a want of the necessary knowledge to secure its preservation; and here, again, we shall be admonished that he has experienced a failure in his fruit crop. But this is clearly not so, because his culture has been good, the season has been favorable, and the result has been all that could have been expected under such a combination of circumstances. If he were asked whether his locality is climatically and otherwise adapted to the growing of such and such kinds of fruit, he surely could not answer in the negative, because this would not be true. Birds, insects and other casualties may be contingencies that are entirely separate and apart from successful culture, and involves the ability to preserve and protect a good crop after he has succeeded in producing it. It is analogous to the case of a man who by mechanical or professional skill has been able to build up a successful business and realize handsome profits from it, but who has been careless or profligate, or has lacked in that financial economy which is essential to the proper preservation and investment of his profits. If he finally fails, his failure cannot be properly attributed to a want of skill in his profession or a want of patronage from the community, but from contingencies that are separate and apart from these. Another man, endowed with better economical and financial qualities, may purchase his establishment, and with even less ability than he had, may prove a financial success. There is an old homely adage to the effect that, "any fool can make money, but it takes a wise man to keep it." A story is told of a certain Mr. Tompkins who leased a quarry, built a kiln, and went into the lime business. The terms of his lease were liberal, the quality of the limestone was good, fuel was cheap, and the labor of quarrying light and easy. Taking advantage of a favorable state of the market, he sent one of the finest boat loads of lime

towards a neighboring city that had ever passed down the Swamptown canal, and everything seemed propitious of a remunerative financial return, but a sudden storm arose and the rain came down in torrents on his uncovered cargo. The lime slaked, the boat bursted, the cargo sunk, converting that part of the canal into a boiling caldron, and his employees barely escaped with their lives. Of course he failed, but can any one truly say that the lime business was a failure? He had no prudential right to presume that the weather would remain fair until he got his lime into market any more than a man has a right to presume that he can gather a good crop of healthy fruit in spite of web-worms, canker-worms or pilfering birds, if he makes no effort to forestall them. A hen may be a prolific layer and a good setter, but if she has no provident motherly qualities her brood of two dozen chicks may, in every instance, dwindle down to one or two pullets in the end. "Ah, Jonesby, there you missed a clause," said an admiring auditor to a militia fifer on a training day. "Well, mebby I did, but you know that *Money-Musk* takes a good deal of *clawing* to play it right," was the appreciative response of Jonesby. It is approximately so in regard to fruit raising, or perhaps in raising any kind of crops, as well as in financial and general business pursuits.

A tobacco-grower might succeed but poorly, no matter how rich the soil is, how favorable the season, and how excellent the variety of his plants, if he entirely disregarded the presence of the "horn-worm," or any other destructive insect. There is something to be done separate and apart from skillful manipulation of the soil in order to secure a successful final result; and that something often requires a good deal of "clawing," and it is often also for the want of that clawing that failures ensue. It therefore behoves tillers of the soil to make themselves acquainted with the aftermath as well as the foremath of a crop, and to be as intelligent and vigilant in the one as they have been in the other, if they desire success in their avocations. They possess the practical opportunities of making observations upon the presence and habits of insects that are far superior to those of a merely closet naturalist. Their experiences, it is true, may be of an empirical character, but that is the very kind of knowledge they most need to crown their efforts with success. Bountiful nature may be doing for the husbandman all she can, but she cannot always maintain or restore an equilibrium that may have been disturbed by human intervention—that requires human counteracting means. We are not exactly posted in the *curriculum* of farmers' colleges, but the study of economic entomology, if it is not, ought to be a part, and an essential part, of that curriculum. And in order to obtain a practical knowledge of the habits of destructive insects it might be necessary to introduce them into enclosures for that purpose, and on trees, shrubs and plants. Many destructive insects have been introduced into this country, without design, from Europe, and therefore there might be little trouble in introducing them into the experimental *campus* of a college. Suppose they do destroy the plants, the fruit and the foliage of the campus; if so much practical knowledge is obtained in regard to their habits, their transformation, their specific identification, and the means for their successful destruction, the object of their introduction will be attained, and the success of the institution as a practical agricultural educator will be so far established. Of course they should be restricted in their domain and not be allowed to infest the State at large. We might then have fewer *failures* in crops than now.

THE CARPET BEETLE.

(*Anthrenus Scrophulariv.*)

This is comparatively a new insect in this country, and it seems to have been introduced here from Europe. We have been admonished on one or two occasions that there was an insect (other than the moth) that was infesting the carpets in the northern parts of the State of Pennsylvania and elsewhere; but more particularly have notices of the same appeared in various newspapers during the last two years, although we have failed to obtain specimens of them. From the very vague representations made of its appearance, we had supposed it might be the young larva of a species of the "Lard," or "Bacon beetles," (*Dermestes* or *Necrobia*), but in the July number of the *American Naturalist* (pp. 536-544,) is an excellent paper on this subject, by Mr. J. A. Lintner, of New York State, excellently illustrated by Prof. Riley, exhibiting the larva, the pupa and the *imago*. It is a eogenet of the common pest (*Anthrenus varius*,) which is so destructive to our cabinets of insects, birds, reptiles, fishes, or almost any animal substance that is not preserved in alcohol or some other liquid; indeed we have known it to eat the bristles off a tooth-brush, and on one occasion it utterly destroyed a number of camel's hair pencils for us.

Eating into the cork on the bottoms of our insect boxes, after all the insects are destroyed, and living there for months has been its common habit with us. The new carpet pest, above named, is of about the same size and form as the museum pest, being less than a quarter of an inch in length, and about half that much in width. The colors are red, black, white and grey, and the antennae are short and clubbed at the ends. The larva has tufts of divergent bristles projecting from each segment along the sides, on the last segment terminating in a tail. It is said to be very active on its feet, and hides itself, when surprised, with the greatest facility. It usually attacks the carpet beneath and along the margins, but also invades the interior, and where a crack in the floor afforded a place of retirement, it has been known to eat the carpet through crosswise at such places. Its most active season is from spring to autumn, or until the weather is cold.

Of course, we mean by this that it is then in the larva state, and in which it is alone destructive to the carpets. As a matured beetle it does not injure anything (further than the deposition of its egg may ultimately result in injury), but wanders away and luxuriates on the pollen of flowering plants. According to Mr. Lintner the beetles emerge in the month of October, and continue to make their appearance during the fall, winter and spring, in that respect assimilating the habits of the cabinet pest, which we have, however, found in the beetle form, on some occasions, during the entire year. It seems to possess the possibilities of becoming a most formidable household pest, and one that will be difficult to overcome; for according to the same authority, it has thus far resisted the ordinary applications of camphor, pepper, tobacco, turpentine and carbolic acid with perfect impunity. We have never yet found an effectual remedy against the cabinet pest, and if the carpet pest exceeds it in tenacity, there will be a busy time in resewing our carpets from destruction.

Nothing very definite has yet been discovered as a remedy, but it is confidently suggested that the application of kerosene or benzine to its haunts during the winter and spring, will either destroy or expel it from the premises. Like nearly every other foreign insect pest it may not be long before we have it in Lancaster county, and when that time ar-

rives we would admonish our readers to be vigilant and apply the remedies we have named, or any other which their experience may suggest, preventing it, if possible, from getting a foothold on their premises, and it is for this reason that we are now anticipating its advent. It seems that it does not confine itself in carpets alone, but also infests other woolen fabrics, and singularly enough it is not known to infest carpets at all in Europe, from whence it came.

Mr. Lintner mentions an instance where it is said to have preyed upon cotton fabrics, and then adds, "a habit not attaching to either the carpet (moth) or clothes moth." So far as concerns the "clothes moth" (*Tinea vestianella*), this is a mistake, for we have in several well-defined instances found this insect preying, not only upon cotton fabrics, but also upon linne. On one particular occasion, on opening an unfrequented box in our clothing establishment, containing fragments of linen canvas, unbleached muslin and coarse woolen goods, we found them all equally scored and eased by *Tinea vestianella*. Of course this is not their normal habit, but it is difficult to say what any of these insect imps would not do in an emergency.

Some years ago we hung up some follicles of the "sackbearer" (*Thyridopteryx*) in our sanctum, from which the young were excluded during our absence, and when we returned they had constructed their little, erect, spur-like cases out of whitewash on the wall, leather from the backs and paper from the sides of some books on which they had alighted. Neither of these animals may have fed upon the substances named, but they certainly constructed their habitaculae out of them. They seem to be, more or less, creatures of circumstance as well as centrestance.

It is curious that most of the destructive insects that have been introduced into the United States from Europe or elsewhere, increase more rapidly and become more destructive than they were known to have been in their native countries, and very often prey upon different plants and other substances here from what they do there. In order to show how much we owe to foreign countries for our present insect inflictions, we append a list of foreigners that have become naturalized in our country: "Hessian-fly," *Cecidomyia destructor*; "Wheat-midge," *Diplosis tritici*; "Cheese-fly," *Piophila casei*; "House-fly," *Musca domestica*; "Currant-worm," *Nematus ventricosus*; "Oyster Shell Bark Louse," *Aspidiotus conchiformis*; "Cockroach," *Blatta orientalis*; "Meal-worm," *Tenebrio molitor*; "Croton-bug," *Ectobia germanica*; "Grain-weevil," *Sitophilus granarius*; "Bee-moth," *Galleria cereana*; "Coding-moth," *Carpocapsa pomonella*; "Cabbage-moth," *Plutella cruciferarum*; "Cabbage (green) Worm," *Pieris rapae*; "Carpet-moth," *Tineatapetzella*; "Clothes-moth," *Tinea vestianella*; "Furn-moth," *Tinea pelionella*; "Currant-borer," *Aegeria tipuliformis*; "Asparagus-beetle," *Crioceris asparagi*; "Carpet-beetle," *Anthrenus scrophulariae*; "Museum-beetle," *Anthrenus musorum*, and many others more or less noxious. Twenty years ago we received a collection of coleopterous insects from Europe, badly infested with this last named species, and we have never been able to expel them entirely from our premises since. If there are no insects accessible, they will feed on tooth-brushes, camels' hair brushes, cork, &c., &c. We are not sure that we have our native species (*A. varius*) at all. We never had them on our premises until we received that foreign collection; but from that time we have never been without them, and, as Paddy said, "Bod luck 'till them, anyhow."

The carpet-beetle is a subject in which every housekeeper (especially the female heads) has a deep interest, and being thus forewarned they will be wise if they forearm themselves. We admonish them, however, not to expect anything very formidable to the eye. They may see the evil effects of its operations long before they see either the larva or the beetle themselves, but when those effects become apparent they may know their cause.

THE SPARROW NUISANCE.

The leading article in that excellent scientific monthly, the *American Naturalist*, is by Dr. Cones, the eminent ornithologist, on the much vexed sparrow question. It is long and minute, and the array of charges brought against that quarrelsome alien is overwhelming. No man, either in this country or elsewhere, is more competent to discuss this question than Dr. Coues, and what he says we are willing to accept as authority. His words will have more weight among naturalists than all the silly sentimetality which the host of ignorant people who have discussed the sparrow question have brought forward. He calls attention to the fact that the sparrow is foreign to our bird fauna, that there is no place for it, and consequently those who compare its condition in Europe with its present relations here are founding their arguments on a false position. He calls attention to the fact that it is increasing far more rapidly here than in Europe. Here we build houses for it, and feed it regularly, and the law protects it. There they must shift for themselves, like all other birds, and are freely trapped and shot.

Dr. Cones advises the same course here. Take away the protection of the law; cease to feed it; let who will kill and eat them; let them be used instead of pigeons at shooting matches; in this way their increase may be checked and perhaps kept within bounds. Unless this is done he predicts the day will come when our grain fields, gardens and orchards will be so depredated upon that legislative enactments will be called into requisition to check their increase. We advise all interested in this matter to read this arraignment of these pests, and adopt its suggestions. They have already found their way into distant Colorado, and will soon spread along the Pacific shores. The fact that no other bird known is multiplying its numbers as this one, is alone sufficient cause for us to adopt remedial steps. None of our native birds are perceptibly increasing, while the sparrows are multiplying at the rate of millions yearly.—*New Era*.

And now that Dr. Cones has spoken—and philosophically spoken, too—lesser lights may receive a more patient hearing; and we may well wonder why the English sparrow was ever introduced into this country as a specific insect destroyer. And what are they in the recognized systems of ornithological classification, anyhow? They belong to the great family FRINGILLIDÆ, or Finches; and finches are not classed with insectivorous birds by any means, although during the period of rearing their young they may appropriate a limited number of insects. Cassel, in his natural history of birds, has an illustration which represents the parallelism of mammals and birds, dividing them into eight great classes, although there may be sub or intermediate classes. The first is represented by the monkey and the parrot, or frugivorous; the second by the panther and the falcon, or carnivorous; the third by the hyena and the vulture, or carrionivorous; the fourth by the tupaias* and the starling, or insectivorous; the fifth by the field mouse and the sparrow, or granivorous; the sixth by the antelope and the nepaul,† or herbivorous, (having complex stomachs and feeding upon pasturage and the fruit thereof); the seventh by the camel and the ostrich, also herbivorous, but inhabiting the deserts, and provided with immense stomachs; and the eighth by the seal and the penguin, or piscatorial in their habits. Of course these divisions are but an outline, and perhaps not free from artificiality, but they give the general location and feeding habits of the two great classes of animals they represent. Under any circumstances, it illustrates that sparrows are not generally classed with insectivorous animals, whatever habits they may acquire through domestication, or by proximity to the human family. There is one very singular coincidence connected with the subject, and that is that these sparrows, like all the noxious insects that have been introduced into our country from Europe, increase more rapidly, and are more destructive here than they are in their native country; but strange as it may seem, it is nevertheless a well known and indisputable fact.

In the foregoing we have merely intended to localize the sparrow in the system of bird classification, based upon their feeding habits, but to show that neither the opinions of Dr. Coues nor our reflections are conclusive to all

*An insect-eating mammal, allied to the anteaters.
†A kind of horned grouse.

minds, we append the following from Dr. Hagen, and the action of the Massachusetts Senate on the vexed subject. We probably shall sift out the truth after awhile.

The decisions of the "Nuttall Club," of which a report is given in No. 18 of the *Country Gentleman*, are based upon observations contradicting in several points the ones which are accepted by science, in the most decided manner. It appears by the report that the club either had no knowledge of these earlier observations, covering a space of more than a century, and sustained by ornithologists of well-known reputation, or that it did not deem it worth while to compare its own observations with the earlier ones, which ought to have been done to fulfill the well-known demands of science. The sparrow literature is large, and opinions during the past century have considerably changed, until the final decision is most decidedly favorable to its value.

Now, when American dealers find it profitable to import seed from Germany, and German dealers find it profitable to export them, it is rather obvious that the sparrows, so exceedingly common in German nursery-gardens, cannot be a pest there, and consequently will not be a pest here.

Nobody has ever contended that the sparrow is a beauty or a charming singer. Indeed, he is only an indefatigable business man, minding first his own affairs, as is not uncommon among business men. But he is admirably adapted to his business—which is to destroy insects; he is very enduring, staying through the winter, when few other insect-eating birds are here; he begins to breed much earlier, and breeds much oftener than other birds, and is, therefore, more able to give an effective help in the destruction of insects and weeds. But it is true that he should be supported, as Mr. Allen remarks judiciously in the report, though enforcing, by statutory enactments, the protection of the fruit and shade trees by all available means.

As no naturalist would pretend that a bird, by importation into a foreign, but similar climate, could entirely change its character in a few years, the sparrow question will probably here go through the same, though briefer, stages of opinion as in Europe. I consider the sparrow to be a valuable addition to the native birds, and most certainly beneficial for both horticulturists and farmers.—*Dr. Hagen in American Agriculturist.*

[From the Massachusetts Ploughman.]

In March, 1877, an order was introduced in the Massachusetts Senate, by Senator Gregory, concerning English sparrows, and this order was referred to the Committee on Agriculture. The sparrow was and is protected under our laws. The idea of this order was to have this protection removed because of the character and habits of the sparrow. The matter was talked over in committee and a hearing was announced. Quite a number of gentlemen appeared, and the evidence given by them was almost entirely against the sparrow. A few facts may be stated, "Sparrows were introduced into New York somewhere about 1860, and into Boston some five years later—and so far as known they have benefited the trees in these cities. They have increased very rapidly and have driven away many of our native birds. They are naturally quarrelsome. They are not insect-feeding birds, but rather seed-eating. They breed tremendously—as many as four or five broods in a year, while most birds breed no more than two or three times. Gentlemen living near Boston stated that the sparrows in the suburbs did not disturb the canker worms, but left them for robins and orioles, while they devoured the buds and blossoms on fruit trees. They are great fighters and kill blue birds. One gentleman who had observed the sparrow upon Long Island, stated that they were a great nuisance there, having spread out from New York; also, that great complaint was made of their doings in the grain-fields about Philadelphia. It is well known that the English people have regarded them as a nuisance for a long time, because of their destructive habits in grain-fields. The same may be said for Northern Prussia and Norway. In Germany, bounties are given for their destruction. In Cuba, a pair of sparrows were introduced in 1862 or 3, and they are now very numerous. In both Cuba and Spain they do immense damage to grain-fields, and are called "Destroyers." The evidence was conclusive that, outside of cities and towns, in all countries where they exist, they are an undoubted nuisance to agriculturists. That they drive away other birds which are much to be preferred, both for their musical qualities and their peaceable habits."

As a result of this hearing a bill was introduced and considerable discussion was had in the House. The idea of the bill was to take away the protection now granted to the sparrow. It was shown that this lack of protection would not in all probability affect, unfavorably, the life and growth of the birds in cities and towns, but would operate to their disadvantage in the country alone. It was shown that the sparrows are already very numerous in many of our Massachusetts towns along the lines of railways—that they were also multiplying in many of our Western States. The principal opposition to the

measure came from Representatives from large towns and cities, who thought the trees would suffer without the sparrows.

There were comparatively few votes in favor of taking the sparrow from the list of protected birds. The opinion was then expressed by one member of the committee that at no distant day strenuous efforts would be made to rid the country of these pests, and I have no doubt our farmers will soon demand something in the way of legislation and of action in this direction.—*Bird, Enfield, Mass., July 18, 1878.*

OX-EYE DAISY.

This noxious weed belongs to the great order COMPOSITE, or "Composite family," and is generically allied to the "Wild Camomile," and the "Tansy." It is the *Chrysanthemum leucanthemum* of LINNAEUS; and the *Leucanthemum vulgare*, of modern authors; and is locally known under the common names of "White Daisy," "Ox-eye Daisy" and "Whitewood." It is in bloom from the middle of June to the end of August, and has become naturalized in this country from Europe, and probably is more noxious and spreads more rapidly here than it does in its native country. In fields and meadows it becomes a most pernicious pest to the farmer, and the least neglect soon gives it the upper hand. We recommended the pulling of it up

heavily with an absorbing crop, would do much towards checking its growth. But this would also involve a great deal of persevering labor, especially where it had overrun a whole farm. Well, all we have to say is, that if we cannot do this we must be content to keep it and make the most of it. It is a hardy weed and will bear much rough usage.

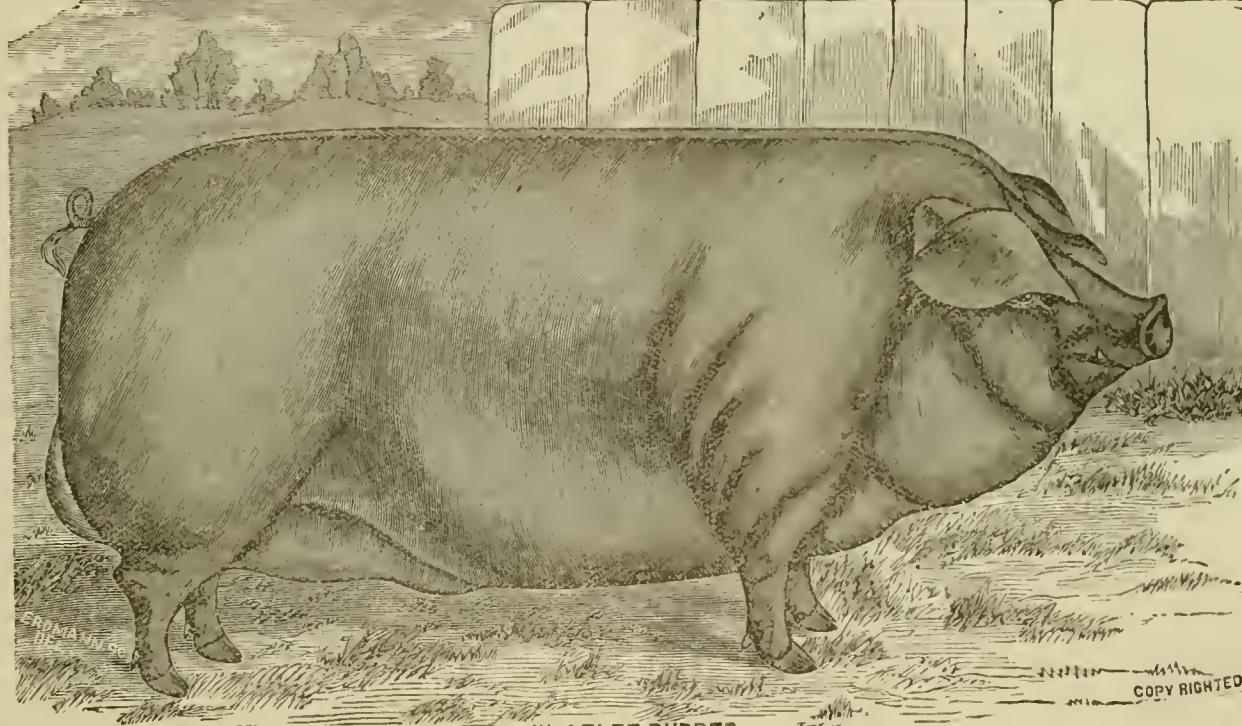
DUROC, OR JERSEY RED PIGS.

Time was when farmers would have rejected a red pig for the same reason that they would have a black one, namely: that "somehow" they never believed that either red pigs or black pigs would ever thrive—they are too *cunning*, and nothing that is *cunning* will get fat. That thin theory has, however, been resolved into thin air long ago by the introduction of the Berkshires, the Poland-Chinas and the DUROC, OR JERSEY Reds. Long since the farmers of Eastern Pennsylvania, New Jersey and parts of New York have been acquainted with a breed of swine known as the "Jersey Reds." These animals have become great favorites on account of their very fine, small bone; their long, deep round body; their good feeding qualities, and their hardy constitution—fundamental qualities always essential in securing unqualified thrift in

had imported a pair of red pigs from England, and the present stock is the posterity of that first importation. This breed of swine is said to be related to the old and original breed of Berkshires, some of which were of a sandy color; and, of course, so far as concerns the ancient blood, must be purer than the present race of Berkshires, possessing, however, the additional qualities developed through modern improvement. There are many other points of interest upon which the swinebreeder may inform himself by sending to the proprietors, as above named, and obtaining a descriptive catalogue.

STEADY DEMAND FOR SUMAC.

There is a steady market at present for the leaves of the wild sumac which grows upon the hills and "commons" of Berks county, the demand being greater than the supply. The leaves are much used in the tanning of Morocco leather, for the manufacture of dyes, and other purposes. In some localities the gathering of sumac at this season of the year is quite an industry. The branches of the sumac bushes are broken off, loaded upon hay wagons, and after being cured, conveyed to the nearest railroad station where they are loaded in freight cars and shipped to the dealers, mostly Philadelphia and Baltimore wholesale leather houses. In West Cocalico township, Lancaster county, near the line of Berks, tons of sumac were formerly gathered and shipped annually. The yield of sumac on the here-



W. ATLEE BURPEE.

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(root and branch) and by that we do not mean merely pulling it off, for, like the "Canada thistle," this plant propagates itself from the small fragments of the roots which are left in the ground. It should be pulled up when the ground is soft and saturated by a good rain. Cutting it off, or mowing it off, or even burning it off, would not reach the case, unless the heat was sufficient to penetrate the ground and kill the roots.

A slow steady pull, when the ground is soft, and this continued as often as it appears above the ground in tufts large enough to obtain a hold, would soon eradicate it. This process would doubtless be too laborious and occupy too much time for the farmer, or discourage him too much to make any attempt to exterminate it; and if it occurred as abundantly on a farm of ours as we have seen it in Delaware, New Jersey, and even in some parts of Pennsylvania, we should be deterred from making any attempt to eradicate it by pulling it up. Another remedy is to mow it off, dry it and then burn it, before it matures its seed; after which a shallow plowing, and manipulating the soil with close-toothed hand-rakes, to sift out the roots—which should also be dried and burned—or plowing it down deeply with a sub-soil plow, and then cropping it

swine. Our illustration, carefully drawn and engraved from a living specimen, as bred by W. ATLEE BURPEE & Co., of No. 221 Church street, Philadelphia, is a fair representation of the stock, and exhibits to any one who has attained to reliable porcine judgment, the superior qualities of the breed. Some years ago these excellent hogs were taken in hand by some breeders more than usually careful, and have since been greatly improved, although previously of a very high character, so that at the present time this breed will successfully challenge comparison with any other whatever for all the valuable points which make swine desirable or profitable. It has been noticed of late that these red hogs have become widely distributed. In the well-known and critical breeding State of Kentucky, they have been received with distinguished favor, and large sales of them have been made. At the National Swinebreeders' Convention, held at Indianapolis, in 1871, this excellent breed received a most emphatic endorsement, and it was decided to name it the DUROC, and it is now known under that name by those who give any attention to swinebreeding. This name is derived from a celebrated horse of that name, owned by Mr. H. Kelsey fifty years ago, who then already

ford hills in the eastern portion of this county, is reported to be very large this year.—*Reading Times.*

We have often noticed allusions, in the public press, to the growing demand for this shrub in the manufacture of Morocco and similar leathers, and we have often wondered that it was not utilized when we have seen it growing in abundance where very little else would grow. And now when labor is becoming so precarious, and the honest laborer is anxious to do something to provide for his family the necessities of life, it has seemed to us that a limited field might be opened here for willing hands. Should those who own the land lease, or donate the privilege of gathering sumac on their farms—if they did not care about embarking in the business themselves—they would be doing a noble charity, indeed, for it would be fostering that genuine charity which "helps a man to help himself." Casewy, or sumac, is all referable to the genus *Rhus*, and constitutes the family ANACARDIACE. There are six recognized species in the United States, which are divided into three groups under the names SUMAC, TOXICODENDRON and LORADIUM; the first containing three species, the second two, and the third one. It is those species which belong to the first group, namely, *Rhus typhina*, "stag-

horn sumac;" *R. glabra*, "smooth sumac;" and *R. copaltina*, "dwarf sumac," that are generally used for tanning purposes. To the second group belongs the two poison species, namely: the *Rhus venenata*, "poison sumac," and the *R. toxicodendron*, "poison ivy," the latter of which is the well known creeper, and which some persons cannot even approach to the windward without being poisoned. What its tanning qualities might be we are not aware of, but as it is not the most abundant species, it should be severely let alone, except to grub it out and remove it from the premises during the winter season. The third group contains the *Rhus aromatica*, "fragrant sumac," described as a low, straggling bush, the crushed leaves of which are sweet-scented. These different species of sumac grow from two feet to thirty feet in height, and in some localities they are very abundant; so much so that in looking over large districts of it we have often thought it must surely have been permitted for some useful purpose. There are many products of the soil, the uses of which are not yet fully developed, and this seems to be one of them. Our increasing necessities may in time fully utilize this.

REMINDER FOR AUGUST.

In the Middle States, the work of this month does not vary materially from the month just closed. Cabbage, for winter use, may head if planted at once. Celery earth up; plant for future use. Endive plant. Beans, Bush or Snap, plant; tender Snaps, gathered late in autumn, may be preserved in strong brine (salt and water) for winter use, and vary but little from those freshly gathered. Lettuce sow in drills to head. Peas sow. This vegetable is a delicacy in autumn, and should more frequently appear at table. Landreth's Extra Early, sown latter end of month and beginning of next, perfect before frost. Spinach sow, for autumn use; for winter use, sow next month. Radishes sow, the Spanish for winter, Golden Globe and Turnip-rooted for autumn use. Ruta Bagat sow without delay, if not already done. Should the ground be dry, work thoroughly and sow in the dust; the seed may vegetate with the first shower. A roller, to compress the soil, sometimes promotes vegetation; but there is this disadvantage, if heavy dashing rain immediately ensue the ground packs and the seed is lost. Yellow Aberdeen, Pomeranian Globe and Amber Globe Turnips sow early in the month; also, the German Sweet, don't forget it; the Early Dutch and Red-Topped, both Strap-leaved varieties, may be sown until the first of September, though it is well to sow at least a portion earlier, as at a late day it is difficult to remedy a failure. Read remarks under head of July.—*Landreth's Ru. Reg.*

AUGUST CATERPILLARS.

The caterpillars found during the month of August on young apple trees are commonly called "red-humped" because of the raised red spot on the first segment of the abdomen. The moth of which they are the young is known in science as *Notodonta concinna*, SMITH. The moth deposits its eggs sometimes in the month of July in clusters on the under side of the leaf. When first hatched the caterpillars eat only the underside of the leaf, but afterwards, as they grow larger and stronger, they eat the entire leaf. They are gregarious in their habits, and, when resting, cluster together and sometimes entirely cover small twigs and ends of branches. The early broods come to their full growth by the middle of August, the others by the latter part of September. They are easily destroyed by gathering when found in a cluster; and although in some seasons they may appear in numbers, if attended to properly they can be easily managed. Since if left undisturbed, they destroy the leaves, and these are necessary to the health of the tree, their unmolested presence is of course dangerous to the trees they infest.—*Rural New Yorker.*

AGRICULTURAL EXHIBITIONS.

Pennsylvania State Fair, Erie, September 23 to 27. Oxford Agricultural Society, (Chester county,) Oxford, September 25 to 27; Schuylkill County Agricultural Society, Orwigsburg, September 23 to 25; Chester County Agricultural Society, West Chester, Sept. 19 to 21; Franklin County Agricultural Society, Chambersburg, Oct. 8 to 11; Lehigh County Agricultural Society, Allentown, September 24 to 27; York County Agricultural Society, York, October 2 to 4; Montgomery County Agricultural Society, Ambler Park, September 23 to 26; Northumberland County Agricultural Society, Dewart, October 1 to 3; Cumberland County Agricultural Society, Carlisle, October 1 to 4; Farmers' and Mechanics' Institution, Easton, October 1 to 4; Gratz Driving Park (Dauphin county), Gratz, September 24 to 27; Agricultural and Industrial Association of Schuylkill County, Ringtown, September 17 to 20.

CORRESPONDENCE.

WEST CHESTER, July 31, 1878.

MR. RATHVON—Sir: I send you by this mail a box containing two bees. You will observe a "something" sticking to their legs and feet. It is gotten accidentally, whilst gathering honey from flowers; and, on alighting on the front of the hive they are immediately caught by the other bees and dragged off. If they enter the hive they are hauled out and dumped overboard. They are not allowed the privilege of entering their own home, although willing to work. This is very hard usage indeed. I would be pleased to know the flowers from whence they get the substance alluded to above. I would pull them up or cut them down with pleasure. They seem to contain a very small black seed with a straw attached; and at the outer end it is forked, with an attachment resembling the wings of a fly. It will require a strong magnifying power to see them properly.

Yours respectfully, WM. J. P.
P. S.—This troublesome pest is only at this season of the year—about the first of August. W. J. P.

Your box and bees came safely to hand and seem to be infested by the eggs of a parasite, although just what species would be difficult to determine from the eggs alone. Your healthy bees are wise—very wise indeed—and do just what human beings would do, in a similar case, if they were destitute of humanity. The occupants of this hive simply obeyed the first law of nature, which is "self-preservation." Human beings would have put their fellow-beings under quarantine, or have sent them to a hospital, or some other similar place to prevent infection, the same as they do in cases of leprosy, smallpox or cholera.

The small, black, seed-like processes are not present in all cases; but, on the contrary, some of these apparent eggs are directly attached to a sort of foot-stalk, which adheres to the femur, the tibia and the feet, and one was found attached to the rostrum or tongue. Sometimes there are two and sometimes only one attached to a single foot-stalk. Under a microscope they have the form of the winged seeds of the maple. They look thick and fleshy, and of the color of amber, or like the chromate of potassium in color.

We could not designate any particular flowering plant upon which these eggs are deposited by the parent of them, for they are likely to be found on any plants that are likely to be visited by bees. Nor are we able to offer any better remedy than that which the bees themselves have adopted, "hard" as it may appear; and we cannot but admire their highly-wrought instinct, if we dare not call it reason. There are several coleopterous insects that are parasitic upon bees, prominent among which is the "Oil-beetle," (*Meloe*); also, a species of *Clerus*; and *Stylops peckii*, which is the type of a distinct order. It however can hardly be the latter insect, as its larva is footless, and could hardly find its way into the body of the bee after its exclusion from the egg; although Westwood mentions a case where a number of the larvae of STYLOPIDÆ were crawling among the hairs on the abdomen and legs of an allied species to the bee. It is possible they may be the eggs of a member of the family ICHNEUMONIDÆ, of which there are a very large

number of species—running into the hundreds—and there are very few insects that are not more or less infested by these parasites; even the parasites themselves are subject to them.

In Westwood's Introduction, or rather classification, Vol. II., p. 146, and fig. 76-9, he alludes to species of *Sphinctus* and *Paniscus*, which deposit pedunculated eggs on or in the bodies of other insects, and No. 9 of his fig. 76 is just the form of the eggs on your bees. The footstalk or peduncle differs somewhat from yours, coming out of the side instead of the end, but even those on your bees are not uniform in this respect; in some cases they are very nearly like those figured by Westwood.

Now, after all that has been said, there is still a lurking thought which suggests the possibility of its being a *fungus*; for through the transparent integument the internal contents seem to be concreted, the interstices between the concretions exhibiting reticulations on the outer surface; moreover, two or three of these lobes or eggs had a stiff filament or spine growing from the side and end; one or two also had little tubercular elevations, from which it might be supposed a filament would eventually have grown. Finally, Dr. Packard, on page 165 of his "Guide to the Study of Insects," figures the *tarsus* of a wasp, with pollen masses of the wild cotton plant (*Asclepias*) attached to the hairs and claws, which strongly, in outline at least, resemble those on your bees, so that possibly this may lead to a solution of the question. As you are in the business of bee-culture, and more favorably situated for making practical observations than we are, we therefore must refer the subject back to you again for further investigation, and if you give us the results we will publish them.

A Curious Bird Shot.

OREGON, Aug. 2, 1878.

PROF. RATHVON: I send you by the bearer a bird which was shot here yesterday, near the mill dam, by Adam S. Bard. I have no work on natural history by me, and besides know little of birds, anyway. I would be glad to have you determine what it is.—Respectfully yours, A. F. H.

Your bird, as nearly as I was able to determine, (remote from books and comparing specimens,) is known in various localities as the "fish-eagle," "fish-hawk," "fish-kite," "fish-royer" and "osprey," (*Pandion haliaetus*, of Lin. and Cuv: *Carolinensis* of Bonp.) If the common names are confusing, it is still worse in its scientific nomenclature, for this bird, in its bibliography, has received twenty-four synonyms, six of which are generic, namely: *Falco*, *Aquila*, *Pandion*, *Accipiter*, *Balbusarchus* and *Triorches*; almost enough to deter any one, with limited time and means, from studying book ornithology, at least. It has been considered as the connecting link between the eagles and the hawks. It is cosmopolitan in its habitat, although the American and the Australian varieties have been currently regarded as distinct species, under the specific names of *Carolinensis* and *Lecoccephalus*. It is migratory in its habits, and makes its appearance in our county in March, and leaves in October, according to meteorological conditions. Its normal food is fish, and its haunts are only in proximity to streams, ponds, lakes and bays. It is said to also prey upon frogs, newts and other reptiles, but the general record is that it does not attack other birds except in self-defence. The bald eagle, our national emblem, is the greatest foe of the osprey; not that he offers violence to the bird itself—he has as much interest in its physical condition as a Mexican has in that of his mule—but, robber-like, he watches it until it has caught a fine fish, and then he darts down upon it from his perch and compels the osprey to relinquish its property to the greedy grasp of the eagle. If everything visible is but the outbirth or ultimate of something invisible, (whether from above, intermediate or below,) then our forefathers committed an error in selecting the bald eagle as our national emblem. He is not by any means a noble bird, an

independent bird, or an honest bird. Granting that under the realm of nature the world owes him a living, and that he has a natural right to appropriate as much as is necessary to sustain him, yet instead of obtaining it immediately from the storehouse of nature, and by his own efforts, he meanly waits until he sees what he desires in the possession of the industrious and provident osprey, and then through superior strength, and by theft or fraud he "gobbles it up."

It has been intimated to us that the osprey had been suspected, or detected, in depredating upon chickens in the southern part of our county. Well, we suppose he is a progressive bird, and as progressive humanity seems to have almost reached the climax of depredation upon the property of others, it would not be much of a wonder if the general demoralization had contaminated the subjects of the feathered family.

Phylloxera Vastatrix.

Mr. Alex. Harberger recently brought to our office (*the Lancaster Intelligencer*) a bunch of grape leaves, on the lower surface of each one of which there were growing large numbers of curious little blossoms. The matter being submitted to Dr. S. S. Rathvon, that eminent savant writes of it as follows:

The grape branch is infested with the foliage variety, or form, of the "Grape Phylloxera," and the best thing that can be done for them is to cut off all the infested branches and scald them thoroughly, or burn them. It is the root variety, or form, of this insect which has been so destructive to the vineyards of France, and for an unfailing remedy for the destruction of which a standing premium of some 200,000 francs is offered by the French Government and the Academy of Sciences of Paris, which, we believe, has not yet been awarded. Of course, there are conflicting opinions among distinguished entomologists as to whether the two varieties are not two very distinct species, or whether they are not only different forms of the same species. Many practical observations have been made, and much has been written in support of and against these antagonistic opinions, without having reached a conclusion that is satisfactory to all. With the leaf variety, however, and as long as they confine themselves to the leaves, there does not seem to be much difficulty in destroying them if they are taken in time, and that time is *just now*; even if it cost all the new growth of the present season. But it will not require the removal of all the new growth, as these insects generally operate on the tender leaves, near or at the very ends of the vines, these being the most succulent and affording them the most abundant repast. At least twenty species of *Phylloxera* have been detected in the United States, and the largest number of these have been named and described. In addition to the grape, they are found on the hickory, the oak, the beech, the hazel, the sumac and other trees and shrubs. They are very prolific and possess the possibilities of spreading rapidly; but they are also very fragile, and liable to adverse casualties; besides, they are preyed upon by parasites and other animals. If any one will take the trouble to cut open one of the tubercles, or galls, of the grape leaf, he will find a cavity containing the dead body of a female phylloxera (perhaps too much depleted to recognize) and from fifty to one hundred light, sulphur-colored eggs, and young, living and moving phylloxeras, too minute to be satisfactorily examined without the use of a pocket microscope.

Later in the season the larger galls will crack open, and through the fissures the young will escape and extend the area of their operations, keeping pace with the growth of the vines. Indeed they have already done this, and no doubt are doing it now. But they are such exceedingly "small people"—such insect lilliputians—that nobody suspects their presence, and the growing excrescences upon their grape leaves they attribute to chance—a mere freak of nature. But, small as they are, they possess a very peculiar and a very wonderful power. The little animal, having escaped

from the parent cell, locates itself on a tender and juicy leaf and penetrates the integument with its little proboscis, and immediately proceeds to "make its living." Curious enough the wound it makes, and perhaps also a liquid which it infuses into it, soon causes such a diversion of the sap as to raise up a vegetable wall all around it, which finally develops the rough gall which is so conspicuously present upon the leaves. Within this gall another family is procreated, and so on until the end of the season. Of course they do the vines no good, and may do much harm. If they really do attack the roots when there are no more leaves, to kill them now will be wise.

FOR THE LANCASTER FARMER. PRICKLY-ASH.

This we find growing on the banks of the Conestoga, near Lancaster, and rocky woods in numerous localities. Mr. Colden named it originally *Xanthoxylum*, signifying yellow wood. The spelling, Dr. Bigelow remarks, has since been unaccountably changed to *Zanthoxylum* in a majority of books which mentions this shrub. I find Dr. Gray also



changes the X of Colden to Z, and places the shrub among the *Rutaceae* or Rue family. Our species is known as the *Zanthoxylum Americanum*—a prickly shrub, with yellowish-green flowers appearing with the leaves; bark, leaves and pods very pungent and aromatic. The cut gives an idea of the compound leaves and prickles as well as the groups of berry-like pods or fruit. The detached figures show a stamen, an abortive germ of the barren flower, anthers only, fertile with pistils only, as also a perfect flower. The flowers appear in April and May before the leaves are expanded; these grow in sessile umbels, near the origin of the young branches. The three kinds of flowers can be found on the same shrub, and this makes them strictly polygamous. Medicinally, it was known by the older writers as the *Xanthoxylum fraxincum*, *Fraxinus* being the botanical name for the ash, hence called prickly-ash; but science fluctuates and changes names, though the plants remain the same. The truth is, the powdered bark in doses of ten and twenty grains has proved highly beneficial in rheumatic affections. It produces a sense of heat, and facts are upon record that it effectually removed the complaint in a few days. Dr. George Hayward, of Boston, informs us that he took a decoction in his own case, made by boiling an ounce of the bark in about a quart

of water, having an attack of chronic rheumatism, with evident relief; about a pint of the decoction was taken in the course of the day, diluted with water sufficient to render it palatable by lessening the pungency. It is found to be warm and grateful to the stomach, produces no nausea, no effect upon the bowels, and excites little if any perspiration. It is useful in some cases as a topical stimulant. It produces a powerful effect when applied to secreting surfaces and ulcerated parts; and in point of fact analogous to that of Mezereon and Guaiacum, and quite as valuable. It is singular that it has a common name of "Toothache-tree;" a name also given to the "*Aralia spinosa*," which is also called *Angelica tree*, and sometimes *Prickly-Ash*, so that the one must not be confounded with the other. I, however, only met with one specimen of the *Aralia spinosa* in Lancaster county, and that was many years ago, growing in Mr. Cassel's yard, in Marietta, where I first learned to know it by the name of "Toothache-tree" and *Prickly-Ash*. They belong to very distinct orders of plants, and such errors should be corrected.—J. Stauffer.

THE CROP OF THE STATE.

The Secretary of the State Board of Agriculture reports as follows:

From the averaged July returns of 300 official reports of this Board, it would seem that our crops for 1878 may be estimated as follows, all average crops being rated at 100:

Wheat, 122; rye, 100; barley, 93; oats, 144; hay, 108; straw, 111; garden produce, 98; apples, 47; peaches, 42; pears, 54; cherries, 58; plums, 51; grapes, 64; berries, 91.

The average of each crop, as compared with that of the same crop of 1877, the latter taken as 100, is as follows:

Wheat, 110; rye, 107; barley, 95; oats, 103; hay, 98; corn, 111; potatoes, 100.

The average of 1878, as compared with the average of the past ten years, is as follows:

Wheat, 117; rye, 106; barley, 104; oats, 107; hay, 110; corn, 110; potatoes, 109.

The average wheat crop of the State being about 15,750,000 bushels, we may place that of 1878 at 18,750,000, with chances in favor of a decrease to 18,500,000 under the final test of the half bushel. The increased acreage, when compared with that of the past ten years, is largely due to the fact that in the oil and lumber counties, the stagnation of business has forced men into agricultural pursuits. Thus, in comparison with the past ten years, Warren reports double the area in with wheat; Potter reports two and one-half times the average area of past ten years, and Cameron one and three-quarter times.

FOR THE LANCASTER FARMER. EXPERIMENTING ON BEES.

MR. RATHVON—Dear Sir: A few more words on bee culture, or rather my experimenting on second swarms of bees: The first hive of a second swarm contained two queens and twenty-two drones. I killed all the drones on putting the swarm in the hive, and previous to their swarming I made the door for entry large, and over this I placed a piece of screen-wire, with meshes sufficiently large to admit the passage of the workers, but none others. On the next day I found three combs as large as my hand, and all cells a quarter of an inch in length contained an egg, this proving to me that the queens were pregnant before swarming. On the tenth day I found the hive half full of comb and honey and young brood, and many drone cells with young therein; and on the twentieth day began to cut the capping and come out. The hive now was almost full of comb, honey and bee-bread, but no young brood or eggs. I removed the screen-wire, and all is right—a full hive and working in boxes.

Second Experiment.

Two queens as usual and nineteen drones; I killed one queen; I covered the front with screen-wire as the first; on the next day had four small combs, all of which contained eggs

at the depth of a quarter of an inch, as the first ; ten days after half full of comb, a few more deposits of eggs, but not more than half the number as the first twenty days bees hatching. This brood was all, the queen laying no more eggs; although she had good healthy drones she became non-fertile. I then freed them by moving the wire, the drones all coming out, but soon returned again. They have since dwindled down to a very few workers and half the drones; the queen apparently strong and all right. I shall kill them, as it is now too late to give them another queen.

This manner of experimenting is the only way to thoroughly understand their nature and habits. I have also tried other projects with them. Bee-keepers generally approve of admitting air to the hive in different parts; I have proven that they need no more than what will enter the passage-way, and if half of that was closed for a few days after the swarm was put in they will build comb twice as fast; the hive being empty it contains too much air until it is pretty near full. I have hives made on my own plan with frames for the surplus honey, and in front of those divisions I have a one-inch hole covered with fine wire. When working on the frames the combs were covered with bees. I concluded it was to keep them warm or soft, as the new and fresh brought in would not adhere, being too hard; must be a certain temperature, the same as two pieces of iron to weld them; I plugged up the holes. The bees left the combs soon after and went out to work, and their labor increased two-fold; and I believe by this means I have twice the amount of surplus honey, having taken already as much as sixty pounds from some of them. I have a number of hives made on my own plan. I have made some improvements on the first, and I think they are now as near right as can be made, having frame room sufficient for seventy-five pounds of surplus honey. They can be arranged so that the bees will swarm from them, or they will stay at home, and you can get their labor on the frames in surplus honey from the entire summer's hatching. This is what I want—honey—not bees.

N. B.—If any one of the members of the Lancaster Bee-keepers' Association would like to have one I would gladly make one and send it to him; it would be a model hive, and from the same he can make others, as there is no patent on it.—Yours respectfully, Wm. J. Pyle, West Chester, Pa.

FOR THE LANCASTER FARMER.
WHEN IS THE BEST TIME TO SOW
WHEAT AND HOW TO PREPARE
THE SOIL.

These propositions are of great importance. The preparation of the soil comes first. First, haul the manure on the land, and then plow it under as soon as possible; for if it lies long before it is plowed under, much of the ammonia will escape and there will be a loss of strength. But when is the best time to plow? Most agricultural writers say early plowing is the best, but I say, plow when the soil is in good condition for plowing and not too early. If I could choose the time and have the soil in good condition I would choose the middle of August. Roll it as fast as you plow, if the soil is not too wet. I think there is not much difference between late and early plowing if the soil is otherwise in a good plowing condition. But if a farmer has much to plow he had better begin early. If a field is infested with weeds it is best to plow it before they get too rank and mature their seeds. I have sometimes commenced early to plow in a field that was in good condition at first, but which afterwards became dry and hard, and then I discontinued the plowing until it rained, and have not been able to resume it until seed time, and then I plowed the remainder of the field and drilled the whole crosswise, and had a good harvest all over the field, no difference appearing between the late and early plowing. Another point I might mention, and that is, a clayey soil should be

plowed in the rising of the moon; it will not get so hard and compact as when plowed in the setting of the moon. I know the majority of people have no faith in the moon, and perhaps would not make a trial of it, and if they did make a trial they might find little or no difference at all the first year, and in such a case they would be apt to give it up and say, it makes no difference. But keep on and follow this rule every time you plow, and the difference will finally be apparent. Some people say they get just as nice potatoes when they plant small seed as they do when they plant large seed, and this is often true in the first year, but let them continue for several years in succession and they will certainly find a vast difference. It is the same in plowing. A soil that is too loose should be plowed in the setting of the moon. But whether the plowing be late or early, or in the rising or setting of the moon, prepare the soil well. If hard use the shovel-harrow, if lumpy use the roller freely; in short, make the soil loose and fine, and to a good depth, in order that the roots of the plants can strike down deep into the soil. Roll before drilling. Never work the soil when too wet. Put the seed in very shallow, just enough of soil upon it to cover all the seed, even if an occasional seed here and there is uncovered. The quantity of seed to an acre is from one and a half to two bushels. The poorer the soil the thicker it should be sowed, and I consider the best time to sow is from the 20th to the 25th of September, one year with another. If sowed too early it is more apt to become infested by the "Hessian fly" than if sowed later. If sowed too late, and winter sets in early, the young plants will not be sufficiently rooted to bear the winter's cold without injury.

Another point: In a hilly field run the drill along the side of the hill, that the water from heavy rains may not run off so freely as to wash out the drill rows; but on a level field run the drills from east to west, so that the sun will not shine lengthwise in the rows at mid-day.

It would be well enough to have the drill rows run from north to south during the summer, but not during the winter. Constant thawing and freezing is injurious to the young plants; therefore, drill from east to west. In the winter the sun is low, and if drilled in the direction I have mentioned, it will not thaw in the bottom of the rows when it is once frozen hard, except the weather becomes very warm; and if a little snow is on the ground it will not melt away so soon as it will when the drill rows run from north to south.—J. G., Warwick, August, 1878.

FOR THE LANCASTER FARMER.
RANDOM THOUGHTS—No. 3.

Wheat Culture.

The experiment of Mr. Groff, of this county, is being watched and commented on by a great many agricultural papers, and the report of the yield is looked forward to with a great deal of interest.

Some few papers have articles showing that it is not a new thing. It is not claimed to be new, as it is very well known to all readers of agricultural papers that it has been practiced for many years to some extent in European countries, notably that of England.

I believe the only claims laid are that it has never been tried on the same scale in this country, and that the working of four drills—the width of a grain drill—with implements made specially for that purpose that can be attached to the grain drill, is a step far in advance of anything heretofore known.

The experiments by working with a hoe, or by using a harrow-shovel plow, like that mentioned in the *New Era*, as being used by a gentleman in North Carolina, were not a success; for though there may have been a large increase in the yield, the costly manner of working would more than eat the profit derived from the increased quantity. As all operations must be measured by the amount of profit, it must be seen to that as large an

increase must be made as possibly can be with the least possible amount of labor.

I have no doubt that the culture of wheat will become pretty general, in the course of some years, in the Eastern and Middle States, where the price of land rules high, and the wheat brings high prices because it is right at market; but in the Western States the culture will never become general until their lands approach somewhat in price that paid in the East. On the easily-worked, cheap Western lands, the object is to get the *largest natural yield with the least labor*; with us, to get the *largest increase over a natural yield with the smallest amount of labor*.

A few members of the Fulton Farmers' Club had no success in cultivating wheat, but that may have arisen from several causes, and which it may perhaps be profitable to discuss.

1st. Dr. Sturtevant, in the *Scientific Farmer*, advances the idea that in corn, wheat and other crops of this nature, the running of a cultivator or harrow between the rows cuts off (prunes) the roots, and that when a root is so cut it throws out a great many rootlets and the plant thus gets the benefit of a larger amount of plant-food from the same space of soil. This no doubt is correct, but should the pruning be too severe the plant would undoubtedly get a check from which it would never fully recover. Now, may not these members have had their wheat drilled too close, and by running a harrow through cut the roots too close to the plant?

2nd. Root-pruning is only recommended and only advisable when the growth is rank; this pruning, which gives a temporary check to the plant, seeming to change the growth from leaf forming to fruit (or seed) forming. On poor land, or any soil only in medium condition, the growth is never very rampant, and I have no doubt the plant in such soils spends as much of its vitality towards fruit forming as it can, and at the same time have left sufficient for the needs of the leaf and stalk. It is very apparent that on soils of this kind culture would not be of any benefit, and most likely would only injure the plant by weakening its vitality.

As far as experiments have been made it has been made pretty clearly manifest that the cultivation of wheat will pay in our part of the country where the soil is in high condition; on poor soil it will pay neither with nor without cultivation.

Fox and Tobacco.

This is generally reckoned as a disease, and is more dreaded by the tobacco farmers than any other of the mishaps to which tobacco is subject.

As the appearance of fox is familiar to all who farm tobacco it is not necessary to give a description of it, but we will endeavor to discuss the cause and the cure, only remarking that what is known as "lion's tongue" is probably only an aggravated form of fox.

As to the time of its appearance there is no question. I believe the disease invariably manifests itself after a rain, when we have had a long spell of hot weather, particularly when very dry. The ground now becomes very hot, and when this is followed by a smart rain the roots imbibe so much liquid from the now moist and warm soil as to start the plant into an unnatural growth; unnatural because the liquids taken up by the plant are in excess, relative proportions usually existing between the vegetable fibre and the sap.

That this is probably the case will be apparent on an examination of the growth itself, the appearance being watery and the leaf very weak and tender, because there is not solid matter enough for the amount of fluid. There are certain soils that are more subject to it than others, and the condition of the soil has also much bearing on it.

Of all soils, in a normal state, black slate soil is the surest to produce fox, and next in order comes black limestone soil. Both these become very hot and to a considerable depth, and the first smart dash of rain brings the dreaded disease. Next after these two soils is the light sandy soil, when it lies high, so as

to become very dry. Deep plowing and planting without ridging would probably be a prevention to some extent. In all these cases when no rain happens until the seed head commences to show itself, the tobacco becomes stunted, and when once so far advanced there is no danger of fox, but the tobacco will be short and "heavy."

But in all the above soils the disease will make its appearance in spite of deep plowing or flat planting, and that is when the land is naturally wet. In all cases of wet soils, tobacco (and all other crops) have their roots near the surface; they never penetrating to any depth, and never going down to the water line. If the weather becomes very hot and dry the water line is lowered a little, and the surface of the soil, where the roots all are, may become hot and dry, and a rain happening at this time will have the same effect as it would have on the lighter soils.

We will now have to discuss the prevention, and the cure, if there is any.

On dry soils, such as mentioned, there is probably very little that may be done to prevent the disease, unless it is to bring them into a high condition so that the tobacco has become large enough to thoroughly shade the ground before very hot weather comes on.

On low soils the disease will seldom, if ever, manifest itself if such land is thoroughly drained to the depth of four or five feet. We have about two acres of such land that should have been drained long ago, but the outlet would not allow it. This spring a neighbor of ours deepened the brook that flows through the two properties, and we then commenced a drain after the tobacco had been planted, but did not get it finished. As far as the drain extends the tobacco is A 1, but outside of where the drain acts there is more or less fox.

I believe the cure was discussed by the Tobacco Growers' Association, but I did not happen to notice it in the daily paper. When the July number of THE FARMER came to hand I expected to see the proceedings of the association in that number, but was disappointed. I have been informed, however, that it was recommended to take a fork (a regular digging fork would be best) and insert the tines into the soil, under the stalk, and pry it up. I have known cases in which hold would be taken of such stalks and a smart pull given. The result is the same in both cases, the plant is root-pruned.

If the cause of "fox" is as we have supposed, viz: too much sap in an abnormal state supplied by the roots, this root-pruning is just what is needed; by prying up the stalk many of the roots are broken, and thus the amount of sap is greatly lessened and the plant given a temporary check, and by the time the new roots are formed the soil will have become cooled and a natural growth follow.

To fully establish the cause of the disease, its prevention and its cure, will take considerable observation and interchange of opinions, but as there are so many persons engaged in farming tobacco it should not be very long before the remedies are known.

Prices of Farm Produce

range lower than has ever been known to many of our younger farmers; wheat is quoted at but 90cts. by our local millers; butter ranges from 12 to 15 cents per pound for good; eggs 12 cents per dozen; cheese 8 to 9 cents per pound; honey 16 to 18 cents per pound for white; and so on in the list; but this is not the worst, as there is little salt even at these low prices.

To the specialist, who produces only butter, or cheese, or eggs, or honey, this is very discouraging, as, with the exception of the latter, they have to be worked off in a reasonable time or they will deteriorate in quality.

The regular farmer, with his mixed husbandry, has greatly the advantage, as three-fourths of what he raises can be held for more remunerative rates, if he so chooses.

It is very probable that prices of farm produce may not be as high again in a generation as they were some years ago, nor vary as

much as they did then. One reason of high prices was in our depreciated currency; for suppose that wheat was \$2.50 per bushel when gold was quoted at 250, then \$1.00 in gold would buy one bushel of wheat; now, if wheat would be quoted at \$1.00 it could be bought for 99½ cents gold. They will not vary as much, because the increase in the area being brought under cultivation is in a greater ratio than the increase in the population.

This is to be attributed to the dullness in trade and the manufactures, many of these two classes having no employment, and not being able to get work at their own or any other trade, many of such as had a little money on hand yet took advantage of the liberality of the government and have become "homesteaders." This is to the advantage of those remaining in their particular branches, but tends to lower the profit of the farmer for a time. This will be the case until farming brings so little profit that many will get into old employments again or seek new and more promising fields of labor, and then the farmer's profit will be better again.

This is in accordance with the law of trade, that when anything is produced beyond the point of consumption, then prices will fall until there is little or no profit, and the production will now cease or be curtailed until the consumption is greater than the production, and in the degree that the two vary so will the price rise or fall.—A. B. K.

For THE LANCASTER FARMER. AROUND THE FARM—No. 10.

Several months ago I promised to furnish readers with a list of tools I found handy to have "around the farm." The first thing necessary is a room of suitable size, say 20 feet long and as wide as convenient. This room should be well lighted at least on one side where a work-bench should be erected two and one-half feet high and as wide.

The tool chest should contain the following tools: A cross-cut hand-saw, a rip saw, a key-hole saw, 1 brace and set of bits from quarter inch to inch, increasing by sixteenths, ½ doz. gimlet or spoon bits of different sizes, screw-driver, reamer, and countersink to fit brace, 1 gauge, 1 drawing knife, 1 spoke-shave, six chisels from ¼ to 2 inches, a mallet, nail hammer, hatchet, common axe, 1 broad-axe (short handle), 1 screw-wrench, 1 strong screw-driver, 1 steel square, 1 small try-square, chalk line, three planes—jack, short pointer and smoothing; steel nail-punch, wood rasp, an assortment of files and a pair of strong nippers. For harness repairing, some copper rivets of different lengths, with punch to make holes through leather, will enable you to mend anything about harness. A heavy block of wood will be found useful in the shop to work upon in hewing and punching, etc. We must not forget the grindstone, one of the most necessary articles "around the farm."

Once you have the tools don't forget to keep them in order. Working with dull or rusty tools is poor satisfaction. It will require some attention to keep them in order, but it is quite essential if one wishes to work with success. I have also made a box with compartments, each holding two or three pounds of nails, which I keep filled with sizes ranging from 4d up to 20d. While another box has screws of all sizes, brass tacks, clout nails, rivets, &c., in fact everything in the small nail line which one may possibly want on the farm, while I don't neglect to keep an assortment of bolts of sizes to fit such wagons and machinery as is usual "around the farm." A good set of useful tools, such as we have named, will soon save enough to pay for themselves and afford amusement and satisfaction to every member of the family. Don't be afraid to let the boys handle the tools, although they spoil some and cut their fingers in the bargain. Let them make kites, toy boats, windmills and many other contrivances their busy minds will suggest, as nothing tends to give them skill with tools like early practice. Besides, while they are engaged with tools they are not on the streets or in

mischief, and by tending to make home attractive to them it may give a partial solution to that threadbare question: "How can we keep the boys on the farm?"

The writer of this, while growing up from a lad, had the advantage of the use of carpenter tools in all kinds of farm work; he can speak from experience, and not only believes but knows, that a knowledge of the use of tools, and how to do work of all kinds, is the best part of a liberal education. It fits a man for almost any avocation in life, and makes him more nearly independent in the world than a pile of money or a college degree without such skill. Together with good breeding, proper study and studious thought and practice, it should make a perfect farmer.—*Ruralist.*

For THE LANCASTER FARMER.

REVU OF JULY NUMBER.

The Cherry Crop.—The editor's remarks and strictures under this head are well worth reading.

Lancaster Cherry.—Judging from the reports of your society, this must prove a valuable acquisition to our list.

Brighton Grape.—This looks well on paper, but we have also tested it and think it worthy of trial.

Our Wheat Crop.—This article contains some good hints and hints, but as there are some points still unsettled, upon which H. M. E. and P. S. R. have crossed swords, we may expect another contest next season. We like to see these little controversies very much, for they help to whet things to finer points.

Depredations of Insects.—This is a matter of more than ordinary importance. The editor of THE FARMER has said and written so much and so well upon this subject, but it requires a good deal of hammering to get people to give any heed to it, except when the insects destroy entire crops.

Setting a Plow.—J. G. no doubt nos what he writes about. It will require no extra expense to try it.

The Honey Bee.—We fear J. P.'s new theory on queens will require further ventilation. We very much doubt that the keep more than one queen in one hive a great while.

Random Thoughts.—A. B. K. is always on hand with something practical. He passes some strictures on our opinion of the progressiveness of farmers. Our criticisms were intended only for those who are shrewd, and we candidly believe it fits a good many. No credit to those who are mad to progress by force of circumstances only.

England's Great Farm.—This must be a grand affair, and of great promise, but we hope Uncle Sam will start something to beat it.

The Millers' Convention.—We hope this will not be a short-lived society.

Scientific Potato Culture.—We don't understand which end the Frenchman calls the top, and so we can't get up a controversy with him.

Thinning Fruit.—This is a subject that is not likely to be repeated often. The injury to trees and the loss by growing inferior fruit, by letting trees overbear, is enormous, and thinning would be attended to if people could only be induced to try it.

Whipping Horses.—This article contains excellent advice as to treatment of horses, but the contrast with treatment of children is not a fair one, for many children are whipped like horses.

How to Choose a Good Cow.—We have better marks to judge by. We give it gratis. We find the contents of the pail after milking, and the proceeds of the churn the only infallible methods whereby to judge a cow.

Condiments in Poultry Diet.—There is a prevailing notion that because man has habituated himself to all manner of condiments to tickle the palate, that fowls must have them also, but anything that borders on the ridiculous will generally take well with most people.

For good reasons our review is brief this month.—Yours Humboldt.

FOR THE LANCASTER FARMER.
STRAWBERRY CULTURE.

The strawberry season is over, and as the time for making new plantings is coming on it may not be unprofitable to compare notes as to varieties, productiveness, time to plant, &c. Strawberries will grow in a variety of soils, but do best in a rich, porous soil that does not become baked in dry weather. My soil becomes extremely hard, and owing to dry June weather, for five or six years past, the crop was somewhat of a failure. I have been cultivating the strawberry for a quarter of a century, and have in that time tested many varieties. I commenced with Early Scarlet, Crimson Cone, Buist's Prize, and Hovey's Seedling. About that time the Sour Wilson came in, and which we have been trying ever since to supersede, by the introduction, from time to time, of the following varieties :

Boston Pine, Black Prince, Burr's New Pine, Trollope's Victoria, Longworth's Prolific, Seedling Eliza, Ida, Ladies' Pine, Russell's Prolific, French's Seedling, McAvoy's Superior, Green Prolific, Downer, Nicianor, Jucunda, Kentucky, Triumph de Gand, Agriculturist, Star of the West, Green Prolific, Seth Boyden, Charles Downing, and a host of others, the names of which I cannot now recall.

These were gathered in at a price ranging from 25 cents to \$5.00 a dozen. But the Sour Wilson, like Banquo's Ghost, will not be put down. Among the whole of the above list there is but one that makes a show in competing with it in productiveness and profit to the raiser, and that one is the Charles Downing. This is a better colored and better flavored berry, and in productiveness is nearly or quite a match for the Wilson. Another year or two will decide which is entitled to the "belt." This contest has been one principally of profit to the market gardener. The amateur's growing desire is quality first, and then as much productiveness as can be crowded in. This desire, or want, is very well understood by persons engaged in producing new varieties, and especially well by those sharpers known as "tree agents," who annually flood the county with new varieties that are large, productive, good. (?) The favorable notice that Monarch of the West, Cumberland Triumph, Crescent, Great American and several others have received, would show that the new ones are not quite all humbugs.

In selecting a piece of ground for a strawberry patch let it be nearly level. The amount of hoeing required, and the frequent heavy rains we have will tell you the reason for the above advice. Manure and cultivate your ground same as if you were making a good garden. For amateur patches I prefer to plant three rows about fifteen inches apart in a bed, and the plants the same distance apart in the rows, with a space of from $2\frac{1}{2}$ to 3 feet between the beds. This gives room for the plants to develop and also standing room for working. The time to plant is any time in the growing season that you have good plants. This is usually early in the spring, and is, under the usual circumstances, about the only good time to plant. If you raise your own plants you can, when they become strong, lift them out with a trowel, with the earth adhering to them, and plant at any time, with a prospect of having a good crop next season. Or, if you have your plants to buy, it will pay to contract with your nurseryman to layer in pots the number of plants you want.

Plants grown in this way have so many advantages that they are well worth the additional cost. Plants thus put up can be had from \$1.50 to \$3.00 per hundred, price ranging according to variety and season. When the planting is properly done the work is by no means finished. Then cultivation is in order. The best rule I ever saw practiced was to hoe once a week during the entire season, weeds or no weeds, and at the same time keeping off all the runners. Late in the fall, when no more weeds will grow, it is well to give them a light mulching with coarse stable

manure. In the spring this mulch may be taken from the crown of the plants, but may remain between the plants to keep the fruit clean. Weeds at this season should be pulled. As soon as the fruit is over, the once a week hoeing can be resumed. It rarely pays to keep a bed longer than three years. By planting a new bed every year a rotation of thrifty beds can be kept up.—C. H., Conestoga, Aug., 1878.

LETTER FROM NORTH CAROLINA.

SALISBURY, N. C., July 27, 1878.

EDITOR LANCASTER FARMER: The wheat and oats crop has been gathered, and much of both threshed out. The wheat crop is about a half one in this (Rowan) county, and some inferior in the grain. Oats sown last fall turned out well, but that sown the past spring is short in quantity and quality. Early Irish potatoes turned out well in quantity and quality. Corn, so far as I can learn, bids tolerably fair; so does cotton and tobacco. Apples are a short crop; peaches, pears, plums and prunes are plentiful. Apples, peaches and pears are defective; I attribute this to the cold weather when fruit trees were in bloom. Grapes at this time promise a good crop, both in quantity and quality. The hay crop is good and plentiful. Our garden crops, generally speaking, turned out well. In the month of June the weather was cool, and the latter part of June and first part of July very dry weather, and part of the time very warm, but within a fortnight past we had fine and seasonable rains here. I see in newspapers published in your county that politics there as well as here seem to be the leading topic of the day. I say, more bread and meat and less "fuss and feathers." I could say more but do not wish to occupy the space of more able writers.—M. R.

LETTER FROM IOWA.

HOLLAND, Grundy county, Iowa, }

August 10th, 1878.

EDITOR FARMER: Our farmers are about through with their harvest work, and threshing has commenced in good earnest. During the cutting of the wheat crop great fears were entertained of a very light crop, some farmers becoming quite despondent; many were on the verge of starvation with full granaries and a reasonable crop in prospect. It must be remembered that we, with the rest of mankind, are blessed with chronic grumblers—those "never will be satisfied" sort of fellows. The wheat suffered some from the hot wave that passed over the United States, though in reality this State has suffered less than some others. A variety of wheat, the "Lost Nation," tested for the first time this spring, proved almost worthless. The old standard varieties, especially the bearded, yield from three-fourths to a full crop. Yesterday we saw wheat brought into market which weighed 58 lbs. per bushel, 21 bushels per acre, the berry being fine and plump. There are some fields that do not average this, possibly not over 12 to 15 bushels, though taking it all in all our farmers certainly have no cause to complain. The oats crop yields enormous, and corn from present appearance promises over a full crop, the weather being very favorable to its early maturity. The hay crop is very fine, both in quality and quantity.

Insect depredations thus far have amounted to nothing whatever. Potato bugs have been very few; I do not believe that a pound of Paris green has been sold to farmers in this section of country. The fruit crop has done well thus far, and is in the market at low rates. Of hogs there has been rather a falling off, the low prices of last fall having caused farmers to sell off many of their breeding sows; thus there will possibly not be as much pork raised in this county as there was last fall, though I understand some of our farmers have from 500 to 2,000 head, which a Lancaster county farmer would think was sufficient to all "intents and purposes."

This county (Grundy) is as fine a farming county as there is in the State, as good a

one as there is out of doors, though it labors under the want of a better system of farming; too much of the lands are yet farmed under the primitive western system—sort of robbery. If some of your Lancaster county farmers would have this land they would raise magnificent crops. If you, Mr. Editor, would see how some of the land is farmed you would not be surprised at a "practical" failure of crops, but rather would query how it was that anything grew worth mentioning. That there are some good farmers here cannot be denied, but they are like angels' visits; they get along well, are making money and have things in good shape; while, on the other hand, there are a large number here who are land poor; came here, saw the beautiful lands spread out before them, and could not withstand the temptation of putting all their money in land, even purchasing on "tick" and paying a heavy interest, thus giving themselves and their properties over to that hideous monster, "debt," and are now in extremely straitened circumstances. For instance, I know of a farmer near this place owning 1,250 acres of fair land; he has his land farmed, receiving the one-third as his share; keeps one cow and three horses; a few hogs, which he sells when fattened, and purchases hams at 14 cents per pound and lard at 12 cents. Is it a wonder that he is poor? He may be seen from early morning till late in the evening loafing at the grocery, talking politics, while his farm is going to sticks as rapidly as possible. What Lancaster county farmer, with the same amount of energy and perseverance, would last long? Is it much wonder times are hard with him? Would that some Lancaster county farmer had hold of this place. We have had an extremely favorable season for growing crops; plenty of rain and warm weather, which put things ahead with astonishing rapidity. I do wish some of your county folks would visit this section of Iowa and see the beautiful farming lands.—Yours, W. H. S.

SOWING TURNIP SEED.

We know how much depends on our cotton, wheat and corn crops, and just about as much depends in England on the turnip crop. It is the great crop of all on which the prosperity of English agriculture chiefly turns. To show how carefully it is managed, we give an extract from a recent prize essay in regard to sowing the seed. It might be added that it refers to the Swede, a turnip which is sown there about the end of May: "As drilling on the flat is the most general mode of cultivation we shall therefore consider that if the weather is very dry it may be bad policy to plow the land just before drilling, but to scurry instead, which will destroy the weeds without losing the moisture so essential towards vegetating the seed. The manure to be applied must to some extent depend upon the state of the land previously, because if the ground is full of manure from former cultivation, 3 cwt. of superphosphate per acre with a few ashes, or fine chalk, will prove an ample dressing. On the other hand if the land is poor, 2 cwt. of Peruvian guano may be applied per acre, but not with the drill, as we have known it to kill the seed, and therefore prefer to sow it broadcast after the plants are strong, and horse-hoe immediately afterwards. If it is sown broadcast when the seed is drilled it encourages the weeds without benefiting the young plants in the same proportion. It decided upon the distance at which the seed should be drilled. After many years of experiments upon this point we prefer twenty inches between the rows, and leaving the plants at fifteen or eighteen inches apart in the lines, according to the nature of the soil, the only exception being on land more than usually subject to annual weeds. It is best then to drill the seed at twenty-four to twenty-seven inches between the lines in order to facilitate horse-hoeing, and at this distance the plants may be left closer in the lines so as to obtain not less than 120 plants to the rod. We like to drill about two and a half to three

pounds of seed per acre, as this not only allows for destruction by the enemies, such as wire-worm, grub and fly, but the plants grow faster in their infancy when thickly seeded. With respect to hoeing we have often, when the plant has been thick and regular, been induced to horse-hoe across the drills and to set the hoe at twelve inches wide, which will leave the plants in bunches at rather more than that distance apart. The labor of hand-hoeing is thus diminished, and the plants may be singled by hand by women. It is, however, most essential at the time of hand-hoeing, and in singling these plants always to leave the strongest plants, and the point is more to be regarded than any little difference in the distance between the plants. We shall omit any remarks at present as to cultivating for Swedes as a second crop after trifolium, vetches, etc., because this matter will be treated of under the cultivation for common turnips in a future article."

EXPERIMENTS IN WHEAT AND OATS.

The following is the report of John L. Carter, Superintendent of the Eastern Experimental Farm, of varieties of wheat and oats tested for the season of 1878. Doubtless our country readers will find much practical information in it:

Experiments with Wheat.

The ground used in these experiments was a wheat stubble, plowed soon after harvest. It lay until September 25, when a light dressing of fertilizers was sown on it, and re-plowed, shallow. On September 28 the following varieties were sown (broadcast) on eight acre plots, at the rate of two bushels per acre. When threshed the following was the result:

VARIETY.	Bearded or smooth.	Color of grain	Yield per acre.	Time of ripen'g	Straw per acre.
Clawson.....	smooth	white	32.00	July 3	3072
Fultz.....	"	amb'r	32.08	Jun 28	2582
White Chaff Med....	bearded	red	28.44	July 2	3220
Heiges' Champion Amber.....	smooth	amb'r	27.52	" 1	1848
Heiges' Prolific.....	"	"	30.40	" 1	2160
Washington White...	bearded	white	31.12	" 2	2784
Eureka.....	smooth	"	32.45	" 3	2960
Gold Dust.....	"	"	31.24	" 3	3040
Glick.....	bearded	"	28.56	" 2	3832
Gold Medal Arn'd....	smooth	"	31.54	Jun 28	2552

NOTES.—The Clawson and Fultz have done equally well for several years. The Fultz is about one week earlier, and stands up better, but the straw is not so heavy. The Mediterranean neither yields nor stands up well. The Champion and Heiges' Prolific are two hybrids of the Fultz, from John M. Heiges, of York, Pa. They have not proved particularly valuable to us, the Champion being quite light strawed. The Washington and Eureka came from central Pennsylvania, presented to us by Joseph Baker of Centre county. The Washington White has a splendid large berry and good strong straw. The Eureka somewhat resembles the Gold Medal, but more productive. The Gold-dust came from the Agricultural Department, Washington—has a nice white plump grain, and the stiffest straw I have ever seen growing. The heads blighted some and it was a little late, otherwise it could be recommended for very strong land or heavy manuring. The Glick is a white-bearded wheat from near Allentown, Pa., but of no especial promise. The Gold Medal is one of Arnold's hybrids, nice and white, but not especially valuable.

The following varieties were sown in smaller quantities, and accompanying notes made:

Arnold's Victor, Colorado Wheat, Nevada Rye or Diamond Wheat, White Rye, Louisiana, Grecian, Progress, Amber, Kentucky, Diehl, Tappahannock, Muskingum, Arnold's Hybrid, Red May, Shumaker, White Blue Stem, Michigan Amber, Bayard, Bengal White, Treadwell, German Amber, Flinn Bran, Russian, White Rogers, Michigan Wick.

NOTES.—Arnold's Victor came from Canada, highly recommended, but proved utterly worthless with us, blighting badly and being quite late. It is a white, smooth wheat.

The Colorado wheat and Nevada rye came from C. B. Rogers, Philadelphia. The wheat was not a success, but the Nevada rye had good heads of long light-colored grains, almost transparent. The straw was not long but stood the winter well. It is worthy of some further trial. The Grecian is a new white smooth wheat, largely puffed, but worthless in this section. Specimens of other varieties are herewith exhibited but they possess no especial interest. The following experiments were made to test fertilizers on wheat, the conditions otherwise being the same as before related. The variety of wheat used in the experiments was Gold-dust. The cost of fertilizers was at the rate of \$8 per acre:

	Wheat per acre.	Straw per acre.
Stockbridge Wheat Formula.....	32.04 60 bush.	4140 lbs.
No Fertilizer.....	30.24-60 do	3840 "
Poplein's Silicated Sup. Pho.....	30.32-60 do	3832 "
A. A. Nitrogen.....	32.08-60 do	4376 "
Challenge for High Grade R. P.	33.48-60 do	4980 "
Challenge Sown and Harrowed.....	29.08-60 do	3420 "
Spring Cultivation.....	24.48-60 do	3168 "
Uncultivated.....	31.20-60 do	3820 "

In the above cases these fertilizers have evidently done but little good, and the only fact worth noticing is the gain in lightly plowing down the Challenge Phosphate over sowing it on the surface and harrowing it in. Our experiment in cultivating wheat is still unfavorable to this much talked of system. I think there must be some peculiarity in our soil that renders cultivation for this crop unnecessary—as all our previous experiments have resulted much like the present one. What is singular we can notice no increase in the length of head from cultivation, and as there are fewer stalks there must be less grain. The wheat on this plot was sown in drills, five inches wide with a space of fifteen inches between, sowing about one bushel of seed per acre. April 20 we ran through the spaces with a one-horse cultivator; and May 3d we ran through them with a small subsoil plow, loosening up the ground ten inches deep and finished by dressing up with a hexamer hoe.

Varieties of Oats.

We made the following experiments to test the varieties of oats, their products, time of ripening, &c. We selected a piece of corn-stalk ground; plowed, then harrowed in a light coat of dissolved South Carolina rock, sowed the oats March 28th at the rate of $\frac{1}{2}$ bushels per acre, covering with a harrow. When cut and threshed the following results were noted:

VARIETIES.	Wgt.	Color.	Time.	Yld. Oats.	Straw.
Irish Oats.....	29%	white	7-17	46.28-32	4160 lbs.
Andres King.....	26%	yellow	7-20	60.12-32	5188 lbs.
Canadian.....	31	white	7-14	37. 8-32	3528 lbs.
Waterloo.....	22%	white	7-15	31.	3336 lbs.
White Dutch.....	23%	white	7-15	39.12-32	3380 lbs.
White Schenect.....	21%	white	7-19	48.16-32	4304 lbs.
Lyell.....	28	dark	7-10	64.	2400 lbs.

The Irish oats is of recent importation; came to us from Captain Ingram, of Oxford, Pa.; was said to weigh over 40 lbs. per bushel, and to yield over 80 bushels per acre. The grain is white and plump, and the straw strong and tall. The Andres King Oats came from New York; has heretofore been our most productive variety, is a long grained yellowish oats with a heavy stiff straw, is rather late, which has been my principal objection to it, but this year its lateness and heavy straw enabled it to tide over the hot dry weather.

The Canadian, Waterloo and White Dutch came from the Agricultural Dep'tl, Washington. The grain of each was white, plump and handsome, and last year weighed well; this year more than half the grains had no kernels. They ripened early and had weak, broken straw. The white Schenect came from Western Pennsylvania, is a good white oats with a strong straw, but late.

The Lyell oats came from Richmond, Va.; is a dark bearded oats with short, stiff straw. It was sown several days after the other varieties and ripened at least a week sooner. It was too early to be affected by the heat or drought, and made a fine yield. The appearance of the grain is the principal thing against it.

THE WHEAT CROP IN THE NORTH-WEST.

The *Pioneer-Press* editorially comments upon the reports it has obtained the past ten days respecting the damage to the wheat crop in Minnesota. The damage is mostly confined to the southwest part of the State, and even there the last reports are not so discouraging as those sent out earlier. The damage done there the *Pioneer-Press* estimates at from 25 to 30 per cent. off from a full crop, but in the State at large not over 10 per cent. below the average. The same paper estimates that the increased acreage will make up for the loss in yield, and that Minnesota will afford as much bread to the eater in 1878 as in 1877. The reports of the *Chicago Tribune* confirm the above in every particular. Former reports have been highly colored and exaggerated. The farmer with all his excellent qualities, is inclined to be a croaker, says the *Tribune*, and to look at the dark side of things. Well informed grain buyers put the loss at 10 per cent., chiefly by blight. They predict that, with an increased acreage of 25 per cent., Minnesota will exceed her 35,000,000 bushel crop of 1877.

THE PRICE OF FLOUR.

One of those things which no one seems to understand, and which no fellow can find out, is the peculiar relation which exists between our home flour market and that of Philadelphia. Somehow the millers are enabled to make flour here in Lancaster county, ship it to Philadelphia, paying freight, storage and commissions, and even then sell it at a less price than they are willing to sell it to us here at home. In the ordinary course of events one would think flour ought to be purchased cheaper at the point of production than after being sent a considerable distance by rail and incurring very material charges by the way.

Millers are not paying more than one dollar per bushel for wheat, and a good many refuse to pay even that. Now, on an average, four and a half bushels of grain will make a barrel of flour, making that the cost to the millers—\$4.50. Family flour, the kind we have selected to illustrate our remarks, is to-day selling in Philadelphia at from \$5 to \$5.50 per barrel. From that figure must be deducted the following items of cost:

Barrel, - - - - -	40 cents
Freight, - - - - -	24 "
Expenses (such as commissions, etc.,) -	28 "

giving us a total of - - - - - 92 "

If we take the highest figure we have the following :

Price of flour per barrel, - - - - -	\$5.50
Deduct expenses as above, - - - - -	.95

which leaves the miller just - - - - - \$4.58 for his flour. But when we take the lower rate

Flour, per barrel, - - - - -	\$5.00
Deduct expenses, - - - - -	.92

the miller gets just - - - - - \$4.08 per barrel for his flour sold in Philadelphia. If the mean between these two figures is taken we have \$4.33 per barrel, which is no doubt very nearly the price flour sent to Philadelphia is now netting our millers. Yet for this same flour they compel us here at home to pay for at the rate of \$6 per barrel, that being today the price of good family flour in this city.

Here we have presented to us the very curious anomaly of Lancaster county millers sending their product to Philadelphia, and selling it at a loss of from seventeen to forty cents per barrel, while of their customers here at home they ask nearly \$2 per barrel more, or a profit of nearly 40 per cent. Why such should be the case we are at a loss to understand. It actually pays to buy Lancaster county flour in Philadelphia, and we know of one large consumer who, with mills near his door, can buy the flour they make in Philadelphia, and bring it up from that city at a less cost than from the millers at their own doors.

In this calculation we have omitted the cost incurred in converting the wheat into flour,

as that results in a profit to the miller, as may be seen from the following:

$2\frac{1}{4}$ bushels wheat weigh - - - - -	135 lbs.
$2\frac{1}{4}$ " " make flour - - - - -	100 lbs.

leaving of bran, ship stuff, etc., - - - - - 35 lbs.

and worth at the lowest calculation one cent per pound, leaving about fifteen per cent. for his profit on every hundred pounds of flour he makes.

A consumer can easily find out what he really ought to pay for flour. As two and a quarter bushels of wheat are required to make one hundred pounds of fine flour, let him ascertain the current price of wheat, and the cost of two and a quarter bushels of wheat should also be the cost of the flour, the offal in the shape of bran and middlings being a fair profit to the miller. When wheat is one dollar per bushel two dollars and a quarter are a fair price for a hundred weight of flour.

But it is not the millers only who seem to be having a pretty nice thing of this flour business. The bakers also ought to prosper, as the following facts will show. A barrel of flour will make 280 pounds of dough, and this in turn will make 240 pounds of bread:

240 lbs. at 5 cents per lb., - - - - -	\$12.00
from which must be deducted the following expenses:	

Barrel of flour, - - - - -	\$5.00
Cost of making into bread, - - - - -	1.50

or a total expense on each barrel of - - - - \$7.00

leaving the baker a net profit of five dollars per barrel. When a baker works up as many as five barrels of flour per day, and some we believe do double that, they have a very snug thing of it. Forty-two per cent. may be regarded as a living profit in these days. Something more must be allowed for incidental expenses, such as hauling the bread around, but even then it pays handsomely.—*New Era*.

FORESTS AND CULTIVATION.

It is a well settled fact that forests produce moisture, and shade assists in enriching the soil, fitting it for the production of crops for the sustenance of man and beast. Take, for instance, Egypt, portions of Persia, and the valley of the Euphrates and Tigris rivers, in Asiatic Turkey. The very site of the famous Garden of Eden is now nothing but barren sands, looking as if no green thing ever existed there. The wholesale destruction of forests and trees have but one result, to make land sterile and unproductive, which will gradually drive away population until whole regions are abandoned and given up to the ravages of time. This consummation is in many large expanses of territory, to be seen in the older continents of Asia and Africa, and will overwhelm any land denuded of forests, in the course of time. It is true this may happen only after a hundred or a thousand years, but it will come inevitably where trees are constantly destroyed and none planted to take their place.

There was no greater mistake than to cut down the plots of woods to be formerly found upon almost every farm, and where fruit and shade trees die to allow their places to remain unrestored. Frequently in the purchase of a farm the first thing done to enable the owner to make the second payment was to cut down one-half, sometimes all, the wood and sell it. No more fatal thing could be done. It is, as it were, taking the life-blood out of the land. Then, too, when urged to set out forest trees the argument is that they will not come into use during the life of the owner, and he would be doing it only for future owners. These people will not remember that somebody had done it for them. Our advice is, therefore, to keep up the forests to at least one-tenth of the aggregate land, and it will not only repay you in posts and rails and firewood from dying trees, which would have to be removed, but will add to the fertility of the whole land in moisture, by attracting rains.

In many sections of the West and Southwest, devoid of timber, and known as prairies, cultivation is successful only by irriga-

tion. There are no trees, owing to the great fires which have destroyed them. In places, however—and we are pleased to say they are annually increasing—forests are being planted. Several of the States have offered liberal premiums to encourage forest-planting, and millions upon millions of trees are now growing, where only a few years ago scarcely a tree was to be seen. It is the interest of great railroad companies to plant trees along their lines, and thus raise enough timber to supply their own enormous wants for ties, and besides to provide a grateful shade for their passenger trains. There are some varieties of wood that grow rapidly and of an enduring nature, as the catalpa, cottonwood, &c., and it is upon these mainly that the country must rely for their future supply of timber.

But it must be borne in mind that farmers, great and small, should join, at this crisis, in producing their share of timber-trees, as the cherry, the walnut, chestnut, &c. These small patches of forest should be found on every farm, and as they are countless in numbers, the aggregate would have a most important influence upon the general result which we have in view.

Farmers and land-owners should banish from their minds the idea that they may not live to enjoy the profit of this tree-planting; they probably will, as from twenty to thirty years may realize the most liberal hopes of success; at least it will add greatly to the value of the farm from the very facts we have named. In support of this there is not a farm nowadays offered for sale in which the woodland, if any, is not particularly referred to, as well as any "never-failing spring" or stream upon the premises.

LANCASTER COUNTY TOBACCO.

We take the following communication from the annual report of the Chief of the Bureau of Statistics, recently published at Harrisburg:

1615 SUMMER ST., PHILADELPHIA, }
December 1, 1877.

W. Hayes Grier, Esq., Bureau of Statistics, Department Internal Affairs, Harrisburg, Pennsylvania:

DEAR SIR: In compliance with request contained in your favor of 12th instant, the following statement shows how many cases of tobacco have been raised in Lancaster county since 1860, including a careful estimate of crop for this year. The area planted at present will be about the same as last year (1876), but a feeling exists among growers of giving the crop more attention, and growing a better article; but the result is expected to show at least an increase of some 20,000 cases over and above the crop of 1876. In the year 1860, 15,000 cases were packed, from tobacco grown exclusively within the county, increasing in following year 5,000, making 20,000 for the year; in 1862 the number packed amounted to 23,000, still an increase; but the crop of 1863, amounting to 30,000 cases, checked somewhat the growth, and the crop fell off during the next seven years. The number of cases packed each year being: 1864, 20,000; 1865, 12,000; 1866, 7,000; 1867, 2,500; 1868, 5,500; 1869, increased to 9,000; 1870, increased still more, to 16,580; in 1871, crop of 1870 was nearly doubled, being 31,230 cases; in 1872, 34,010; in 1873, fell off 25,000; increasing some 5,000 in 1874; in 1875, the crop of that year went ahead some 10,000 cases over the preceding year; in 1876, 35,000 cases were packed; and a very careful estimate, from reports of all the tobacco growing districts, will bring the crop of this year (1877) up to 37,000 cases, which will fall short but 3,000 cases of the highest amount reached since 1860, the year 1875 having grown 40,000 cases. You have, therefore, for the eighteen years, 392,820 cases of tobacco, weighing, say three hundred and sixty pounds tobacco each, making 141,415,200 pounds. Those who are versed in the prices realized per pound during these years, from 1860 to present time, can see how much, in money value, has been the tobacco growing business of the county.

Lancaster county, Pennsylvania, is acknow-

ledged, generally, to be the "banner" tobacco district of the United States. No other equal area of land produces as many pounds per acre, 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 district in America. The value of last year's crop, being estimated by what has been sold and that which remains on hand, deducting considerably for reduced prices, aggregates (\$2,500,000) two and a half millions of dollars.

Another marked characteristic of the Lancaster county tobacco, as a crop, is the large amount which is yielded per acre. Lancastrians are synonymous with good farmers, and in this crop they seem to have "set" themselves to outstrip the world. Each one seems to vie with his neighbor in a friendly competition as to which can produce the greatest yield per acre. Of the crop of 1872 (the writer, speaking from personal knowledge of the amount produced, having visited every tobacco growing township), forty-three townships had 6,802 acres planted out, the area being somewhat in a circle, the greater number of acres being cultivated in the centre of the circle.

Of the forty-three townships, fifteen grew from one to fifty acres each, nine grew from fifty to one hundred acres each, seventeen grew from one hundred to five hundred acres each, one grew one thousand acres, and one township, Manor, had over one thousand two hundred acres planted out, thus showing that "Manor" township is to the tobacco growing district of Lancaster county what Lancaster county is to the largest tobacco district of America. The average number of pounds yielded per acre being one thousand eight hundred.

In agricultural interests, generally, the farmers of Lancaster county 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.

Hoping the above will be satisfactory, I remain, sir, your obedient servant, *Williard T. Block.*

SUGAR BEETS.

In reply to "Bleizucker's" communication of April 26, I will say the difference in making sugar from beets and from maple sap is, that the juice has to be extracted from the beets; this does not require more costly machinery than the cider press and grater—that made by the Boomer and Boscher Press Company, Syracuse, N. Y., (I send you one of their circulars, giving plan and cost of building, press, grater, elevators, engine and boiler, tanks, pumps, etc., the whole cost of which is \$2,360,) has the capacity, with the labor of two men, of grating and pressing 725 bushels of beets per day of ten hours, and yields 5,262 gallons of juice. The press and grater alone costs \$510, and requires less than six-horse power to run them. The best juice is boiled down the same as maple sap, sorghum, or cane juice, and requires no more labor or skill, and can be done as economically on the above quantity as on a large amount. It needs no costly machinery, such as "centrifugals, hydraulic presses, vacuum pans, or filtration through bone coal, etc." These and other requisites are all needed in the *refining*, but not in the *manufacture* of sugar; they are separate branches of business, but sometimes both are carried on by the same person. The sugar refineries in this country import the brown sugar and refine it. They would, without question, as readily buy the brown sugar made here as to import it; and, refineries being already established, it is better to send the brown sugar (what is not consumed in that form) to the refineries that already have the necessary machinery and skilled labor to run them than to start new ones; it would be a question of cost of freight against the interest on capital invested in refinery. At

present there is no doubt it would be best for the farmer to sell his surplus sugar not needed for home consumption; or, if refined is wanted, he can sell his brown sugar and buy refined, as the farmer now sells his wheat and buys his flour, or has it manufactured for him at the mill.

In the future, as the business grows, the present refineries will not be able to refine all the brown sugar produced here, and then there will be no difficulty in getting the capital and skilled labor to start other refineries in locations best adapted for them, or to enlarge the producing capacities of the present ones; time and circumstances will regulate this.

1,000 lbs. beets contain 184 lbs. dry substance, 1.60 nitrogen, 7.10 ashes, 3.914 potash, 0.379 lime, 0.536 magnesia, 0.780 phosphoric acid. In manufacturing, these elements are distributed as follows:

	d. s. nit. ashes. pot. lime. mag. p. acid.
Tops and Bottoms.....	19 0.24 1.15 0.336 0.108 0.13 0.144
Fibre.....	46 0.44 1.71 0.583 0.390 0.100 5.165
Refuse.....	24 0.60 1.20 0.380 0.640 0.250 0.380
Molasses.....	25 0.32 2.47 1.741 0.141 0.009 0.015
Sugar.....	85 — 0.57 0.872 — 0.040 0.072

"Bleizucker" well states, "If farmers and others interested can be incited to investigate for themselves the real facts in regard to raising sugar beets and the manufacture of sugar from them, much good will be accomplished." The estimated quantity of the sugar supply of the commercial world in 1875 was 2,140,000 tons cane sugar, and 1,317,623 tons beet-root sugar, of which France produced of this last 462,259 tons, as against 4,465 tons in 1828. The consumption of sugar in the United States is about 700,000 tons per annum, of which we now produce—cane sugar, 100,000 tons, and beet-root sugar, 1,000 tons, and there is no reason why the last cannot be increased to the quantity we require, if the farmers will raise the beets. The present cider mills and cheese factories could add to their present machinery the pans or presses, as required, and by co-operation on this, as in regard to other products, we can produce profitably all the sugar we need. This will bring the business of sugar-making within the reach of small farmers, and is of vast importance. The notion prevails, that to make sugar profitably it must be made extensively. This is certainly erroneous; and the sooner this illusion is dispelled the sooner we will begin to realize the productive resources of our lands, and employ our now idle laborers on a very remunerative crop now grown to a very limited extent.

In the last 100 years great progress has been made in all branches of manufacture, and it applies to sugar as well as other articles. We can profit by the past, but need to look forward to the future.—Andrew H. Ward, in Bridgewater (Mass.) *Independent*, of May.

COST OF COWS' MILK.

To know the cost of milk there must first be known the cost of the food for the cow. Hay and grass are the principal articles of food; and two acres of land should be sufficient to pasture a cow during the season. Estimating the value of this land at \$25 per acre, the interest and taxes would not amount to more than \$2 per acre—being \$4 for the two acres—and there should be added \$5 annually for fertilizer to restore the depletion of the soil, making \$10 for the two acres; this, with the amount for interest and taxes, \$4, makes \$14 for the season of pasturage. Under this treatment the pasture will constantly increase in value, and be amply sufficient, whereas, under the system now generally adopted pastures decrease in value, finally running into moss, requiring so much land to pasture a cow that, with the effort and time to obtain their food, it keeps them barely in condition, and a small surplus only to go to milk, and the land is finally of no value as a pasture.

Mowing lands may be estimated at \$50 per acre, and proper care and attention will yield two tons of hay per acre, which is sufficient to keep a cow during the winter; for interest and taxes say \$4, fertilizer \$5, cutting, curing

and getting hay to barn \$3 per ton, making in all \$15; for grain and bran, and it is an advantage to feed some, add \$10. Roots in winter are a very beneficial food and keep the system in better condition than on dry food alone, and they increase the supply of milk.

Sugar beet pulp or pomace is equally as good as the whole beet. The beet juice can be used for making vinegar, treated the same as cider now is, or by treating the juice the same as maple sap is, it will produce a good article of brown sugar. 1,000 lbs. sugar beets will make 8 lbs. sugar and 30 lbs. molasses, only fit for distilling purposes or food for stock, and they are especially fond of it. As remuneration for time and care bestowed on the cow, the manure will nearly if not quite compensate, and if she is warmly stabled in winter, having good ventilation, properly and regularly fed and watered, kept clean and treated kindly, she will be a poor cow, and should be sold for beef, that will not give full 3,000 qts. milk per annum, which will be divided in proportion something as follows: First month, 430 qts.; 2nd, 430; 3rd 355; 4th, 337; 5th, 312; 6th, 312; 7th, 150; 8th, 150; 9th, 150; 10th, 150; 11th, 112; 12th, 112; in all, 3,000 qts. milk, 32½ ounces each, 6,422 pounds.

The value of the calf may be estimated at five dollars, and if farmers would have only full blood stock, or high grades, and they can gradually work to this end, by only using *full blood bulls*, the value of their stock would be enhanced and the quantity of milk increased by the improvement in the stock.

From the above we arrive at the following summary :

COW DEBIT.		
Cost of pasture for cow,	- - -	\$14
Cost of hay for cow,	- - -	15
Cost of grain and shorts for cow,	- - -	10
\$39		
COW CREDIT.		
3,000 qts. milk at cost, 1.134c,	{	\$34
or		
6,422 pounds milk, at 5.30c,		
Calf,	- - -	5
\$39		

Care and time equals value of manure.

It requires to make one pound of cheese about 10 pounds of milk. At 0.53 cents a pound it is 5.30 cents. Add, for manufacturing, 2 cents a pound, which makes the cost of cheese 7.30 cents a pound. 25 lbs. milk, for *pound* butter (milk from Jersey cows does not require so much as this,) at 0.53 is 13.25 cents. Add, for manufacturing, etc., 4 cents a pound, which makes the cost of the butter 17.35 cents pound. The whey from the manufacture of cheese and the skimmed and buttermilk from the manufacture of butter have not been deducted, and would reduce the cost to the extent of their value; this is nominal on account of the limited demand. Skimmed milk is a valuable article, but not duly appreciated. It could be used profitably to a much larger extent than it now is. Milk producers can put their milk into butter to good advantage if they can utilize the skimmed and buttermilk, and this can be done by replacing the butter withdrawn with oleomargarine and converting it into cheese, and it will be fully equal to full milk cheese, and well manufactured cannot be distinguished from it. Oleomargarine is now an article of commerce, and the dairy interest cannot shut their eyes to the fact, and have got to meet its competition; and no low grade or common butter can do so. It is only butter made from the best of milk and skillfully manufactured that is superior to it.—Andrew H. Ward, Bridgewater, July 6th, 1878.

We would request all subscribers of THE FARMER to consult the yellow slip on their paper to see how you stand, as we are very much in need of money to pay the printer. If the label indicate Jan. 78 then you are paid up to Jan. 1878, but should it be Jan. 76 or 77 then you owe 1 or 2 years as the case may be.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The regular monthly meeting of the Agricultural and Horticultural Society was held on Monday afternoon, August 5th, in their room in City Hall.

The following members and visitors were present : Calvin Cooper, (President,) Bird-in-Hand; Joseph F. Witmer, Paradise; H. M. Engle, Marletta; Peter S. Reist, Liltz; Casper Hiller, Conestoga; M. D. Kendig, Manor; Levi S. Reist, Manheim; A. B. Groff, West Earl; Jacob Bollinger, Warwick; C. M. Hostetter, Eden; Dr. S. S. Rathvon, city; Daniel Smeych, city; Ephraim Hoover, Manheim; J. F. Frueaull, Columbia; J. C. Linville, Salisbury; J. H. Hershey, East Hempfield; J. M. Johnston, city; Clare Carpenter, city; John M. Stelman, East Hempfield; Israel L. Landis, Manheim; W. L. Hershey, West Hempfield; John Brady, Millersville; S. P. Eby, city; A. M. Hostetter, Oregon; Isaac Bushong, Upper Leacock; Henry Erb, Manheim; Jacob H. Hershey, Silver Spring; Horace Engle, Donegal; William T. Worth, city; William Grist, city; F. R. Diffenderfer, city.

The society was called to order by the President, Calvin Cooper.

On motion of H. M. Engle the reading of the minutes was dispensed with.

Report of Committee.

S. P. Eby, as chairman of the committee on place of meeting, reported that although no agreement has yet been signed for their present quarters, there will be no difficulty about the matter.

Reports of Standing Committees.

J. C. Linville, of Salisbury, said they had harvested fine crops of wheat and grass; the tobacco crop is not very good; corn will be half a crop, and so will apples.

M. D. Kendig, of Manor, said the wheat crop was very large; corn and tobacco are suffering from drought; grapes look well; grass looks poorly; apples are dropping from the trees. Rain fall in Manor for July 1 3-10 inches.

H. M. Engle reported the rain fall in his district, Marletta, at 2½ inches for the month of July.

D. Smeych reported the pear crop in this city as good; the peaches are also pretty good, and so are grapes. He applied linseed oil to three peach trees and all three were killed.

Casper Hiller said pure linseed oil won't hurt trees, as he has often discovered by experience; it is the adulterated article that does the harm.

Mr. Smeych said oils that have seeped on the top will kill trees beyond a doubt.

Prof. Heiges has tried oil on trees and has derived much benefit from it. He has analyzed oils of late and find that they contain a large quantity of litharge and also of acetate of lead; these are poisons. Get unboiled oil and no harm will result. That is the whole source of the trouble—boiled oil.

Levi W. Groff made the following crop report: Wheat is a good crop; corn is poor; there has been too much heat and not enough rain; no trouble with the potato bugs; grass is badly in need of rain.

Levi S. Reist thought all the crops had come out very well so far, except corn. There is an opinion no half falls at night, but a half storm on Thursday night destroyed much corn and tobacco in Manheim township. No amount of rain will now make a full crop of corn; it is too late for that.

The Committee on Nomenclature made the following report on the Lancaster cherry :

An accidental seedling, fruited by Daniel Smeych, of Lancaster. One of the finest cherries that has come under our observation. Size large; color red; slightly acid; of first quality. Tree vigorous and very productive, and especially valuable on account of the successive ripening of its fruit. Mr. Smeych says it was in good eating condition for four weeks.

LEVI S. REIST,
CASPER HILLER,
H. M. ENGLE,
M. D. KENDIG.

H. M. Engle corrected an error that appeared in his article on wheat, published a month ago.

The rules were then suspended for the time being, to hear the lecture announced to be delivered by Prof. S. B. Helges, of York. His lecture was entitled,

The Comparative Exhaustive Powers of the Cereals.

The professor's lecture was delivered extempore, he using neither manuscript nor notes. Being to some extent technical and filled with scientific terms it was difficult to report. We fear our readers will get but a poor idea of what it really was. Those who heard it learned many things they never knew before.

He began by stating that many of the sayings of the old farmers have been found to be scientifically correct, and he would prove some of them to be so. He would illustrate his lecture by a new process. He would charge an acre with \$25 to begin with, and would then sow it with either wheat, corn or oats, and would show how much of each grain would have to be produced to pay for the sum charged

against it, and what each amount of grain took from the earth, or in other words, how much each exhausted the soil. The average price of wheat is about one dollar. To get back the \$25 charged against the acre of ground, therefore, required a product of twenty-five bushels. So, too, of corn, of which the average price is about fifty cents per bushel; this requires you to grow fifty bushels to get out the \$25 charged against the acre of corn. Of oats, seventy-five bushels must be raised to sell at the average price of thirty-three and one-third cents, to bring up the value of the crop to the \$25.

Elements Drawn from the Soil.

Having laid down this proposition he proceeded to state that close analysis shows these three cereals abstract from the soil the following fertilizers or constituents in the proportions annexed in pounds and fractions of a pound :

TABLE SHOWING THE COMPARATIVE AMOUNT OF THE SEVERAL ELEMENTS DRAWN FROM THE SOIL.

Phos. Acid...	Nitrogen.....	Potash.....	Soda.....	Lime.....	Magnesia	Sulph. Acid...	Chlorine	Total in lbs..
25 bushels of wheat, at a value of \$1 per bushel, take from the soil.....	7.7	34.5	6.4	0.9	1.4	2.2	8	53.9
50 bushels of corn, at fifty cts. per bushel, take from the soil.....	12.6	50.	11.8	0.5	1.0	4.2	1	81.1
75 bushels of oats, at 33½ cts. per bushel, take from the soil.....	14.2	75.	29.5	9.5	10.1	75.0	3.7	217.

From this it is seen that to grow an amount of corn that will be of the same money value as the twenty-five bushels of wheat nearly double the amount of plant food is taken from the soil; to grow an equivalent amount of oats takes from the soil just four times as much of the chemical constituents as for the same money value of wheat; in other words, oats are just four times as exhausting as wheat, and two and a half times as exhausting as corn.

He recommended the farmers to petition the Legislature to pass a law requiring all artificial fertilizers to have their constituent parts openly announced. In this way farmers can get just what they want. Phosphoric acid is the prime agent in agriculture. Nitrogen comes next in importance, not in its natural condition, but in the form of ammonia, which is obtained by its mixture with hydrogen. Potash is simply vegetable ashes. No crop, either potatoes or tobacco, can be raised without potash. How did the potash get into the soil? Either by burning or the decomposition of vegetable matter. 25 bushels of wheat take up only 9-10 of a pound of soda, but oats requires over nine pounds; therefore oats requires salt, while wheat land does not. He spoke of the improper application of lime; much of it might as well be thrown into the street as put on some crops. Wheat requires but 1.4 pounds, corn 1, while oats needs 10.1, showing clearly that lime does best when put on oats; wheat and corn hardly need it. There is a vast difference in lime; ordinary limestone can be easily tested; a drop of nitric or sulphuric put on the crude limestone will effervesce and show a large percentage of lime. Lime is a manure but a poor fertilizer; its chief use is to comminuate—to break up the particles of soil and make them available for plant food. Lime is only profitable when it acts on vegetable matter. When applied to corn stubble, there is nothing for it to act upon, and therefore the lime is virtually lost. The soil on an acre plowed one foot deep weighs two thousand tons. Nearly all soils contain an abundance of lime; therefore it is almost a useless waste of money to lime so often and so heavily. The lecturer here asked whether the amount of mineral matter drawn from the soil if added to the soil would give the first named number of bushels? By no means; they must be mixed with the two thousand tons of soil, and then the mixture will give you your crops; because, besides what the crops abstract there is still left more than a thousand fold as much of the same substances in the acre of soil. One thousand pounds of grass turned down and thoroughly decomposed will produce a thousand pounds of corn or wheat. If the straw off an acre is returned to the soil again it will give twice as much phosphoric acid as was abstracted by the crop of wheat. Cotton meal will go further to restore soil to fertility than anything else, because it contains more of the necessary fertilizing elements than anything else.

The reason why the soil of the Southern States has become so poor and unproductive is because they have grown and grown their great staple, cotton—the most exhausting of all crops—until there is virtually nothing left in their soil. If they were to return the cotton meal abundantly they could keep up the fertility; but they do not do so. In the absence

of cotton meal our next best substitute is the vines of the common pea, plowed under. They are nearly as good as cotton meal, are cheap, and decidedly the best vegetable fertilizer at our farmers' command. Grass, straw and pea vines are the three great elements our farmers have to restore their exhausted acres.

The average production of wheat in this State is only 13 4-10 bushels per acre. Special culture will produce 40, 50 and 70 bushels; formerly it averaged more than now. This is because we export millions of bushels of grain, and thus one source of fertilizing the soil is taken from us. We no longer use up the flour or feed and all the bran on the farm. In 1872 he began wheat culture. The cultivation of wheat at the experimental farm has not proved profitable; in some soils this may be so, but on stiff clay soils wheat culture is just as profitable as corn culture, and he was amply prepared to prove it. His brother raised four successive profitable wheat crops from the same ground, while the fifth crop was a complete failure. The potash had been used up and failure was the result. He called attention to the irregularity of grain when sown by the common drill. The straw is of all lengths; this should be remedied. In sowing wheat the drill should run north and south instead of east and west. Another advantage by this system of cultivation is that more soil is covered by the grain and the latter has more food to draw on. It is also more easily lifted out by frosts by the common method. By the new method this is not so easily done. He believes that we must adopt new methods or quit wheat-growing altogether. Specimens of cultivated wheat were shown, which were very fine. The straw was thick and upright, not having lodged in the least, although the variety of wheat was noted for its soft straw. He put an effectual disclaimer on the charge that in measuring wheat ground on which large crops have been raised by him, only that covered by the grain was measured, and the bare places not; all is measured and the result is based on the entire area.

Professor Heiges also answered a number of questions as to the comparative merits of plowing down green grasses. Clover does most good when plowed under half dry instead of green. Rye and buckwheat may also be plowed under with profit. In answer to the question, whether buckwheat plowed under makes a good manure, he said no; it grows too fast, and all vegetables that grow with great rapidity contain a great deal of water—are in fact nearly all water. It would be almost as beneficial to plow under a heavy rain shower as a rank, green growth of buckwheat. A great many other questions were answered by the learned professor, who seemed to have all the information called for at his tongue's end. No brief and imperfect synopsis like this can give a fair idea of what the lecture was. It will be published in full in the *Farmer's Friend* in its issue of August 29.

On motion, a vote of thanks was tendered by the society to the Professor for the instruction given by his lecture.

New Business.

Daniel Smeyeh moved that the society hold a fruit exhibition during the coming fall, which was carried.

H. M. Engle was anxious to have the sense of the society as to what the prospects are for an exhibition. He feared we would make a poor show; of pears we have a good showing, but of apples and grapes we have very few.

Casper Hiller was almost afraid we are no longer a fruit growing county. We have fruit, but it is not good. A hail storm came along and hit almost every apple. Once he had a pear orchard of one hundred trees, but hardly one has escaped the blight; he almost feared to go into such a project.

Mr. Smeyeh remarked, why can't the farmers bring their wheat, corn and potatoes as well as fruit?

The vote at this point was reconsidered and lost.

H. M. Engle moved the Committee on Nomenclature take up and report on the fruits on exhibition.

A flowering plant was shown, which was pronounced the ox-eyed daisy, and it was recommended that it be pulled up and destroyed as often as it made its appearance. It was a great pest when once it was well established on a farm. See page 115.

Business for Next Meeting.

"The proper preparation of the ground for a wheat crop." To be answered by John C. Linville.

"What is the best time to cut corn?" Referred to E. Hoover.

Notes of a Western Trip.

On motion, Major Frueauff, of Columbia, was invited to tell what he saw of agriculture during a recent trip to the West. He described some very tall corn. Farmers out there all needed hands to harvest their crops; the lowest wages paid were \$1.50 and up to \$2.50. He saw more idle men in Kentucky than anywhere else; they looked like politicians. Business seemed better there than here. All seem to be earning something. The West is progressing, undoubtedly. At Massillon, Ohio, wheat was selling at eighty-five cents per bushel. He says the bad crops in Minnesota are discredited by many; it looks like a dodge to keep up prices. The damage by rain and sun has undoubtedly been overrated.

Samples of wheat were shown, grown by Mr. Fordney, near this city, which produced 41 bushels to the acre by the old method of culture. It was very fine. A sample of rye raised on the farm of J. Myers was also shown. There were 4,700 grains, all the product of a single grain, which produced 82 separate heads.

Some very handsome fruit was exhibited: H. M. Engle had the Ott, Bloodgood, Kirtland, Rostizer and Oshand's Summer, all genuine. Daniel Smeyeh, pears, Manning's Elizabeth; apples, All Summer; peaches, Hale's early; all genuine.

John Brady, seedling pear, beautiful and good; would be worthy of a trial.

Two bunches of grapes were shown by Mr. Smeyeh, Allen's hybrid; these grew on the same vine not a foot apart: one was fully ripe and the other would not have been for weeks. The reason for the difference was that the ripe raceme hung in his hot house and the other in the open air.

On motion, a bill of expenses was ordered to be paid.

There being no further business before the society, a motion to adjourn was carried.

TOBACCO GROWERS' ASSOCIATION.

The Lancaster County Tobacco Growers' Society met in the room of the Agricultural Society on Monday afternoon, July 15th, at 2 o'clock, the following members being present: Messrs. M. D. Kendig, President, Manor; Webster L. Hershey, Secretary, East Hempfield; Wash. L. Hershey, Chickies; J. Hoffman Hershey, East Hempfield; John Brady, Millersville; Henry Shiffner, Upper Leacock; Sylvester Kennedy, Salisbury; J. M. Johnston, city; Adam H. Herr, Witmer; Frank R. Diffenderfer, city; Clare Carpenter, city; A. C. McIlvain, Salisbury.

Messrs. Webster L. Hershey, Henry Shiffner and John Brady were appointed a committee to prepare business for the meeting.

Reports on Crops.

Crop reports being called for, Sylvester Kennedy, of Salisbury, reported that in his section the growing crop had suffered considerably from the cut-worm, but that its ravages had about ended. A long spell of dry weather had also tended to prevent an early setting out of the plants, and had retarded their growth; but latterly the weather has been more favorable and the plants are doing well. The green-worm or horn-worm has not yet done much damage, and the moths from which it comes are not numerous. The acres planted in tobacco in his neighborhood this year is not much more than one-half as many as were planted last year; but farmers seem determined to bestow more care on the crop and raise a better article than they have heretofore raised, as they have learned that buyers seek only a good article and are willing to pay a good price for it. Nearly all the 1877 crop has passed out of the hands of the growers.

Washington L. Hershey, of Chickies, reported that the crop in his neighborhood was well started and promised to yield well. The cut-worm had not much interfered with the young plants, and the green-worm has not as yet done much damage. There is yet some 1876 and 1877 tobacco in first hands in the township, some of it being yet in bulk.

J. Hoffman Hershey, of Rohrerstown, said the new crop looks well; some of it has already been topped; in many places it is growing irregular, owing to replanting. Some of the plants, on account of unfavorable weather, did not get a start for nearly four weeks, but they are now doing well. There had been some trouble with the cut-worm, but that was about over. The green-worm has put in an appearance, but has not yet done much harm. The acreage is perhaps a little less in East Hempfield than it was last year, but he has no certain means of knowing. There will be more care taken in putting up the tobacco this year than last. The last year's crop has been nearly all sold.

Henry Shiffner, of Upper Leacock, said the crop in that township looks very well, though it is just now suffering for want of rain. A good deal of the tobacco has been already topped, and a little of it has been cut off. He knew of one farmer who cut his tobacco on Thursday last, and it appeared to be fit to cut. The cut-worm was very bad in some patches, and the replanting had given the patches a very irregular growth, some of the plants being almost mature while others had just commenced to grow. The average in Upper Leacock is nearly one-third less than last year. The old tobacco (last year's crop) has been nearly all disposed of.

John Brady, of Millersville, could not positively say whether there was more or less tobacco planted this year than last. The cut-worm had been bothersome and destroyed many plants, and the replanting had given some fields a very uneven appearance. None of the tobacco had been topped, nor would it be ready to top for two weeks yet.

Webster L. Hershey said that in the northern part of East Hempfield the tobacco was very backward—was very far from being ready to top—much less to cut off. Much of the crop is just fairly coming on, and will not be ready to top for some time yet. The crops of 1876 and 1877 have been nearly all bought up.

The committee to prepare business for the meeting reported the following questions for discussion:

"Why should early grown tobacco cure lighter than late?"

"What causes what is known as black rot in tobacco, noticed so frequently in the present planting?"

In answer to the first question Mr. Brady answered that it was because the early grown plants matured and were housed during the hottest and lightest part of the summer; that the light and heat cured the leaf too rapidly. Plants set out later mature later in the summer, when the days are shorter and the light not so strong. This causes the leaf to cure slower and gives it a darker hue. He thought sparing the stem had a tendency to make the tobacco cure lighter. He thought tobacco should not be planted earlier than the second week in June.

President Kendig agreed with Mr. Brady that the stronger the light was the lighter the tobacco would cure, and vice versa.

Henry Shiffner believed that if proper attention were given to early cut tobacco it would cure just as well and as dark as that cut later. Tobacco in curing wants moisture, and if this is given it will cure dark. He closes his shed during the day and opens it every night to let in the damp air. After cutting off his tobacco he takes it directly to the shed and hangs it up, before it has wilted.

Sylvester Kennedy said that before the society undertook to decide why it is that early planted tobacco cures lighter than late it should be ascertained whether it does cure lighter. If it does not, then there is an end of the question. He was inclined to think there were other causes than early planting that caused the leaf to cure light. If the plant is allowed to become too mature the leaf will cure light; if cut too young it will cure green. His own early planted tobacco had turned out better than that which he planted later, and cured quite as dark. It is well known that grass cut off and dried rapidly makes better hay and has a better color than that which dries slowly. Why should not the same effect follow the rapid drying of tobacco? All that is wanted is to cure it in the shade in a dark place. He believes that early plants will generally do better than late ones, though a good deal, of course, depends on the condition of the season.

Henry Shiffner said one reason growers have light tobacco from their early plants is because they top them too high. The season being early they think they can get a few more leaves on a stalk, forgetting that the earliest plants are so near mature that they have no strength to fill out an additional number of leaves. Early tobacco should not be topped any higher than that planted late.

Webster L. Hershey said that his crop of 1877 may have been an exception to the general rule, but he had noticed that that which was cut on or before the 15th of August cured darker than that which was cut on or after September 1st. As the early tobacco grows when the days are longest and lightest it may make some difference.

The question, "What causes what is known as black rot in tobacco?" was postponed for discussion at the next meeting.

Place of Meeting.

After some discussion relative to procuring a permanent place of meeting, a committee appointed at a former meeting was continued, with instructions to confer with the officers of the agricultural and horticultural society and ascertain if their room could be secured for the meetings of this society.

Henry Shiffner and Sylvester Kennedy made brief speeches to the effect that if the tobacco growers did not take enough interest in the society to become members of it, and pay the trifling annual membership fee of fifty cents, it might be well to disband.

The speaker did not think it fair that a dozen men should bear all the expenses of an organization in which all the tobacco growers of the county were interested. If the society receives no better encouragement let it disband, and those members who choose to do so can meet each other informally and have a social interchange of views as to growing tobacco. It is not fair that a few should do all the work, bear all the expenses, and allow the whole county to avail themselves of the benefits of their labors by sitting at home and reading the proceedings in the newspapers. It was suggested that the reporters "pitch into" this class of farmers, and show them that duty and interest demanded that they should connect themselves with the society.

Foxy Tobacco.

Mr. Kennedy asked for information as to what caused the foxy appearance that tobacco sometimes has, and what will prevent it? He was of the opinion that brine or weak lye might act as a remedy.

John Brady said he had heard that pulling the stock enough to disturb the earth about the roots of the plant, but not enough to injure its growth, had been adopted with good results.

After some other remarks had been made it was resolved to continue the question for discussion at next meeting.

Frank R. Difenderffer and Clare Carpenter were proposed and elected members of the society.

A bill of \$5 for services as janitor was presented by Jacob Heline and paid. Adjourned.

BEE-KEEPERS' ASSOCIATION.

The regular quarterly meeting of the Lancaster County Bee-Keepers' Association was held in the room of the Agricultural Society, City Hall, Monday afternoon, August 12.

The meeting was called to order by President P. S. Reist.

The following members were present: Messrs P. S. Reist, President, Litz; Elias Hershey, Paradise; J. G. Martin, Earl; Amos G. Wenger, Mastersonville; Tobias Eshachrist, Manor; Samuel Erb, Warwick; G. S. Lintner, Lancaster; John Metzler, West Earl; Isaac Shirk, West Earl; J. F. Hershey, Mount Joy; D. T. Seldomridge, John Huber, Pequea; Daniel Kreider, East Lampeter; J. F. Shaefler, Upper Leacock.

The President then read a paper closing as follows:

There are three kinds of bees in every prosperous hive—the drones, the queen and the workers. The workers constitute the main body of the colony. These do all the labor, but live only about two months, and are the smallest. The drones are the male bees, fewer of which are raised in a hive, and are always destroyed after the honey season. They fecundate the queen, do no other work and are clumsy and nearly as large as the queen herself, but are drones in every sense of the word.

The queen bee is the only perfect female in the hive. She is the mother of all the others. No swarm can exist and prosper without the queen. There can never be two queen bees in one hive. She leaves the hive when about seven days old to meet the drones for the purpose of becoming fertilized, and never leaves the hive again, except with a swarm. The queen sometimes lives three years. She is capable of laying one hundred thousand eggs in one season.

There are four substances secreted in gathering by the bees, viz: pollen, or bee bread, "propolis," wax and honey.

A great deal depends on the management of bees and the handling thereof. There is a spring, summer and winter management, natural and artificial swarming, feeding, the kinds of hives or boxes; the destruction of fruit. These subjects, together with the management necessary for every month in the year, will make good questions for our consideration to-day. The study of bee life and how to treat them so as to receive the most good from their labors, is a most interesting one and well deserves the attention of both farmers and scientists.

Reports as to the condition of the honey interest being called for,

G. S. Lintner said that his bees had not done so well this year as last year. In the spring he started with eight hives and had increased the number by swarming to 16 hives, and had left about 75 pounds of surplus honey. After he had divided his hives in the spring the weather became cold, and his bees have not done so well as they would have done under more favorable conditions.

J. F. Hershey said that during the cold weather of the spring his bees were in a starving condition, and would have died had he not fed them. He started with 62 hives, and had about the same number now, besides some 40 small hives started to raise queens. Since July his bees have been doing well, and he would have had more surplus honey had he not raised so many queens. He lost no bees from inclement weather during the winter or spring.

John Huber, of Pequea, reported that he kept the black bee. Those colonies which had not swarmed made a good deal of honey up to time of haymaking, from which time they have not done so well.

Elias Hershey stated that he started in the spring with 15 hives and had increased them to 27, and that they had averaged about 25 pounds of surplus honey per hive, and are still busy making honey. He keeps the Italian bee.

J. G. Martin, of Earl, started in the spring with 15 hives and had now 25, besides which he had sold six hives; returned some swarms to the hive. He had taken off during the season about 500 pounds of honey, and his bees are still doing well. He had used with perfect success a good deal of comb foundation in the main hives. He lost no bees during swarming, though in the cold spring weather they had done very poorly.

J. B. Eshleman, who could not be present, sent in a report to the effect that he had eight natural and one artificial swarm. In the spring all his stock was strong and vigorous, but the cold weather had interfered with them. He had, however, secured about 500 pounds of honey, and the late refreshing rains were favorable for a continuance of honey-making.

Daniel Kreider, of East Lampeter, said he started with 9 hives, has now 14 hives, sold one hive, and two he lost. He expects to take out about 250 pounds of honey. The second crop of red clover being very good, the bees are hard at work and doing well.

J. F. Sheaffer, of Upper Leacock, stated that he started last spring with 9 hives, has now 20, some of his hives having swarmed once, and some twice. The young bees are doing well, with boxes full and hard at work. He never before saw Italian bees do better in July; he has taken off no honey yet except for family use. Some have made two boxes full of

20 pounds each. Had one swarm of black bees that did not do well; done nothing in July. Sold one hive last year to Martin R. Shaefler for \$25, insured for 60 pounds. It swarmed twice, and the three hives have made over 130 pounds. At the present time he has seven stocks and plenty of surplus honey.

B. T. Seldomridge says his bees have done well this season. He had 8 hives and sold 3, all of which swarmed twice. Of the remaining 5, 2 swarmed naturally and the other he swarmed on June 17. The hive has a 20 pound box of honey filled, and another box is fast filling. He keeps Italian bees. Never knew them to do so well in July before.

Amos G. Wenger, of Mastersonville, had several hives of Italian bees, one of which swarmed on the 26th of April, and the other on the 5th of May. He had, unfortunately, got two queens in one hive; one of them was killed and the other did not do so well. He thinks he will get about 350 pounds of honey.

Peter S. Reist stated that in those sections where the corn was doing well, the bees were doing well, and vice versa, which would indicate that enough rain to make a good crop of corn was necessary to make a good crop of honey.

J. F. Hershey said the rule was that in dry weather (if not too dry) the bees made the most honey.

Mr. Reist said that he had started with 30 stands, and had given 15 of them to a man to keep "on the shares." He had 17 swarms and a good deal of honey, but cannot say how much; but the bees are doing well and still storing honey.

Questions Discussed.

The President read a number of questions for discussion, and the following were discussed:

"Do bees select a new home before they leave the hive? and how can they be prevented from going away?"

J. F. Hershey said he thought they did not select a new home before swarming. They swarm in clusters, and then if not cared for send out skirmishers to seek a suitable home and go to it. The best way to prevent them from going away is to cut one of the wings of the queen, so that she cannot fly. When she falls down the bees will follow her and may then be easily hived.

J. G. Martin says he always cuts the queen's wing and has never lost a swarm, but has occasionally lost the queen. In cutting the wing he takes off about one-half of the largest part of one of the wings, the wings being double. When he lost his queens, as above stated, the bees arose and returned to the hive in which there were queen cells.

Mr. Lintner preferred dividing the hives, and thus saving the trouble of swarming. If the bees should swarm they could be battled and brought back by the reflection of a looking-glass; he had frequently done this, and related several instances in which he was always successful.

J. T. Sheaffer believed that throwing stones, sticks or dirt at them was as good a way as any to bring back a runaway swarm. Let them know that you are their master and they will not go far from home.

Elias Hershey thought sometimes the bees know where they are going to before they swarmed, and sometimes they do not.

The President was inclined to believe that they knew beforehand where they were going. It might be that they were sometimes confused and lost their reckoning when clustered, and then sent off skirmishers to find their destined home.

J. F. Hershey said he had known cases where bees were seen busily working in a tree and next day not a bee was to be seen there. In a day or two afterwards, however, a swarm of bees would be found in the tree. The pioneers had evidently been there, prepared the place and piloted the swarm to it.

"Do Bees Gather Honey or Make It?"

J. F. Hershey said they gather it. If they made it it would always be of the same quality. After being gathered it undergoes no process except that caused by the evaporation of the water it contains.

J. G. Martin said he had fed sugar syrup to bees and it never changed—never became honey.

Mr. J. F. Sheaffer agreed with Mr. Hershey. The flower from which the honey is gathered gives it its flavor. If from clover it will have a clover flavor; if from apple blossom an apple flavor.

"What is Honey Dew?"

Elias Hershey and J. G. Martin said it was the deposit left on leaves by certain species of aphides.

"Can a Locality Be Overstocked with Bees?"

J. F. Hershey said 18 years ago there were 13 stands of honey within a mile circuit of his residence. Now there are 250 stands, and each hive stores as much honey as they had done formerly. He thinks there is no danger of overstocking.

The President asked for best remedy for bee stings.

Elias Hershey said, "put honey on the wound at once."

J. F. Sheaffer said "put on spirits of ammonia, or as a substitute any alkali, as soda, salsaratus, etc., but the best way is not to get stung."

J. F. Hershey said all he does is to extract the sting. One can get used to be stung. His flesh, if stung, does not now swell as it did formerly. To re-

due the swelling a piece of raw onion applied is good.

The President said he was badly stung on the nose recently, and reduced the swelling by applying cold water.

Elias Hershey asked: "What is the best way to get bees out of the honey box?"

Mr. B. T. Seldomridge said his plan was to bore a hole in the box, blow tobacco smoke into it, and the bees will leave it in a minute, so that you can safely remove the honey.

J. F. Hershey said too much smoke would flavor the honey with tobacco. His plan was to lift off a full box from the top, replace it with an empty box, and tap on it. Then all the bees will rise into the empty box and the full boxes below may be removed.

President Reist asked which was preferable, natural or artificial swarming?

Mr. Lintner answered that artificial swarming is preferable to natural swarming if you want to raise stock. If honey is what you want let the bees swarm naturally. His plan in artificial swarming is to make three hives out of two, by driving all the bees from hive No. 1 into an empty hive; set the empty hive where No. 1 sat; set No. 1 where No. 2 sat; and set No. 2 in a new place. The hives out of which the bees have been driven and in which there is nothing but brood will be supplied from No. 2 hive, which originally sat there, while No. 2 will still have enough left to stock it.

J. F. Sheaffer described a somewhat similar plan of artificial swarming, but advised amateurs or those who did not thoroughly understand bee culture, or who did not have the time or inclination to pay constant attention to them, to forego artificial swarming and let bees take their natural course in swarming.

President Reist stated that he now left his bees on their summer stands during the winter. He formerly wintered them in the cellar. Which is the best plan?

J. F. Sheaffer said he always leaves his bees on the summer stands; he covers them with corn-fodder or straw; and has not lost a single stand. It is well to shelter the hives in severe weather, but leave the entrance open.

J. F. Hershey has heretofore wintered his bees on summer stands, but last season he built a house for them and stored seventy-four stands—all of which came out well in the spring. He has the house so arranged that it can be either ventilated or closed entirely. He keeps it at a temperature of 45 or 50 degrees. The bees don't consume near as much honey as formerly. The house is dug out four feet below the level of the ground, and the ground thus excavated is thrown up around it, making it eight feet high. The ceiling of the bee house is covered with sawdust to prevent sudden change of temperature. The house is also provided with a system of cold air tubes and doors, by which the temperature may be prevented from becoming too warm in mild weather. He puts his bees into the house late in November, placing the strongest and more vigorous colonies below and setting the others on top of them. In February, if the weather be fine, he gives them "a flight" and then shuts them up again. This plan of wintering he has found very successful.

J. G. Martin exhibited before the society a case of very beautiful honey in the comb. The case consisted of twelve boxes, each of which contained a pound or more of honey just as the bees had stored it. The boxes were $1\frac{3}{4}$ inches in width, 5 inches in depth, and $5\frac{1}{2}$ inches in length, and so arranged in the hive that the bees can gain access to each, but cannot cement two or more boxes together. Mr. Martin's honey and the construction of his hive were highly commended.

Adjourned to meet at the same place on the second Monday in November.

LINNAEAN SOCIETY.

The Linnaean Society held their stated meeting on Saturday, July 27, 1878. In the absence of the President and Vice President, on motion of J. Stauffer, Dr. S. S. Rathvon took the chair. The opening duties being attended to, on examination the donations to the Museum were found to consist of a bottle of sundry kinds of insects, collected in the vicinity of Rocky Springs on the 12th inst., by S. S. Rathvon; two slabs of the finely laminated smoky mica, found in a quarry within the city limits of Philadelphia, per D. McN. Stauffer; shells and pebbles from Rockaway Beach, Long Island, collected on the 25th inst., per S. S. Rathvon. J. Stauffer also met with and collected for the first time a cruciferous plant with thick fleshy leaves, that only grows on the shore of the sea and the great lakes, the "Cakile Americana," or sea rocket. He also found a low bushy form of the "Ampelopsis Oquingefolia" (Virginia creeper.) This grew among several species of heath, and showed no disposition to climb—perhaps because there was nothing close enough to cling to, higher than itself.

Wilmer P. Bolton also brought in a specimen of the yellow fringed orchis, the "Habenaria ciliaris;" the wild "American Turk's cap lily," the "Lilium superbum." This latter is a native species, worthy of the garden for its rich orange-color and spotted petals. Mr. Bolton had with him two other undeveloped

plants; the one had the characteristics of a Chenopodium, only rather tall and large in the leaves; the other that of an "Andromeda."

The additions to the library were the proceedings of the Academy of Natural Sciences of Philadelphia; the proceedings of the American Philosophical Society, vol. xvii., January to June, 1878, No. 101; THE LANCASTER FARMER for July, and a paper containing natural history, called "The West Shore," Portland, Oregon, per *Examiner* office. Books, circulars, etc. To the Historical, were added three envelopes containing forty clippings, per S. S. Rathvon; a canteen marked "L. R., Battery No. 1," per Linnaeus Rathvon; a fac simile of the original draft of the Declaration of Independence in the handwriting of Thomas Jefferson before the anti-slavery clause was eliminated.

The only paper read was a descriptive list of the insects captured on the 12th inst., at Rocky Springs, per S. S. Rathvon, No. 499. Mrs. Zell reported portions from a letter received from Mrs. P. E. Gibbons, now in Paris. Messrs. Bolton and Stauffer compared botanical specimens and found the Linnaean collection of service and the arrangement complete.

The small attendance of members was remarked. No notice had been put in the papers. This, it was observed, was not required, as no provisions were made to pay for such notice, and no one's duty to impose upon the generosity of the press, as heretofore, to print them gratuitously. Since it is the duty of every active member to know that the *last Saturday* of each month at two o'clock, p. m., is the fixed and stated time of meeting, surely every one can remember it. "If there is any activity in the active members they ought to attend without special notice," was the concluding remark. On motion, adjourned to the last Saturday in August, the 31st.

AGRICULTURAL.

Wheat Growing.

The success in growing wheat in Pennsylvania the last couple of years, should stimulate us to raise a greater average per acre than has been the case in many portions of the State. We notice that as much as an average of thirty bushels have been obtained this year in some of the Western States; and we are well aware that the yield has been much increased this year in Pennsylvania. Of course there are various causes influencing success. That which might be an aid at one point, may be an injury at another. But there are one or two matters that wheat growers are apt to forget. The first is that as a general thing it is well understood that manure must be liberally applied to induce a good crop; but many persons plow it under, and it is not until the plant has set its roots deep down into the soil that it derives much benefit from the manure. But if the manure is so placed that the young rootlets could push at once into it on germinating, it would get an early start on its vital course, which will aid it largely against any future drawbacks.

In the second place, few persons have any idea of how manure operates in making roots. If we bury a shovelful of manure some distance from a thrifty tree in early spring, and examine it again the ensuing fall, we find the lump of dung a complete mass of roots, while the earth in other parts contiguous has but a few straggling ones. Some people think that the roots are attracted to the spot by the manure, but it is not so. They are actually created by the manure. A leading root stuck into the rich mass, and finding plenty to eat, at once sets to work to increase and multiply. Contact with the manure, therefore, makes roots; and the principle in successful wheat culture should be to place the grain and the food as close together as possible, if we would encourage it to root out well and get a good start. We all know very well how this is done with corn. Manuring in the hill is almost universal practice; but where it is not, the result is well known. We repeat, therefore, give the crops an early start. It has a wonderful influence in its efforts in after life to come out well.

Condition of American Agriculture.

The reports that reach us from all parts of the union represent the agricultural interests to be so generally prosperous, flourishing and in good condition that the return of active trade seems to be unavoidable. The truth is, that while under the influence of the epidemic insolvency the trading classes have been ruining each other and preventing any possible reaction in the prices of merchandise, the farmers, gardeners and planters have done business for cash, have made sure of their profits and have not suffered from the operations of the bankrupt law. It is beyond question that the immense increase of the national exports is mainly due to the drift of the social current, that has forced so large a proportion of the bone and sinew of the republic into agriculture as the chief resource of the nation. So prodigious have the crops become that it seems ridiculous to find railroad managers talking about the insufficiency of the national products to supply a paying business to a few trunk lines. If the farmers and planters can obtain adequate facilities for transportation to

market the country can furnish produce enough to amaze the commerce of the world. The latest foreign demand before us in this way is live stock to be shipped alive to Europe to be there bred for use, and this includes horses, beesves, sheep and swine. The field opening before American agriculture is, in fact, practically limitless, and now we have got the upper hand, fairly and fully, it will be our own fault if we do not keep it. We can feed and clothe the civilized races of all the world. This something worth thinking about and boasting of.

Fertility of Dairy Farms.

In refuting the often expressed opinion that the soil of dairy farms becomes poorer by the abstraction of phosphates sold in the milk, the *American Agriculturist* gives the following figures: "One thousand pounds of milk contain about three to four pounds of phosphates, of which nearly the whole is phosphate of lime. Of this less than half is phosphoric acid; five thousand pounds of milk, therefore, contain but seven and one-half pounds of phosphoric acid, which may be taken as the yearly consumption in this way of each cow. As wheat bran contains 2.9 per centum of phosphoric acid it needs only that about two hundred and fifty pounds of bran be fed to each cow, yearly, to replace the draft upon the soil. There are few dairy cows that are fed less than this quantity of either bran or some food equivalent to it, and it is pretty certain that very little if any phosphoric acid is really taken from the soil of dairy farms. On the contrary, to say nothing of the natural supply in the soil, which slowly becomes soluble, there is good reason to believe that every well-kept dairy farm becomes gradually richer in phosphates every year.

Salt and Soot as Manures.

The Germantown Telegraph has published the following relative to the value of salt and soot as manures: Mr. Cartwright received from the Board of Agriculture the honorary reward of a gold medal for a valuable set of experiments made by him to ascertain the value of salt in agriculture. On the soil he used, nearly three-fourths was sand; the remainder consisted of calcareous and vegetable matter, with alumina and a small quantity of oxide of iron. Having tried all the usual manures alone and differently combined, he found that mixed manures and soot were superior to all other. The produce upon which these experiments were made was potatoes, and it was observed that wherever salt was used this root was free from scabiness, with which it is commonly infected. One peck of soot and a quarter of a peck of salt were used to a bed one yard wide and forty yards long." Our correspondent, "A Northern Gardener," in another column speaks highly of the value of salt and soot as manures for potatoes, and we know him to be an experienced and successful cultivator.—*London Journal*.

Loss of Phosphate.

A. B. Prescott, in the *Popular Science Monthly*, writes: "When phosphate fails at the root of the plant, grain fails at the mill, phosphates fail in the bread, the bones and teeth fail in growing bodies. The improvidence that leaves excretory phosphates to be washed away to the salt sea, farther from the reach of life than if they were in the primitive rock, is an improvidence that prepares an inheritance of poverty for after generations. And the ruthlessness that permits the purveyors of food to sift phosphates from the food of man, does its part to enfeeble the present generation." No one doubts the truth of all this, and yet farmers will continue to let the water run through and out of their gardens and pig-peus, and the millers will take the phosphate out of flour in the form of bran, because their customers demand white flour, and it cannot be supplied in any other way. All know and admit that both are wrong, but still keep on in the old way, and will continue to do so.

Interior Fences.

The interior fences of farms occupy more space and cost more money than the outer fences, while they are almost entirely unnecessary. In the majority of cases pasturing the cultivated land costs many times more than the little grain derived from it. The pasturing of mowing lands and newly-seeded stubbles, as a rule, is very injurious, and when, under exceptional circumstances, this is desirable, a temporary fence of portable hurdles might be profitably used. It may be beneficial to have a permanent pasture lot upon every farm, and where there is a roughish piece of land, it may be so used. But it will be found profitable to fence a small plot in a convenient place for the stock, and feed them there with green fodder, grown and cut especially for them, than to make a practice of indiscriminate pasturing with the necessary maintenance of interior fencing at high cost.

MAKE a calculation as to how much corn and other grain crops you will require, raise good crops, and you will soon see the folly of using three to five acres to pasture a cow when she can be soiled on a half acre.

HORTICULTURAL.**Rapid Growth of the Aloe.**

Perhaps the most remarkable instance of rapid vegetable growth that has been heard of since the famous bean-vine of Jack the Giant-Killer, is one which has been related to us by Professor Stowe, of an aloe, or century plant, now growing on the grounds of one of his neighbors, at Mandarin, Florida. This aloe, during a period of several weeks from the last half of April to the latter part of May, actually increased in height at the rate of twelve inches a day—or half an inch an hour, night and day—until it attained a height of forty-two feet. Having reached that height, the tree (for it is nothing else than a tree) leaned over on a neighborly orange tree to take a rest. When Professor Stowe left Mandarin, the last week of May, the flower stems had come out, but up to the end of June it had not yet blossomed. The American aloe, according to the English Cyclopedias, has a period from ten to seventy years, according to the climate. "When fully mature it produces a gigantic flower-stem, forty feet in height, and then perishes." In Florida one sees many of these plants, in various stages of growth; but we think there are few cases in which the growth is so rapid as in this one related by Professor Stowe.—*Hartford (Conn.) Times.*

Where to Plant an Apple Orchard.

The best site for an apple-orchard—and we may add a peach-orchard, also—is undoubtedly a northern exposure. Experience in every direction proves this. We do not say that apples will not do well in valleys or southern exposures, but not uniformly so well, by any means. Any one who chooses to know ought to be informed that uniformity of temperature and retardation in budding are everything in preserving the health and promoting the productiveness of any fruit tree. An orchard planted, say in this latitude, on a hillside with a full northern exposure, always stands the winter and is uniformly productive. That with a southern exposure, planted in a valley, or protected by belts, is liable to constant changes of temperature; buds early and subject to late frosts, which prevail in low situations only, and to consequent destruction of the crop of fruit.

It may be just as well for those who may contemplate setting-out an orchard this fall to bear this in mind. All desire to know the surest way to success in any crop, and this is undoubtedly the surest way in apple-growing, and in peach-growing.—*Germantown Telegraph.*

Growing Chestnuts.

We have on repeated occasions suggested the growing of chestnuts upon soils where but little else will grow, as a means of profit, both in fruit and wood. The chestnut is rapid in its growth, and will in from eight to ten years begin to bear a crop of nuts from seed. This seed, however, should be planted as soon as the fruit is ripe and before it becomes dry, and should be planted where the tree is desired to stand. Chestnut will thrive almost anywhere, and would be especially valuable where timber is scarce and rough land abounds to appropriate to the purpose. A good selection of the American chestnut is the best. Our nuts are much superior in quality to Spanish, French or Italian, though not nearly so large, and even grafts can be set with the ease and certainty of the pear. There is always a market demand for the nuts greater than the supply, or any supply likely to be furnished.

The question is one of real interest in every section where scrub-land is abundant and timber scarce; or wherever there is such land, as a means of profit with reference only to the fruit.—*Germantown Telegraph.*

Asparagus Planting in Summer.

It is not generally known, as it ought to be, that asparagus beds may be set out in midsummer, and will do very well if properly done. Select new plants in the old beds, which have sprouted since spring from last year's seeds, and plant in beds of deep rich soil, of course removing all the tops and setting the roots three inches below the surface. Be very careful to prevent the roots from drying while transplanting. Set two feet six inches each way, and when the place or hole is made for the roots fill with water, and let it alone for a couple of hours for the water to soak away, and then plant. On taking up the young plants they should be put in a pan of water, and taken from the pan one by one as they are set in the holes thus prepared, pressing them in firmly, in order that they may take instant hold of the soil and go on growing, as they will, with scarcely any delay. Asparagus roots thus set will yield sprouts for cutting one year from the ensuing spring.—*Germantown Telegraph.*

OLD trees may be renovated by cutting out the crowded branches, manuring, and giving the trunk and larger branches a wash of lye or soft soap, and scraping.

DOMESTIC ECONOMY.**Cottage Cheese.**

Those who have plenty of milk, and make butter, have an abundance of sour or clabbered milk daily clean and fresh, which is the article desired to make cottage cheese. The true way to make this sort of cheese is to skim the sour milk and set a gallon or two of the milk on the stove in a milkpan and let it gradually warm till it is lukewarm all through. Stir occasionally to prevent its hardening at the bottom. When it is a little warmer than new milk, pour it all into a coarse, thin bag, tie it close, and hang up to strain. Let it hang for two or three hours in a cool, shady place, then take from the bag, and put the contents in a covered dish. When preparing for a meal, mix with the curd rich sweet cream, sugar and nutmeg. Some prefer salt and pepper, but the sugar will give it the flavor of fruits or acids. This preparation of milk will often be found salutary and wholesome for dyspeptics, and weak and inflamed stomachs. The clabber is also very nutritious and easily digested.

The Art of Making Coffee.

The art of making coffee consists in observing one or two simple things. First of all, it should be freshly ground; the next thing is to draw out the full strength and aroma, and at the same time preserve the fluid perfectly clear and free from grounds. The French are generally allowed to be the best coffee makers in the world, and they allow one ounce of coffee to each coffee cupful of water. Two pots are used in the making. Into one boiling water is poured on the ground coffee and allowed to remain four or five minutes, when it is poured off as clear as possible. The grounds are then boiled with the remaining water for two or three minutes, and both lots mixed together. To make the grounds settle, half a cupful of cold water is sprinkled over the decoction; this descends to the bottom, carrying the grounds with it. Coffee may be clarified also by adding a little white of an egg.

White Specks in Butter.

A correspondent asks the cause of hard, white specks in butter, and how to avoid them. There are several causes for this defect. It always occurs with the milk of some cows, and in this case cannot be avoided. In other cases it is caused by an acid condition of the milk; it is then remedied by putting a pinch of soda in each pan of milk as it is set away. Sometimes it is caused by the milk standing too long and the cream being too sour, when particles of curd become mixed with the butter in churning. The proper course to pursue is to find out which of these causes is acting, and apply the obvious remedy.—*An Exchange.*

To Cure Dogs of Killing Chickens.

Take the chicken that has been killed by the legs, and after beating the dog with it, pass the leg each side of the dog's neck and tie the feet together, so that the chicken hangs securely fastened to his neck. After carrying the chicken around for a day or two the dog will be so thoroughly disgusted with chickens in general that he will not be apt to trouble them again.

Household Receipts.

BRANDY PEACHES.—"Merrythought" in the County Gentleman says: Put into a broad, shallow preserving pan five pounds of broken loaf sugar, with just enough water to keep from scorching. Let it melt slowly and then come to a boil. In the meantime take 8 lbs. of fine, ripe, freestone peaches, as nearly of a size as possible. With a clean flannel rub off the down, but it is well while doing so to tie a handkerchief round the throat, as, with many people, the floating down irritates the skin of the neck to a painful extent. Now prick each peach to the stone in several places with a silver fork. When the syrup is boiling drop in four pounds of the peaches, which will be enough in the pan. Boil slowly and carefully turning them occasionally, till they are tender and of a clear amber or pinky hue, according to their kind. Then take out carefully and lay in wide-mouthed glass jars till the jars are two thirds full. Prune jars are capital for this. Now boil the other four pounds of peaches in like manner, in the same syrup, adding if you fear it is getting too thick, a cupful of water. When done put them also into jars. Now add to your syrup two quarts of the best old rye whisky, and one quart of the best high wines, boil briskly for ten minutes and then pour hot over the peaches. If anything is left over, keep it in a pitcher, for next day the peaches will have absorbed so much that the jars will need filling up. When cold, cover closely, and put in a cool place, and you cannot be at a loss for an extemporary dessert all the year round—especially if you have as I have, the cream of a beautiful Jersey cow to pour over the peaches when brought to the table.

TOMATO PIE.—Take six or eight tomatoes, two lemons, one tea-spoonful flour, and sugar to taste. Crust top and bottom.

LIVE STOCK.**Lean Cattle for Europe.**

Good news for American stock-breeders is the demand for live cattle by German and English farmers. Recently a ship load of Western cattle were landed in Tönning, to be fattened on the rich pastures of Schleswig-Holstein. Relative prices of young stock there and in this country warrant the importation of these young lean cattle for the purpose. This cargo, numbering 322 head, 15 horses and 46 swine, besides some fat cattle, horses, and swine for England, were purchased at Chicago, and were so well received by the German farmers that the vessel was at once sent back for another lot. "The ship arrived in the harbor under salutes of cannon and a display of flags, and hundreds of people lined the quay." There is also quite a demand in England for lean cattle and hogs for fattening; and in the embargo against the importation of live cattle at English ports, an exception is made in favor of those from America. This, together with the increasing call for finely bred stock from this country for Europe, argues well for our agricultural interests. The more our attention is paid to stock-farming, instead of such exclusive grain and other crop production, the better will it be for our farming. English agriculture dates its present advanced position from the beginning of heavy stocking of its farms and generous feeding, which added largely to the fertility of the soil, and caused a consequent increase in the yield of crops.—*American Agriculturist.*

Brine for Bathing the Feet of Horses.

A correspondent, writing to the *Practical Farmer*, in relation to the use of salt and lime for bathing the feet of horses says: "I have tried strong brine on foaled or hoof-bound horses, and with good results. I made a solution of salt and water and applied it three times a day, by washing the legs and pouring upon the bottom of the feet, and holding them up a few minutes to let it strike in. I saw the wonderful effects in a few days. I account for it in this way: Salt will extract moisture from the atmosphere which keeps the feet moist. Salt operates nearly like melted grease upon the feet. The hoof becomes tough, yet pliable. Like a chunk of wood saturated with salt or brine, it is tough yet moist. Thus it is with a horse's foot. Here let me add, that the practice of rasping a cracked hoof to toughen it is folly. Apply brine and you will effect a cure. A horse that is driven upon a hard road is liable to get stiffed. I have seen valuable horses driven upon our own plank roads a few days get quite lame. I reasoned to myself as to the cause and adopted the use of brine as a remedy, which proved effectual."

Sawdust for Cleaning Horses.

I have been experimenting to find a way to avoid the dust that is so disagreeable when grooming horses, and have found a way by which a dirty horse may be cleaned in a few minutes. I use oak sawdust; that which comes from a green log is just moist enough to be good. I have tried pine sawdust, but did not like it, because, after a time, the pitch in it will make the hair a little sticky, and of a dull color. Sprinkle a few handfuls over the horse on the side that you are on; then commence at the tail, and with a circular motion of the currycomb toward the head carry the sawdust into the hair; brush off and apply an another dusting, and then brush off clean and the dust and dandruff will be removed without flying around. If the legs are muddy fill the face of a stiff brush with sawdust and rub hard until the fine dust and dry mud begins to fly; then fill the brush again and proceed as before. This operation takes off all the dirt and dust and leaves the hair clean and glossy.

Feeding Value of Corn and Oats.

The results of experiments that have been made with some 10,000 horses of the cab company in Paris, and published by the president of the company, M. Bixio, adds to the testimony of the Omnibus Company of that city last year that the substitution of maize for oats effects a large economy, while affecting no diminution in the working power of the animal. The 10,000 cab horses have been operated upon during a period of five years, their feeding being regulated according to the most scientific principles, and the no less important point attended to—hook-keeping. As compared with the year 1872 a saving of 19 centimes—nearly 4 sous per animal per day—was effected in 1877, representing a total economy for the year of 1,058,610 francs.

Subduing Fractious Horses.

The Mexicans have a method of subduing fractious horses and such as are inclined to run away, which might be introduced here with profit. A hood or winker is so arranged that the driver or rider can in an instant draw it directly over the eyes of the animal, effectually blinding him. When this is done the horse instantly becomes quiet, and a repetition of the blinding two or three times, gradually results in his becoming quiet and docile. Such an arrangement would be a valuable appendage to the head-gear of such horses as are disposed to run away.

POULTRY.**The Narragansett Turkey.**

This is one of the largest and hardiest of all breeds of turkeys. It is raised in the greatest perfection in Southeastern Connecticut and Rhode Island, a region famous for its fine poultry. Turkeys do remarkably well along the sea board, and almost every farmer remote from the village has his flock. It is not uncommon to find flocks of from one to two hundred birds, the product of about a dozen hens, under the skillful management of a poultry woman or boy. Of course they do some damage to grain; but this evil is counterbalanced by the enormous destruction of insects secured. From June to September they subsist mainly upon grasshoppers, crickets and other insects, ranging for the most part in the pastures and woodlands. They are fattened in October and November, and it is not uncommon for a lot of early chicks to reach the average weight of fourteen pounds, dressed, at Thanksgiving or Christmas. The common run of turkeys sent to the New York market do not average more than eight or nine pounds. The Narragansett is a very large, healthy bird, and has been bred for size for many generations. Most of the birds sold in the Boston and Providence markets under the name of Rhode Island Turkeys, or Extra No. 1, are of this breed. The farmers are careful in the selection of their breeding stock, taking young gobblers that will weigh from twenty-two to twenty-eight pounds, and hens that will weigh from twelve to sixteen. Where the birds are kept over gobblers will sometimes dress thirty-two to thirty-four pounds. For making poultry for market the Narragansetts have no superior. The prevailing colors are white and black, with a large patch of white upon the wing bow, giving the general impression of a gray bird. They are not uniform in the shading, but with sufficient painstaking could be bred to a feather.—*W. Clift, in the Poultry World.*

A Varied Diet for Fowls.

There are no animals more omnivorous than fowls; fish, flesh, herbs and grains being devoured by them with equal relish. We say equal, for though they commonly pounce upon meat with greater avidity than upon grain, this is generally because it affords a rarity, and a flock kept for awhile almost entirely on animal food will show the same greed for a few handfuls of corn.

Now, those animals accustomed to use a varied diet should not be confined to an unvarying one. There are, indeed, some species which are naturally limited to one or a few kinds of food. Thus, cattle do well enough, although kept month after month on grass alone, and a tiger will thrive with nothing but lean meat upon his bill of fare. But with other animals, as with the human race, for instance, the case is different, for no person can maintain the highest efficiency when confined to one article of food. No matter how fond we may be of a particular dish, we lose relish for it when allowed nothing else for a number of consecutive meals, and the intense craving for variety indicates as its source something more than mere appetite. It gives evidence of real necessities of the system which are constantly varying with the changing circumstances of weather, employment and other conditions.

The fondness for variety shown by fowls is as significant of real needs as we have found it to be in ourselves. In purveying for them, a judicious variety, selected from the three general divisions—*fresh vegetables, grain and animal food*—is at all seasons absolutely necessary for young and old, in order to make them perfectly thrifty. True, they will not starve on hard corn and water, neither will they pay a profit so kept.—*The Poultry World.*

Origin of the Domestic Turkey.

Many suppose, from its name, that the Turkey originated in the East. Not only does the English name give support to this belief, but the French name, *dindon*, a contraction of *Oiseau d' Inde*, (bird of India,) shows that the same is held in Europe. Professor S. T. Baird, of the Smithsonian Institution, than whom there can be no better authority, has investigated the subject and finds that we have two distinct species of turkey in North America: "One confined to the more Eastern and Southern States, the other to the southern Rocky Mountains and adjacent parts of Texas, New Mexico, Colorado and Arizona; that the latter extends along eastern Mexico, as far south, at least, as Orizaba, and that it is from the Mexican species, and not that from eastern North America that this domestic turkey is derived." One of the points of difference between the two, and the one believed to be constant, is in the color of the tips of the tail-feathers and of the feathers overlying the base of the tail. These are creamy, or yellowish white, in the Mexican and typical barnyard birds; while, in the wild turkey of eastern North America, the same parts are of a chestnut brown color. The domestic turkey was introduced into England in 1241, and some years later became sufficiently abundant to afford the farmer his Christmas dinner. When the Spaniards conquered Mexico the turkey was found in a domesticated state, and it probably

had been reared as a tame bird for several centuries to that time.

Keep Your Birds Tame.

There is one point in poultry management to which we wish to call especial attention, as but few persons who rear poultry for profit ever attach much importance to it, notwithstanding it has a great influence upon the profits. It is to keep your birds tame, whether they are kept up in suitable enclosures during the entire year or permitted to have unlimitted range, for it pays to do so in many ways. If you keep your birds tame so they will come to you quickly at the call and eat out of your hand without any sign or fear or distrust, they will always be quiet and content, and will fatten and thrive much better. This matter is well understood by breeders of the larger kinds of stock, such as cattle, horses, sheep and swine, while there are a sensible few who apply the same principle with poultry. Many a fine nest of eggs has been destroyed by a wild and frightened hen, a hen which had early learned to fear her master or owner. If uniform kindness and gentleness had been resorted to, the hen would suffer herself to be handled while on the nest, and never once think of leaving it in such a hurry as to endanger the eggs. If the poultry on the farm is kept tame it is not a "very difficult matter to catch one or more when wanted for table or other uses.—*American Poultry Journal.*

Save the Best Fowls for Breeding.

It is the worst possible policy to kill all the best and handsomest fowls, and save only the mean and scraggy ones to breed from. This is precisely the way to run out your stock; for like tends to breed like, and the result is, that by continually taking away the best birds, and using the eggs of the poorest, your flock will grow poorer and poorer every succeeding year.

It would seem as though this was too plain to be insisted upon, but, in fact, "line upon line" is needed. It is the crying want of the poultry upon the farms the country through—this careful and intelligent selection of the best for breeding.

Nothing is lost by a little self-denial to start with. The extra pound or two of poultry flesh that you leave on its legs, instead of sending it to the market, is as good seed, and will bring forth tenfold and twenty-fold in your future broods. Save your best stock for breeding.—*The Poultry World.*

Cheap Poultry Yard.

Set posts firmly in the ground, six feet high, eight feet apart. Take No. 9 wire, and stretch from post to post outside, fastening with staples made of wire driven into posts. Place three wires one inch apart, one foot from the ground; another three at three feet ten inches from the ground; another three at top of posts. Take common laths and weave in, leaving three inches space between sides of each. This makes the fence four feet high. Then take other laths, picket one end, and chamfer the other like a chisel blade, and interweave among the top wires; then shove the chamfered edge down beside the top of the bottom lath, lapping under wires two inches. This makes a cheap, durable, pretty fence, that is seven feet and ten inches high, and fowl-tight. Wires should be left somewhat slack, as interweaving the laths will take it up.—*J. W. Lang in the Poultry World.*

LITERARY AND PERSONAL.

AIR-TIGHT BUTTER PACKAGES.—A. J. Finnegan, Minneapolis, Minn., patentee and manufacturer.

HOME-MADE MARURES, by Harrison Brothers & Co., analytical chemists, Philadelphia, Pa.

COMPLIMENTARY NOTICE.—Parents and young ladies, read the advertisement of Trinity Hall School, Beverly, N. J., and send for catalogue to Miss Huut, Principal.

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NEWARK, July 22.

MR. RATHVON.—*Dear Sir:* I see in the Farmer advertised, the Art of Propagation. I inclose 40 cents for the same. I think the Lancaster Farmer is what every farmer should take. Most every number is worth the year's subscription if they would only put it into practice, hoping it much success in the future.

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The August number of THE PENNSYLVANIA SCHOOL JOURNAL is just received. It contains the usual variety of valuable matter. The leading article is a very full and complete sketch of the life and work of Dr. Thomas Arnold, the great Head-master of Rugby. No earnest teacher, whether man or woman, can read this article without profit, and there are those to whom it may come marking an era in their lives. The letters of the State Superintendent, Dr. Wickersham, now in Europe, are also an interesting feature of the number before us. Teachers and Directors especially should be readers of THE SCHOOL JOURNAL. Subscription rate per year, \$1.60. Five copies, \$7.00. Address J. P. Wickersham & Co., Lancaster, Pa.

ELWANGER & BARRY's catalogues of ornamental Trees, Shrubs, Roses and Flowering plants for the fall of 1878 have been received. Also their Descriptive Price list of strawberries, giving directions for their cultivation. Their nurseries are located at Rochester, N. Y., and bear the promising name of "Monnt Hope." Established in 1840. These Catalogues are very interesting and elaborate in their details, being beautifully and copiously illustrated from beginning to end. This enterprising firm is always in advance of all others, and if this be an unmistakable indication of success, then their establishment must be one of the most successful in the country, and from their long experience in the business, this is doubtless the case.

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HARPER'S MAGAZINE FOR SEPTEMBER, 1878.—Harper's Magazine for September, with the two serial stories by Black and Hardy, representing the best work of these two great novelists; three brilliant short stories by Mrs. E. W. Latimer, Rebecca Harding Davis, and Rose Terry Cooke; a dramatic sketch of thrilling interest, by T. B. Aldrich, with three admirable illustrations by Abbey; a humorous sketch by Charles D. Deshler, entitled "Ab'm: A Glimpse of Modern Dixie," illustrated by Pyle; an illustrated poem, of pathetic interest, "The Foreclosure of the Mortgage," by Mrs. E. T. Corbett; other poems by Ruth Dana and Harriet Prescott Spofford; several illustrated articles, covering a variety of subjects; timely articles of great and immediate interest to all readers, and the five admirably sustained editorial departments—is an exceedingly rich, beautiful and entertaining number.

The opening article, by Clara F. Morse, entitled "Sheen, the Beautiful," is an interesting description, with fine illustrations of Richmond Hill, Twickenham, (with Pope's villa), and other English scenes of poetic and historical interest.

Dr. Tomes's paper on "Reformed Wiesbaden" is a picturesque revelation to American readers of this famous German spa, formerly the capital resort of gamblers. The article is embellished with twenty-one excellent illustrations of character and scenery.

W. P. Garrison contributes a critical but popular paper on Thomas Bewick—the father of English wood-engraving—with an effective portrait and twelve illustrations or reproductions of Bewick's engravings. This article is especially interesting, following, as it does, the paper on the "Golden Age of Engraving" in the August Harper.

In Mr. Ridging's paper, "A Spring Jaunt in Staten Island," the most picturesque features of that island are portrayed not only by the writer's pen, but also by numerous illustrations contributed by some of our best artists.

Mary P. Thaeger contributes an article on our women teachers, entitled "The School-mistress," and Miss Charlotte Adams treats a subject which is now one of great interest, involving the most dramatic episode in the history of the island of Cyprus—namely, the intensely interesting career of Catharine Cornaro, the Queen of that island from A. D. 1473 to 1489.

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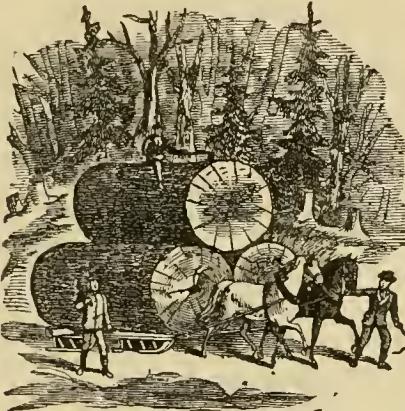
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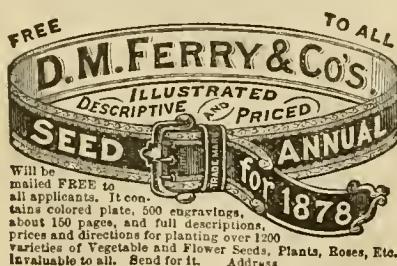
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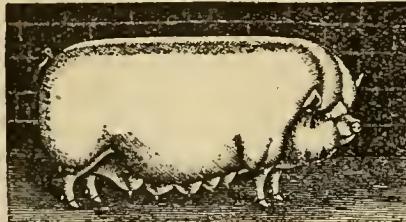


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Sunday Mail.....	11:20 a. m.	1:30 p. m.
Fast Line.....	2:10 p. m.	3:25 p. m.
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Columbia Accommodation.	7:20 p. m.	Col. 8:00 p. m.
Harrisburg Express.....	7:20 p. m.	8:40 p. m.
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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor.

LANCASTER, PA., SEPTEMBER, 1878.

Vol. X. No. 9.

"WHAT IS HONEY-DEW?"

At the last quarterly meeting of the "Bee-Keepers' Association" of Lancaster county, the above question was propounded and summarily answered, but that answer does not seem to cover the whole question, for honey-dew is not the result of a single cause, there being several causes which produce the same effect, as experience teaches.

On page 60, Vol. VIII, of THE LANCASTER FARMER (April, 1876,) is a communication from A. Allen Noe, to the effect that honey-dew falls down from the upper strata of the atmosphere; that it is an evaporation of the "aroma" of the fragrant flowers, which condenses and falls in the form of dew. In an editorial, commencing on page 49 of the same number of THE FARMER, we took issue against the theory of Mr. Noe, setting forth what we knew of its *Aphidian* origin, in corroboration of some of the best authorities on the subject; but, at the same time, admitting that it sometimes occurred from other causes. We have had ocular demonstrations of it that could not possibly be accounted for purely on the insect theory, (pretty large oaks and hickories, as well as laurels, completely covered with it and not an aphid to be seen,) and, therefore, we concluded it must have been an abnormal exudation from the leaves themselves, without the aid of insects. On page 72, same volume of THE FARMER (May, 1876,) is a communication from W. P. Bolton, illustrating an instance in which honey-dew was so abundant on the grass in the fields, (remote from trees,) that it glued the leaves together in the woods, and they glistened as if newly varnished, and the feathers of the fowls that waded through the grass looked as if they had been greased with oil. Mr. B. misapprehended our argument, and we replied to him in an editorial on page 66 of the same number. As a corroboration of his statement we append the following from the *Home Journal*, copied into the *American Bee Journal* for August, 1878:

Honey-dew is a substance—not an element, but composed of elements. These elements must be compounded somewhere. The composition takes place in plants; every plant is a laboratory within itself. All our sugars and sweets come from plants, and are taken into the plants in an elementary form through the leaves. Plants, like animals, are so organized as to throw off by excretion excessive matter. They sometimes imbibe too much of the one element, or too little of the other, and for want of proportion of the elements, assimilation is retarded, and then the plant relieves itself by excretion. An undue proportion of azotized and unazotized substances causes our large forests of oak, hickory and many other trees to excrete that sweet, gummy substance known as honey-dew. It is this that causes the grass of the broad Western prairies to become so gummy as to adhere to the feathers of the wild turkeys and other birds that wade through it till they cannot fly. It is this chemical derangement of plants that causes honey-dew.

Says Langlois: "I observed, during the dry season in the summer of 1843, that the leaves of the linden tree became covered with a thick, sweet liquid in such quantity that for several hours of the day it ran off the leaves like drops of rain. Many kilogrammes might have been collected from a moderate-sized linden tree."

In Grisen, Mr. Trapp possesses a *Clerodendrum frugrans*, growing in his house; it exudes on the surface of its leaves, in September, large colorless drops, which form regular crystals of sugar candy upon drying, showing the change proportional of carbon, hydrogen and oxygen as the season changes and the

organic activity of the leaf changes. The proportion is not assimilable nor nutritious to the plant; the plant organs in their functions excrete it. Thus we have honey-dew, a product of plants by chemical derangement. Says Leibig: "In a hot summer, when the deficiency of moisture prevents the absorption of alkalies, we observe the leaves of the lime tree, and other trees, covered with a thick liquid, containing a large quantity of sugar; the carbon of this sugar must, without doubt, be obtained from the carbonic acid of the air. The generation of the sugar takes place in the leaves; and all the constituents of the leaves, including the alkalies and alkaline earths, must participate in effecting its formation. Sugar does not exude from leaves in most seasons; and this leads us to conjecture that the carbon which appeared as sugar in the former case would have been applied in the formation of other constituents of this tree, in the event of its having had a free and unimpeded circulation."—*Ag. Chem.*, p. 135.

"The assimilation of substances generated in the leaves will depend on the quantity of nitrogen contained in the food. When a sufficient quantity of nitrogen is not present to aid in the assimilation of the substances destitute of it, these substances will be separated as excrements from barks, roots, leaves and branches. The exudation of manile, gum and sugar in strong and healthy trees and plants, cannot be accredited to any other cause."—Leibig.

Many other scientific and agricultural chemists have written similarly touching this subject, and I think it is well substantiated that honey-dew is a production of plants and is exuded by plant-force, not insects. That honey-dew falls, that it is extracted by punctures of insects, and the many other ways, equally fallacious, is argued by too many who are well capacitated to know better, if they were only more thoughtful and investigative and less willing to be deceived.—K., *Smith's Grove, Ky.*, July 8th, 1878.

Singular enough not a single fact quoted by K. from other authors in the least militates against the *fact* that honey-dew is *also* produced by *aphids*. There is no necessity in ignoring the fact that honey-dew is also caused by aphids, in order to prove that it is caused by abnormal excretion alone, for we venture to assert that any one "well capacitated to know," in conducting the investigation, will find that the substance called honey-dew is produced by aphids ten times, or more, to one where it is produced from other causes. It cannot be possible that those who have demonstrated through a long series of years, and by numerous observations and experiments, that aphids eject a saccharine substance that coats, or partially coats the leaves of the plants upon which they are located, attracting swarms of honey-lapping insects—ants, flies, bees, &c.—can have been so far mistaken in a matter so simple in its elucidation. We do not know that any of those writers, who are deemed good authority, have anywhere insisted that honey-dew was caused by insects alone, any more than the writers that K. has quoted insist that it was caused by abnormal excretion alone. Such a discussion of the subject would be like that between the man and his wife, as to whether the rope had been cut by a knife or a pair of scissors. The *fact* was that the rope was cut and was capable of being cut by either of the instruments respectively claimed by the contending parties.

On pages 307 and 308, September number of the same journal, are two articles from different authors, one of which is illustrated, describing species of *Aphis* and *Coccus*, both of which discharge honey-dew very copiously, and are carefully and constantly attended by

ants, bees, wasps, flies, &c., which feed upon this honey-dew, or collect it and store it in the honey-cells in their nests or hives. It is true that in one of the papers "honey-dew" is not specifically mentioned, but "a sweet honey-like fluid" means about "the same thing in Dutch." The other paper describes a new species of a different family (*Coccine*) which infests the "Tulip tree," (*Liriodendron tulipifera*) and which has been named *Lecanium tulipifera*. This insect also excretes or discharges honey-dew very copiously, which is appropriated by bees, ants, &c., and yet K. on page 269, August number of the same journal, says that "honey-dew is a production of plants and is exuded by plant force—not insects;" that the insect view is "fallacious, and is argued by too many well capacitated to know better."

A substance equivalent to honey-dew may also be produced artificially, in the absence of either aphids or merid exudation. Many times, when we were a boy, we gathered honey-dew almost as thick as marketable honey itself from the ends of white oak and hickory wood, when it was cut green; but it exuded, perhaps, most abundantly from the ends of green sugar maple, after its exposure for a time to the sun; and we have also on such occasions been assisted in its collection by bees, wasps, hornets, flies and ants, when it occurred within their respective seasons. It is the same substance that is drawn from the leaves and tender twigs by aphids, or that is abnormally excreted without the presence of aphids. The more succulent plants, such as cabbages, green growing grains and grasses do not yield honey-dew as abundantly as trees and shrubbery; although, perhaps, all vegetation yields more or less of it, particularly if the sap is in excess. There is no difficulty at all in the solution of this honey-dew problem, if observers and practical experimenters will only consent to grasp the whole subject, and not look at it from one point alone. We refer our readers to the pages in our eighth volume for a further explanation of the subject, and if they do not possess a copy it is not our fault, but purely their own.

DOES TOBACCO IMPOVERISH THE SOIL?

Perhaps it does to some extent, but so does any strong crop that is entirely removed from the land and no part of which is returned to the soil again. In growing such a crop, of course, the intelligent cultivator will replenish his soil by supplying the exhausted elements in the form of some kind of manure or fertilizer. But that tobacco necessarily exhausts the soil by leaving it impoverished, where a judicious system of replenishment is pursued, by no means follows as an arbitrary result; and since the tobacco crop has become a leading staple in the productive history of our country it has been demonstrated on various occasions that tobacco may be grown in Lancaster county as safely as any other strong growing crop and leave the soil in as good condition. Perhaps those who were most apprehensive of impoverishment were thinking more of the exhausted and worn out lands of Maryland, Virginia and Kentucky, where, for a series of years, tobacco and corn were grown to the exhaustion of the land without manuring, than they were upon the well-tilled fields of Lancaster county, where farmers have never thought of cropping anything without manuring or fertilizing.

An intelligent farmer has just reported to us his experience during the past two years on this subject, and also the material results. In the fall of 1876 he sowed two acres in rye, seeding three bushels to the acre. In the

spring of 1877 he put on the land thus sown a heavy coating of stable manure, and 195 bushels of lime to the acre. When the rye was in head he plowed the whole down and put in a crop of tobacco. He gathered 3,200 pounds of as fine tobacco as was grown in the county, and it brought as good a price—this was 1,600 pounds to the acre. After the crop was gathered he plowed down the same land and sowed, in the fall of 1877, three bushels of mixed Fultz and old red blue stem wheat, weighing 245 pounds, without adding manure of any kind. His wheat was neither drilled nor cultivated, but was sown broadcast. This summer (1878) his two acres yielded ninety (90) bushels—that is 45 bushels to the acre—and now the enclosure has a very promising crop of timothy and clover.

He also turned down a field of clover last year, when the second crop was in bloom and sowed it in wheat, and this season it yielded thirty-five bushels to the acre. This field received no manure other than the clover which was plowed down last season.

This is not intended to illustrate that tobacco does not exhaust the soil, but that by an intelligent course of replenishment the soil may work for the farmer just as the horse does for the drayman. If the drayman was to cease feeding his horse, he would become exhausted in a single day; but by generous feeding he supplies the daily "wear and tear," and the horse continues to perform his labor effectively as long as he is well fed; it is even so with land in a dense population, after it has lost its virgin strength. In the suburbs of nearly all our large cities are enclosures that have been cropped with the same vegetation for twenty, sixty or a hundred years or more, and those enclosures never wear out, because the owners of them keep feeding them with rich manures, composts and fertilizers, and they are well aware that their success in "truck-gardening" depends upon their fidelity to the soil, which is the medium of their success.

Farming on practical and scientific principles is intended to supplant the contingencies of exhausted and worn out lands.

THANKS.

We are under special obligations to our friend, Mr. William Weidle, of East Orange street, for luscious clusters of the Isabella grape; a fine brace of the Bartlett pear; also specimens of the Crawford Early and the Foster peaches. Two bunches of the grapes were singularly twined together in a compact mass and weighed over a pound. The Foster peaches were part of the "maiden crop" of a young tree, going in its second year. Specimens of this kind are not hard to "take," because they not only contribute to our mental gratification, but also to our physical comfort. Do as we will we can not ignore the physical; moreover, the physical constitution is the "plane and continent" upon which alone can be developed a normal, moral and intellectual nature.

Our thanks are also due to Mr. Henry Sener for a generous donation of "Sener's Holland Pippin" apples, and the celebrated "Sener Premium Peaches;" the latter measuring over nine inches in circumference and weighing half a pound. It is a consolation to know that both these fruits are under the culture of prominent fruit growers in different parts of our county, and we may reasonably expect that in a few years they will be widely diffused, and the lovers of good fruit will have ample opportunity to gratify a cultivated taste. Mr. Daniel Smeich, who has the exclusive control of this peach, will soon be enabled to furnish the market with nursery stock in abundance.

We are likewise under obligations to Daniel Smeich for his fine clusters of Rebecca, Creve-coeur and Diana grapes, and for luscious specimens of the "Sener Centennial Peach." How incomparably superior these peaches are to the masses of this fruit which finds its way into our market, and we may wonder that any peach-grower should bother himself with

those poor kinds when a better and more profitable kind are so very accessible. The Susquehanna is a larger peach (specimens before us grown by Mrs. B. F. Bear, of East Chestnut street, Lancaster, weighing 12 ounces and measuring 11½ inches in circumference), but they do not possess the luscious, fragrant and edible qualities of the former.

BEEES AND GRAPES.

Now is the time to test the question as to whether bees eat the skins of the grapes to extract the sweets that are inside. For ourself, we may be permitted to say that we are by no means convinced, by our personal observations thus far, that the charge which has been made against the bees in this respect can be sustained, the very respectable testimony that has been educated to the contrary notwithstanding. We have had, the present season, Concord, Isabella, Hartford Prolific and Martha grapes in pretty abundant fruitage, and for the first time we have noticed bees about them, and then only about the Concord. Although we watched them frequently, we never saw one attempt to eat the skin of the fruit. They would light upon it, and with some manifestation of eagerness or anxiety run over it, but when they found it sound they would immediately leave, and continue their search elsewhere. It appeared to us as if they were searching for a fountain already opened, instead of opening one for themselves. Before we condemn the bees we ought to be more thorough in our observation than those which seem to have been made heretofore.

We should not judge altogether from appearances, but "judge righteous judgment." It will not do to condemn bees because of their want of discrimination, and thus falling into bad company. Only this forenoon (Sept. 5th,) Mr. John Thomas, of East Orange street, called us into his garden to witness the bees at his grapes. He has a very fine crop of Concords and Isabellas, with an ordinary crop of Clintons. The bees were confined to the Concords, and they were there in great numbers. Mr. Thomas' vines are so full that some of the grapes are rotting, and the skins of many of them have a long straight incision or rupture, as if they had been bursted open by internal expansion or external contraction, and wherever they are bursted open the bees were helping themselves greedily. There were also many wasps and large flies present, but we failed to find any of these insects cutting the fruit. Mr. T. keeps corncobs saturated with a sugar solution, and pieces of sweet apples suspended on his vines, and these were as full of bees, wasps and flies as any of the clusters having rotting or fractured grapes upon them. And not only this, but the grape skins lying on the ground, and a vessel containing apple parings, cores, and peach and grape skins were also plentifully visited by the aforementioned insects, all busily engaged in making an "honest living." Indeed, in those parts of the grape arbor where the fruit was all sound, no bees or wasps at all were present, except, perhaps, an occasional straggler or two, that seemed to be exploring for a fractured or rotten grape. It is well known that bees will visit almost anywhere where they can find a supply of saccharine matter. Our groceries, where sugar is exposed, are full of them, and many thousands of them daily fall victims to their want of judgment in making their escape. After they are gorged they make a "bee-line" for the open air, and mistaking the large modern windows for open doors they fly into those recesses and are intercepted by the large plate-glasses and have not the tact to go backward and flank the side glasses, but persist in beating their heads against the front until they fall down from sheer exhaustion, and have not the ability to rise again.

After the late fire at Mr. Levan's grocery store, on North Queen street, we could have gathered half a bushel of bees from those windows in a single day. This cannot be considered the normal habit of bees; it is merely an adaptation of means to ends,

through extraordinary circumstances; and from all we have been able yet to learn, from personal observation, the case is a similar one in regard to "bees and grapes." Surely, if the proper investigations were instituted, with a view to discover the truth, divesting the subject of all prejudice or partiality on the part of those conducting it, the question might be settled to the satisfaction of all concerned. While it is pretty clear to us that the bees are not guilty in the form of the indictment against them, we are not among those who assume the *impossibility* of their so offending. Bees are mandibulated insects, and while their mandibles are not so well developed as cutting instruments as those of wasps and hornets, still they possess considerable mandibular power—sufficient to break through trumpet-shaped flowers, in which they sometimes become imprisoned. On the 27th of August, 1878, we discovered a honey-bee gnawing around the stem of an Osage orange leaf, and we watched it for twenty minutes or more; and so intent was it on what it was doing that it did not recognize our presence until we touched it. After it flew away we examined the leaf stem, and found that it had made a visible impression upon it, but still the epidermis was not cut through, only somewhat bruised. What its object may have been is more than we can conjecture, but we may infer that it was working to some purpose. In conclusion, we would admonish those who attempt to investigate the subject, to do so calmly, perseveringly and thoroughly, and not hastily, superficially and spasmodically. The money invested in bees, their accommodations and productions, is too considerable in our country and the world at large, to be jeopardized upon mere rumor—to be subjected to the vicissitudes of a mere contingency. From the time that Samsou discovered the swarm of bees in the carcass of the lion down to the present time, bees have been great domestic and commercial factors in the social economy of the human family, and to ignore them now, or account them domestic enemies, is repugnant to the feelings and sentiments of a large and respectable class of human society.

LIME AS A MANURE.

It is singular that there should be such a diversity of opinion among practical farmers in regard to the use of lime as a manure or fertilizer to their lands. Brand, in his "Dictionary of Science," says: "It is a curious fact that the use of lime as a manure is entirely a European practice, its employment in this way having never been so much as dreamed of by the nations of Asia and Africa."

From Europe it was introduced into America, and so far as our recollection can possibly extend backward it has been in use here, for that purpose, all of sixty years. It is nearly so long ago as that since we worked on a farm, and we can recall one occasion when we helped to "spread lime." Of course we knew nothing about the *theory* of its use, or whether it was applied intelligently or not. It, however, was generally conceded to be useful to the *land*, and "limestone land" was always made a point of excellence when it was advertised for sale, or when it was sought for as a local investment. If it was entirely useless, of little or no benefit to the land, or did not "pay," the farmers of Lancaster county were a dreadful long time in finding it out, and at a heavy cost.

The barrenness of the "gravel hills," the "Conewago Ridge" and the "Barrens of York" was attributed to their want of lime, and the farmer whose lands and forests produced "whiteoak and limestone" was regarded as highly favored, if not a subject of envy. It is true they differed very much about the quantity that ought to be applied, and perhaps they were generally unconscious of a difference in its quality. It was, however, considered *good* for the land as a general proposition, but the quantity ranged from fifty all the way up to three hundred bushels to the acre, without being able to tell *why* they dif-

fered. Presently, however, some very intelligent and expert agricultural chemists have delivered sentiments adverse to its use as a manure or a fertilizer to their lands, and hence a prolonged discussion has ensued, in which it is alleged, on the one hand, that lime is not and never has been of any material advantage to the soil and the crops; and, on the other hand, that lime as an element of fertility, is "king," and that without it our fertile lands would gradually become barren wastes.

The application of lime to land must, however, be subject to certain chemical principles or laws, and when those laws are violated its benefits cannot be as effective as if applied in harmony with those principles or laws. For instance, to apply lime to depleted lands where lime is already in sufficiency, or in excess, and to reap no benefit from such application, by no means constitutes a case by which to accurately determine the fertilizing qualities of lime, any more than a surfeit would prove that men should subsist without food. But where land in its natural condition is entirely destitute of lime it seems reasonable to suppose that it should be artificially applied, unless the object is to only cultivate such species of vegetation as need no lime; and it is, perhaps, this disproportion and a want of a chemical knowledge of the constituent elements of the soil that has finally led to the discrediting of lime, and its abandonment altogether. Lime is a simple earthy substance, and is produced by exposing limestone, chalk, or carbonate of lime, to a red heat—an operation generally conducted in kilns constructed for that purpose. The carbonic acid, or carbonic acid gas, previously a component of the limestone, is thus expelled, and lime, more or less pure, according to the original quality of the limestone, remains, and is usually called *quicklime*. Quicklime has a strong chemical affinity for water or moisture, and when this is applied it becomes heated, and is what is called *slaked*. Slake means to quench or satisfy; to saturate with water. By a longer and a slower process quicklime will absorb moisture from the atmosphere, and finally become slaked. Its hunger or affinity for water is satisfied, when it is no longer *quicklime* but *slaked lime*, or an *hydrate of lime*. This slaking process, in consequence of the absorption of a portion of carbonic acid from the atmosphere, gradually reverts it towards its original condition, or *carbonate of lime*, and it loses its caustic quality. Pure quicklime reduced to a powder, and applied to vegetation in that condition, would certainly be an injury to it—would burn it—hence many of those who freely use lime, haul it to their fields and let it remain in great heaps for weeks or months before they spread it over the land. The longer it remains exposed before plowing it under, the more carbon it absorbs; and the more it has the more it will have to give off in its decomposition and assimilation with the soil. Vegetation absorbs carbon and gives off oxygen. The animal world absorbs oxygen and gives off carbon, and thus one supports the other. A good, healthy aquatic plant growing in an aquarium will give off sufficient oxygen to support a proportionate number of animals, and they in turn will give off sufficient carbon to support the plants.

The lime naturally in the soil, from the attrition of limestone rock, is not quick lime, but a carbonate of lime; and the nearer quicklime can be brought to that elementary condition, no doubt, the better it will be for the land. The burning of limestone—driving off the carbon in it—and then slaking it and reducing it to a powder is, a more effective and rapid mode of bringing it to the proper condition for assimilation with the soil than the slow process of natural attrition; and in this is involved the necessity of applying lime to land; and probably it is because there is not sufficient chemical knowledge abroad, relating to the specific constituents of soils, that has led farmers to apply lime where it was not needed, and its failure to do any good. Lime has a metallic basis called *calcium*, hence the

purer, or crystallized varieties of it are called *calcareous spar*, and although the varieties of its crystalline forms are many—running into hundreds—yet its primitive form is always *rhombic*, and it will always cleave in that form, (an oblique oblong square). But lime is not omnipotent, and therefore land, in order to be productive, also needs other elements, especially vegetable mould, and nothing yields this more abundantly and more richly than barnyard manure. It also needs phosphates, sulphates and ammoniates, according to the nature of the respective crops that may be under cultivation, or that may be desired. The fact that some farmers have used lime so lavishly—from two to three hundred bushels to the acre—seems to evince that it cannot be a very dangerous element, or it might have totally destroyed their crops instead of benefiting them. Without committing oneself either for or against lime, we think it will continue to be used as long as the question rests merely on opinion—it must be determined by a practical demonstration. Lime as a manure, or fertilizer, has been discredited both by Prof. Heiges and Mr. Carter, in their late lectures before the Lancaster Agricultural and Horticultural Society. They, perhaps, did not intend to repudiate it altogether, but they certainly denied the claims made for it by some of the members, as expressed in the discussion upon it at the September meeting of the society. From Mr. Carter's views it may be inferred that lime has been abandoned as a fertilizer at the "West Grove Experimental Farm," of which he is the superintendent. Whether this view is based upon practical experience or upon mere opinion, it seems that the system which obtains at that establishment does not meet the approbation of the "Farmers' Club" of Philadelphia, for it has had a resolution under discussion for some time that the West Grove establishment is an utter failure, (and at a recent meeting it came very near passing that resolution,) and that its continuance is an imposition upon the taxpayers of the State of Pennsylvania.

The main significance of this action of the club is, at least, an indication that there is a great diversity of opinion among those supposed to be competent to form an opinion in a matter fundamentally relating to the highest interests of agriculture. The same or similar opinions have been entertained and expressed in regard to the State Agricultural College. So that the very authority of those who are supposed to be competent, and possess the facilities to determine questions of soil and its manipulation upon scientific principles, is doubted by those who believe that their personal experience demonstrates a different or opposite result. This may illustrate how little we know, how slowly we acquire that little, and also that there are relations to, and ramifications of, the main subject that are to be considered before arriving at fixed conclusions.

REMINDERS FOR SEPTEMBER.

In the Middle States, many and varied are the duties which devolve on the gardener at this season. Not only do the growing crops demand attention, but seeds are to be sown to provide the necessary plants for the ensuing Spring. Roots are to be divided and reset; strawberry-beds planted, etc. Cabbage, Jersey Wakefield and Landreth's Large York, sow, to plant out in Autumn, where the locality admits, or box up in cold frame, to keep till planting time in Spring; the latter end of the month will be time enough to sow in the latitude of Philadelphia; especially sow the newly-introduced sub-variety: Bloomsdale Early Market or Early Bloomsdale; also the Bloomsdale Brunswick as a succession. Turnips, the Early Dutch and Red-topped, may be sown within the first week of this month, if failure has attended earlier efforts. In some sections the *fly* devours the early sowing. They are less voracious after the nights become cool and dews heavy. Celery earth up. Corn salad, scurvy grass and chervil sow for Winter salad. Lettuce sow, for Spring planting; the plants to be kept during Winter in

cold frames. The better sorts for Autumn sowing are the Dutch Butter, Royal Cabbage, Large White Butter, and Imperial. Spinach sow early in month for Autumn use; later for Winter and Spring. Turnips and Ruta Bagu cultivate.

CORRESPONDENCE.

WEST CHESTER, August 22, 1878.

MR. RATHVON—Sir: I have received THE FARMER containing your account of the honey-bee pest. After sending you the bees I found the weed or flower containing them. It grows on marshy land around my mill dam. It is very plenty, and the flowers grow in clusters and are of a pink color, with a stalk from two to three feet high. The clusters contain many small flowers and are six sided, and at the top of each side you will see the black speck and the wing-like substance enclosed below, lying on each side of the blossom. When freshly bloomed the bee becomes fastened and is not able to leave the flower, but as it ripens the pollen mass pulls out and the bee is released. I have found as many as from three to five bees on a single cluster, trying to extricate themselves. It has a very sweet odor and is of the milkweed class. Are they seeds, or are they an insect? I send you enclosed a flower and leaves of the plant. Whilst under a magnifying glass, with a needle, you can remove the pest from the flower and see its formation or manner of growth.—Yours, respectfully, Wm. J. Pyle.

P. S.—This plant in the fall has a bulb, and blows much like cotton, and in the pods are seeds much like parsnip seeds. The "Hanging-Birds," in the spring, use the bark of the old stalks as strings to hang their nests with, it being very strong and tough.—Pyle.

The plant enclosed came duly to hand, and proved to be the "swamp milk-weed," (*Asclepias incarnata*), and the matter has terminated as we suspected, when we wrote our "final" suggestion in the July number of THE FARMER. Since our correspondent's experiences have confirmed our suspicions we have found other records than the one we alluded to there, all to the same effect. The little pedunculated lobes are neither seeds nor insects, but are the pollen masses which contain the seminal element that fertilizes the flowers and renders the seeds fruitful. If our correspondent has access to a copy of "Gray's Botanical Text-Book," published in 1850, he will find the whole subject described and illustrated on pages 315 and 456. The excretion of a gummy, saccharine substance from the flowers is, perhaps, common to the whole family of "milk-weeds" or "silk-weeds," (*ASCLEPIADACEÆ*), at least we know it to be so with the common "milk-weed," (*Asclepias cornuta*), for we have found both living and dead bees, flies and other insects on these flowers scores of times, in the month of July. They were fastened by the feet to these treacherous flowers without the ability to extricate themselves, and thus were poisoned or starved to death. A beautiful red and black-spotted Longicorn beetle, (*Tetraopes tornator*), is always found on this plant, and seldom or never on any other during the nuptial season; and the larva of a large reddish brown and white spotted butterfly (*Danaus archippus*), feeds upon the foliage. Dr. Gray describes fourteen species of *Asclepias* in the main body of his work, and two in an appendix, as being indigenous to North America. There must be something in the odor or the nectar of these plants that is very attractive to insects. The common humble-bees (*Bombus americanus*, *ct al.*), resort to it in numbers, and often seem sluggish or intoxicated after partaking of its insidious sweets. There are two beautiful black and orange colored insects (*Lygaeus audius et turcicus*), that are also partial to it, besides several smaller species, (*Capsus*).

The most singular feature of the matter is that the bees should manifest such a repugnance towards their companions after they are infected by these pollen masses—so much so as to drag them out and deny them the privileges of domiciliation. In a correspondence between Mr. Stauffer and Dr. Asa Gray on this subject, the latter states that this fact is entirely new to him. If it were the eggs or the larvae of an enemy to the hive, the instincts of the other bees might lead them to reject their infested associates on

principles of self-preservation, but for objects so small, so temporary and so apparently harmless as these tiny pollen masses their conduct seems incomprehensible. Are the bees in error? do they misapprehend the nature of the infection? We have every confidence in your observations, but we suggest that they should be well confirmed and corroborated for the satisfaction of the more incredulous. We give you the credit for making the discovery, and your long experience in apiculture ought to add to the importance of your observations. It is the establishment of this fact that imposes the necessity of applying a remedy against its repetition or continuance. We should have supposed the other bees would have assisted their companions in divesting themselves of this obnoxious dross; but if it is otherwise, then there is nothing left but to destroy all the *Asclepias* or milk-weeds wherever they may exist.

QUERIES AND ANSWERS.

W. L. H., Rapho, Lancaster county, Pa.—The pale green (nearly white) insect, with delicate antennæ about twice the length of its body; long and thin legs, the binder pair twice as long as the front ones, and formed for leaping; the wings overlapping each other horizontally on the back, and twice as wide at the apex as they are at the base; is a male specimen of the "Tree-cricket," (*Ecanthus niveus*), and belongs to the order ORTHOPTERA, and family ACNETADE, which includes the various kinds of crickets. You say it has been detected in eating holes in the tender leaves of the tobacco plant, to their great injury, &c., &c. Well, that characteristic is not by any means new to the country, although it may be to the county. That fact was recorded by Dr. Harris about thirty years ago, as coming from a correspondent who was interested in the tobacco culture in the State of Connecticut, alleging that they very much injured the quality, and hence the market of the tobacco in that State, by eating holes in the leaves. They are very quick in their movements—and in their adult states can either leap or fly, as the case may be; and, therefore, in that state they would be difficult to capture, especially if the attempt were made in the middle of the day, when they are usually hidden under the leaves. When young, if cautiously approached, they might be captured in a hand-net swept over the plants, but any attempt to poison them might fail.

S. S. S., Esq., Lancaster, Pa.—The grey, spotted and wave-lined lizard you captured in the "old wreck" on the Atlantic beach, below Ocean Grove, is the *Tropidolepis undulatus* of naturalists. The common names of "Brown Lizard," or "Wave-lined Lizard," are usually given them, and they vary so much in color and markings that sometimes neither of these names could be strictly applied to them. But, more remarkable still, in our boyhood, and in our district, they were locally called "Man-keepers," and "Maneaters," and it was a subject of greater wonder to us how such a little animal could keep a man or eat a man than it was how a wolf could eat up "Little Red Ridinghood" and her grandmother, clothing and all, in such a short space of time. We once kept one in a bottle over night, leaving an aperture for air, and in the morning we found it had deposited two disproportionately large eggs.

W. S. M., Elizabethtown, Lancaster county, Pa.—We could not find any insects in the peach branch you sent us. The small round holes in it seems to have been made by a species of *Scolytus* or *Tomicus*, a small black or brown cylindrical beetle; at least the perforations are like those in a branch similarly infested, which we received from Maryland, some years ago, and from which we bred insects belonging to the same family. The flat cocoon, spun in an angle of the branch, had nothing to do in producing the beetles. The small round holes in it were made by the beetles in making their escape from the branch

through it. The branch does not seem to have been very seriously infested, and it would be difficult to devise a remedy for their destruction after they are once in the wood. Occasionally they are numerous for a season and then disappear for years. Generally they are not partial to the peach.

FOR THE LANCASTER FARMER. RANDOM THOUGHTS—No. 4.

Lime and Magnesia.

In the criticism in the weekly *Examiner and Express*, of August 14th, on Prof. Heiges' views of the effects of lime and magnesia. Mr. A. A. Breunemau omits to state that magnesian limestone is the source from whence hydraulic lime (cement) is obtained; this fact explains why the soil cakes when this kind of lime is applied; should a sufficiently large quantity be applied the soil would become as firm and hard as rock, and would probably remain so for ages.

Farmers will do well to be careful in applying lime which contains magnesia, and if present in large quantities they should avoid its use entirely, as it is better to let any soil do the best it can than to try to make a waterproof wall out of the surface by the use of this deleterious substance. If any farmer really supposes that his soil needs magnesia he can supply it by applying sulphate of magnesia, (epsom salts,) a very soluble salt, and which has sometimes been used in place of gypsum, (sulphate of lime,) it being quicker in its action and answering the same purpose for which the latter is applied—for the sulphuric acid contained.

Go West.

Dull times, by some called "hard times," have given the Western land companies the opportunity to give Greeley's famous advice of "go West, young man, go West," and they are not slow to improve the opportunity, as you can hardly take up a newspaper now-a-days that is not got an advertisement of one or more of these companies. To each is always appended the clause—"maps and circulars free."

And the circulars! Can it be possible that anybody is left in the East except fools! Such soils, some four feet or more in depth of unsurpassed fertility that require only the scratching of a couple of dung-hill fowls to produce from 40 to 60 bushels of wheat; corn, potatoes, oats, &c., in proportion! Apples, pears, &c., need to be planted only a few years until you have fruit in abundance! It must also be a very remarkable country, as in my school days I was taught to believe that hills were a necessity where valleys existed. These circulars speak only of "smiling" valleys and "rolling prairies"—perhaps the rolling prairies are where the hills would be. I have no dictionary published in Kansas, Nebraska or Minnesota, and may be, therefore, ignorant of the meaning of words in the Western lingo.

But why do not these circulars give more information about the other great productions; such as storms of wind and hail; grasshoppers that come in clouds as did the locusts of Egypt; armies of chinch bugs that save the farmer putting away his wheat; a cold so intense that even the thermometer is ashamed or incapable of registering it; water in overwhelming quantities at one time, and not to be obtained for miles at another time.

Of course it is not to be supposed that all these ills exist at one and the same place, but I believe it would be to the interest of the companies to tell of their existence, of their extent, &c. As the descriptions now are some of the over-sanguine settle at such places and are badly disappointed; they let their friends from whence they came know of their disappointment, and they do not let the coloring be wanting to give the darkest shade possible. Had the circulars stated truly, a different person might have settled there, and taking good and bad as it came, found the good to overbalance the evil, and been the cause of more like him to settle there.

There are some things and qualities a settler must possess in order to be benefited by moving West:

1st. He must be possessed of some means after he arrives at his destination, in order that he can purchase land, farming implements, stock, &c.; or in case he is a mechanic that he can purchase stock, tools, &c. It is worse than folly for any one to try the west without means.

2nd. Perfect good health of himself, wife and children are also necessary, when he depends upon his ability to make a way in the world; physicians also are few and far apart, as they nearly always locate in well settled districts in order that they may have enough neighbors to give a living practice.

3rd. He must have snap enough to take advantage of every opportunity; a weak, irresolute, wavering man is a failure as a settler, and will do better to stay where he and his better qualities are known; where his neighbors employ and trust him because they know of his ability to do when properly directed by others.

4th. A determination to put up with many inconveniences to which he has been accustomed heretofore. It will be found that schools, churches, stores and mills are often miles away; that every-day social intercourse, and this perhaps will be most severely felt, is not so frequent and easy as at his old home.

While I would not cry down the west, for it is a good place to live, and there may be better and more chances to get along than with us, yet this much is certain, that settlers in the new parts have to go through the hardships and privations that our forefathers did when they settled this part of the country.

The letters from the west that are published in eastern papers are in many cases on a par with the "reliable correspondent" of the war period, not that they are made up from rumors; or "out of the whole cloth," but they usually give the bright side and individual experience when such experience is pleasant and good. You do not see many of these letters that give the dark side of their less lucky neighbor.

If you value very highly your ease, your comforts, your social intercourse, and consider them necessities, do not "go west." If you do go, go understandingly and with open eyes.

The Hessian Fly.

A circular of Mape's "complete manure" contains an extract from a lecture by Prof. A. J. Cook, of the Michigan State Agricultural College, the gist of which is as follows:

There are generally two broods of the fly, the first in April and May, and the second in July and August; sometimes a third brood appears in October. [These are bred, no doubt, from wheat sown very early.] Sometimes three eggs are laid on a leaf, in other cases two, but in most cases only one; these hatch out as a small maggot, in from four to ten days, and work down into the sheath of the leaf, where they change into the condition they are generally known. The eggs of the spring brood, if laid on winter wheat, are laid on the leaves above the first or second joint.

If some wheat is sown early and other sown late, all the eggs will be laid upon the early wheat; but if none is sown early the flies will wait. Consequently it is well to sow a narrow strip of wheat about each field in August or early September, and to put off, as long as the season permits, the wheat that is to be raised. Most of the eggs will then be laid upon this early wheat, which should be plowed under deeply as soon as the later wheat is planted. This outer strip may then be sowed again. If the wheat has survived the winter safely, but seems likely to be destroyed by the insects in spring, it should either be rolled and pastured out to sheep, or it should be mowed about three weeks after the first appearance of the flies. A second mowing three weeks later will be beneficial.

From the above we would infer that the rolling is, of course, done to crush the embryo by the weight of the roller. The pasturing

and the cutting is, of course, also intended to kill it, and is probably successful where the eggs had been laid on the leaves above the first and second joints. When these joints are cut off, of course all hopes of an ear are at an end from that stem, and we must hope that the plant will throw out more suckers in order to make up for those cut off, and this the plant will do and make heads yet if it has sufficient strength. To supply this strength, if the soil is not in the very best condition, a quick acting fertilizer should be applied, and this is probably the reason why the extract is found in a fertilizer circular, though not said in so many words.

If I had a field of wheat badly infested with the fly, I think I would pasture down quickly by putting plenty of stock on, be it fall or spring, and then sow on some fertilizer like this complete manure, or nitrate of soda, in order to hasten a quick growth, and I have no doubt but what I would save the wheat, and, perhaps, even get an extra yield.

May not the cultivation of wheat, which is now so strongly recommended, destroy the fly, or perhaps the eggs, and this be one of the chief causes of an increased yield? The cultivation also has the effect of making the plant throw out new suckers, and these having no fly in them to weaken them, they would soon outgrow the older parts of the plant and smother it; the new stems being strong and healthy, probably gives that stiffness to the straw for which the cultivated fields are so noted.

I give the suggestions of the two last paragraphs for what they may be worth, and hope they will draw out the views of those who have had the experience, both in fertilizing and cultivating wheat.

Fertilizer Experiments.

The growing interest manifested as to the application of artificial manures and as to the profits of such application, has made the fertilizer dealers anxious to convince farmers, fruit raisers and truck raisers, and for this purpose packages are put up known as trial packages, each containing one of the principal plant foods—nitrogen, phosphoric acid, or potash, or a combination of any two or all three.

The Mape's Formula and Peruvian Guano Company seem to take the lead in putting up these trial packages. They have two sets now, as below :

Set A.—This set has seven bags; bag No. 1 contains nitrogen; No. 2, phosphoric acid; No. 3, potash; No. 4, nitrogen and phosphoric acid; No. 5, phosphoric and potash; No. 6, nitrogen, phosphoric acid and potash; No. 7, plaster. Besides these there are extras, covering about the same ground, but the materials from which the plant foods are obtained are from a different source. Thus in bag No. 1 of set A the nitrogen is obtained from the nitrate of soda; in the extras in bag 1 *a*, it is obtained from sulphate of ammonia, and in bag 1 *b*, from dried blood. It will be seen that in set A all the combinations are made that are possible, except that the combination of nitrogen and potash is omitted. This is, I suppose, on the supposition that where these two are missing phosphoric acid is also wanting.

The intention is that the fertilizers be applied in alternate strips, thus: Bag I on plot No. 1; nothing on plot No. 2; bag II on plot No. 3; nothing on plot No. 4; bag III on plot No. 5, &c.

These tests should show what plant-food is mostly wanting. If bag IV brings an extra crop, it shows that the soil contains plenty of potash; if no better than the unmanured plot, then the soil wants potash, so the other bags show the want of some particular plant-food, or its existence in sufficient quantity. When it has been determined what plant-food is most needed, of course the experimenter will buy that fertilizer which is relatively richer in that which is missing.

"The Complete Manure Set."—This set of experimental packages consists of but four bags: Bag A, a complete fertilizer, containing nitrogen, phosphoric acid and potash in about

the same proportion as stable manure, but in a more soluble and concentrated form; bag B, same as A, with nitrogen omitted; bag C, same as A, with phosphoric acid omitted; bag D, same as A, with potash omitted.

It will be seen that this set has no bag with only one of the plant-foods, as in set A, but that we have all the mixtures as in that set, and in addition have a bag containing only nitrogen and potash, which, as we have called attention to before, is for some unstated reason omitted in set A.

I would give preference to the "Complete Manure Set," as the experiment is in a simpler and more easily understood form, and certainly should show what ingredient, if any, is not in relative proportion to the others.

I am watching these experiments with some interest, and will let our readers know the result as soon as practicable, and I hope there will be some Lancaster county folks heard from. In this county nearly all the fertilizers used are very deficient in potash, and yet the crops respond very well to them. Should any experiments be made with potash, and the result be better than by the use of simple or nitrogenized phosphates, then will it be to the interest of that experimenter to buy a different fertilizer, or apply sulphate or muriate of potash in addition.

It may be, as I have intimated before, that the soils of our county have plenty of potash, and I have seen no cause since to change my opinion. At that time I took the position that as we were a cattle raising people, and that as we did not sell much hay, and no straw or fodder of any account, that we kept our potash on the farm, it being well known that hay, straw and fodder contain the bulk of the potash; the cattle to which we feed these articles or use for their bedding, retain very little potash, but it nearly all passes off in the manure and urine; but they do take up the phosphoric acid to make bones, and as soon as they are sold beyond our reach we have, of course, lost the phosphoric acid contained in their bones. It will be seen that our soils may be relatively rich in potash, and this be one reason why phosphates have been so long in favor.—A. B. K.

MOONSHINE.

EDITOR LANCASTER FARMER: A writer (J. G.) in the last issue of your journal, in discussing "the best time to sow wheat," says "a clayey soil should be plowed in the rising of the moon; it will not get so compact as when plowed in the setting of the moon," and "a soil that is too loose should be plowed in the setting of the moon." Exactly what is meant by the terms "rising" and "setting" as he uses them, I do not certainly know; whether he refers to the daily rising and setting of that orb, or to what is usually termed its *increase* and *decrease*, though probably it is the latter, as this corresponds with the usual ground maintained by believers in the moon's influence on crops, &c., as I understand the doctrine. I was under the impression that very few intelligent people in these days of scientific research and investigation believe that the various phases of the moon have the influence on vegetation and crops which was generally, if not universally, supposed in by-gone ages of less intelligence; but it seems there are still some who—for reasons as plain and conclusive to their own minds as the Rev. John Jasper adduces for believing that the sun goes round the earth every day and the earth stands still—hold fast to the old faith in the potency of "lunar influences."

Now, if the Moon's changes and position toward the Earth have the influence supposed, it ought to be comparatively easy to prove the fact by experiment—not by one, two or three experiments selected and reported from memory by men who have already made up their minds, but experiments recorded when made by unbiased, competent and careful enquirers after truth, and extending over a considerable period of time.

Has J. G. ever investigated the subject in that way, or does he know anybody that has?

It is, no doubt, the easiest thing in the world to prove by one or a few experiments, at particular times, that a clayey soil will produce best when plowed in this or that phase of the moon; but there is little doubt in my mind that if the experiment were tried a sufficient number of times, or in a number of different localities at the same time, it would be found that there is nothing it.

The question, however, has been investigated very thoroughly in France, and after numerous prolonged and careful experiments, the great astronomer, Arago, declared his conviction that there is no ground for the common belief that the position or changes of the moon have an influence on the growth of crops. This was many years ago, and since that time, so far as I am informed, the correctness of his conclusion has not been questioned by any respectable authority in that country. Where is the record of a series of careful experiments which tends to establish the contrary?

Before concluding, I may mention that many years ago, I myself tried an experiment in regard to the moon's alleged influence in the animal kingdom. It was then maintained by many, and I doubt not there are not a few who still believe, that beef killed at the time of the decrease of the moon (as it is called) would shrink on the bone, in cooking, while that killed in the increase of the moon would not shrink. Being in the way of getting beef every week from a butcher cart at the time referred to, I took the pains to note the stage of the moon every time, and then observed the condition of the meat when it came to the table. Without mentioning particulars here, it is sufficient to say that the result of the experiment was entirely adverse to the belief that the moon had any influence of the kind claimed. In fact, so far as it went, (some seventeen trials) the preponderance of evidence seemed in favor of the very opposite theory—that is, in a majority of cases the meat shrank most when killed in the increase of the moon.

Now if J. G. expects intelligent farmers to accept his opinion of the moon's action, I trust he will make an effort to sustain it by facts and argument—by something more convincing than mere general assertion, or a statement that such and such is his belief—otherwise we will have to conclude that he is poorly qualified to enlighten the farming community respecting "the best time to sow" their grain.—J. P., Lancaster, Sept. 1, 1878.

AROUND THE FARM—No. II.

There are many farms in this county without running water, and as a consequence must raise it by means of a pump. The water thus raised is led into tanks or troughs for the convenience of cattle. Thus far it is all right; but if many of my readers, who are blessed with the pure, sparkling rill meandering through beautiful green meadows, could see the green, slimy, solutions of hen manure which some of our shiftless farmers compel their cattle to drink, they would with me unite in raising the battle-cry for pure water for the cattle. The water should never be left standing in the troughs more than a day and then it should be swept out clean with a broom, and above all keep a cover on it to prevent the dust, leaves, etc., from blowing in.

Potatoes.

Some people, (and we were formerly of the number) after digging their potatoes stored them in some shed or barn-floor for a week or so before putting in the cellar. We have put ours into the cellar the same day they were dug for the last 4 years and have not noticed any evil effects to proceed therefrom, leading me to the conclusion that it is labor thrown away to handle them twice.

Plant Fruit Trees.

After considerable (?) reflection I came to see one redeeming trait in the tree agent. If he does sell us inferior stock sometimes he nevertheless reminds us to plant. If we only would heed his admonitions to plant as much

as we are lured by the fine lithographs he shows us, we would plant more and buy less of him.

We have a number of good nurseries in the county where you can get healthy, thrifty stock, and when your farm is stocked, unite with your neighbors and plant fruit trees along the roadside, and many a poor child whose parents are too poor to own land, would rise up and call you blessed. In conclusion, let me again say plant. Plant fruit trees, plant shade trees, plant forest trees; only plant! We are destroying our trees too rapidly.—*Ruralist, Creswell, Sept. 4th, 1878.*

PARIS LETTER.

The English Agricultural Annex—Steam Plowing in Southern Russia and in Hungary—The French and the American Agricultural Exhibits, Etc., Etc.

PARIS, August 20th, 1878.

There is no reason why our own success or excellence in the manufacture of agricultural machinery should blind us to the splendid achievements of other countries in this department; and after a few hours study of the English annex one cannot help being impressed by the great progress made by the mother country in the invention and perfection of ponderous agricultural machines. The application of steam to agriculture is of comparatively recent introduction, and, indeed, may be said to date from scarcely thirty years ago; but the idea is old, and many clear-sighted men seem to have long foreseen its final adoption. The reasons of the tardy application of steam to a branch of industry in which it has proved so effective, and, in fact, the relatively recent leap, so to speak, which all agricultural machinery made about the time steam plowing came into fashion, is probably to be sought not so much in the character of the machinery itself, as in a change of the social condition of the countries in which a demand for high class machinery has arisen. When labor is cheap and the cultivation of the soil is what writers call "intensive" rather than "extensive," the outlay of capital for new inventions is out of the question, owing to the low price of grain. But in the last few years there have been, so to speak, great revolutions in the labor of certain parts of Europe. In Southern Russia, for instance, the demand for agricultural machinery has arisen chiefly from the emancipation of the serfs, a revolution which has resulted in a state of things similar, it seems, to that of Ireland. The peasant is satisfied to live on the little property that has fallen to his share, and has left the great proprietors in the difficult position of having much land and a great demand for its products, but no laborers. In Hungary there is also a demand for steam-driven plows. In France and parts of Germany the soil is so divided up into minute farms that want of capital prevents the purchase of expensive implements by individual holders. England, notwithstanding the fact that she has an advanced system of working the land, is not an agricultural country, and is becoming every year less of a grain growing one; but her implements have done much to revolutionize the methods in other countries, and at this exhibition they take in some respects the first position. It seems as if England, having satisfied her own wants, has turned her inventive faculty chiefly to those of the foreigner. Nearly every exhibitor in the British agricultural annex has this or that apparatus adapted to the special requirements of one country or another, and a visit to this annex, with the aid of different stands of the representatives of the firms exhibiting, is, I need scarcely add, very interesting. Some of these gentlemen have spent years in the countries for which their several machines are made, and their explanations are, in many cases, a fresh page in the history of husbandry. This is indeed a feature of the department in question, and added to the uniform courtesy with which every inquiry is at once replied to

by all, from the chief to the porter, much contrasts with the state of things in the French branch, where it is rare to find the person in charge of the machine, and who, when he is found, is in a fitter state to receive information than to impart it. The French have a large collection of portable engines, threshing machines and other implements, but I remarked nothing new in their construction. I remarked also that English portable engines, even with the duty and transportation paid, can compete with those exhibited by France, while I need not add that in point of workmanship the French engines cannot put forward a claim to perfection. Everything in the French branch is painted, ready for use, while the English exhibitors have purposely left their steel work free for examination.

A much more interesting display than the French, though much smaller, is that of the United States. Here are shown mowers, reapers, and sheaf-binding reapers, for which several American firms are well known on both sides of the Atlantic. What strikes one chiefly is the lightness and handiness of everything they show, and I must add, the Canadian manufacturers also, and also the cheapness of their machines. No doubt but that American ingenuity has had an effect to awaken English manufacturers, and many a pretty little contrivance and sometimes a big one, proves that the English have something besides a market for their productions. Americans have done everything in their power to make an impression upon the visitor to their agricultural section; valuable metal and carving have not been spared to give brilliancy to the machines on their stands, and I heard the ironical remark that glass cases should have been placed over some of them. The American display is, however, very attractive for other reasons than this, and having with characteristic ingenuity set all the knives and rakes of their reapers and mowers in motion, they have avoided the solemn silence of the English and French agricultural annexes. And this is really not unimportant, for many are attracted to the American shed by the mere novelty of motion in agricultural machinery.—C. A. S.

LIME AS A FERTILIZER.*

Mr. Chairman: Since we live in an age of free speech and a free press, allow me to differ in opinion from others in regard to the use of lime as a fertilizer, some of whom are members of this society. Men have been persecuted, scorned, and have even lost their lives in defense of theories which they have advanced, which have subsequently been adopted as the accepted truths or dogmas of the age. Firstly, I ask, does lime benefit our soil to that extent as to assure us that it will pay all the expenses connected with it? In my opinion, it does not pay in a number of cases as a fertilizer. I admit it may benefit the top soil more or less when put on sod as a top dressing, to be left in grass for several years, when the right kind of lime is used. There is something in lime which is not yet understood even by men of experience. I have seen lime that would slake very quick, and become as light as wheat flour—so light that a strong wind would blow it all away, or a heavy rain would bake it as hard as mortar in a wall. Again, I have seen lime that would slake very slow, and then only crumble into small particles, and never dissolve thoroughly.

The cause of these different effects may be in the quality of the stone; or it may be "burned too much," as the saying is. In my opinion lime does the most service, if any, when it is hauled in large heaps, to dissolve like plaster of Paris; then spread evenly over a field to be left in grass. I admit that there is a vast difference in the quality of limestone. I have visited the extensive quarries of Lefever & Hess, at Quarryville, in this county, and I believe that their stone will make a lime that will benefit land more than

the limestone in the district where I was raised. I noticed that much of their lime had a grayish color and was partly slaked in the kilns, appearing like rich ashes. I will here remark that I was raised a lime-burner. My father, at one time, went by the name of "lime-burner," to distinguish him from another man of the same name in the neighborhood. I helped to measure hundreds of bushels of lime when a boy. We burnt it with wood, and paid from \$3.00 to \$3.50 per cord for wood, when we had none of our own, and sold the lime for 25 cents per bushel, delivered in Lancaster, and to book-farmers, like John Passmore, the first Mayor of Lancaster city—materially the greatest man the city ever had, weighing over 450 pounds.

We also delivered lime to George B. Porter, then one of the leading members of the Lancaster Bar—a brother of David Rittenhouse Porter—and afterwards Territorial Governor of Michigan. They were both book farmers, and some of the first men that limed their lands. One day, with my father, we walked over a cloverfield, when he remarked, "See, now, this part of the field I limed once." I could not see the difference, and up to this day I cannot recall to my "mind's eye" that there was any appreciable difference between what was limed and was not. It only faintly seems to me sometimes that the grass looked a little more green than at other times. Well, years passed on and the field was transferred to the possession of another person. In the month of December one day I happened to pass the same field, and saw about 150 head of sheep feeding in it. The owner of it was also stall-feeding some twenty head of cattle. In April of the following year I passed along again, and saw a huge stack of lime burning in the same field. Sure enough, after the field was heavily manured, you could perceive the effects very plainly. As a rule, it will be said that lime and manure must be used together to bring out the benefits of the lime, but that assumption seems to involve the benefits of lime in greater doubt. It is a question with me whether lime will pay at best. Would not the farmer be better off if he were to save the money he spends for lime, and labor, and coal, and put the money on interest; keep less stock during the summer season, and plow his clover under as a fertilizer, or resort to soiling? It is evident that lime has been of no manner of use in some soils, where from 50 to 200 bushels per acre have been applied. Mr. Carter, our efficient manager of the West Grove Experimental Farm, also admits that lime no longer benefits his land. Prof. Heiges also illustrated that lime is not so valuable as is supposed, and it is questionable with me whether farmers would not be as well or better off without the use of lime at all. It is said that the Romans used lime centuries ago, till they ruined their land, when they returned again to farm yard manure, the cheapest and best of fertilizers.

The day will come when lime will not be known as a fertilizer. Lime has been so extensively used on our lands that it has made the surface soil so loose and light that it causes vegetation to wither or wilt prematurely—so loose and light that at a copious shower of rain the surface soil has been entirely washed away, and many farmers were considerably damaged last year. The spirit of young America is becoming too eager to make the soil produce cereals four or five years in succession, giving rains an opportunity to wash four years, out of fields that formerly were left two or three years in grass, when there was only a chance to disturb the soil twice in five years. So it is that we have come to pay our own penalty for our own imprudence. Because we have been doing certain things in certain ways, for a long series of years, is no reason at all that we should continue to do them so when a better way is known; nor should we abandon old things and old ways for "light and transient causes," merely because they are old; but "prove all things, and hold fast that which is good."

*Read before the Lancaster County Agricultural and Horticultural Society, Sept. 2, 1878, by L. S. Reist.

THE MOST WONDERFUL OF TREES.

Valuable Properties of the King of the Tasmania and Victoria Woods.

The *Eucalyptus globulus* is only found in Tasmania and Victoria, but where found it is really the monopolist of the woods. The forest area of Victoria, the most southern colony of Australia, contains 73,000 square miles of forest, of which 71,500 is almost wholly of eucalyptus. And so great is the diversity of these trees among themselves, that some one hundred and fifty varieties are recognized. This gave marked interest to the exhibits of the Australia colonies and Tasmania in the Philadelphia Exposition. But to the student of human progress a noteworthy fact was, that *Eucalyptus* figured in the contributions of nations to whom the seed even was unknown twenty years ago. Eucalyptus woods, leaves, oils, essences, gums, &c., formed items in the exhibits from the south and north of Africa, the Cape Colony and Algeria; the Orange Free State, Southern Europe, notably France and Italy, Brazil, the pampas of South America, Mexico, California, Jamaica, and even India, could have competed.

When freshly cut the wood of these trees is soft, but so full is it of a resinous gum that it soon hardens, and becomes well nigh imperishable. For ships, and docks, and jetties, it is invaluable. The terrible *Teredo navalis*, or ship worm, lets it alone. It is proof, also, against that fearful scourge, the termites, or white ant. Hence, in India eucalyptus wood is used for the sleepers of the railroads, where it defies the insects and the climate. So great is the variety of the eucalyptus that they are provided for nearly every purpose which wood can subserve. The ship-builder, wheelwright, carpenter, coachmakers and cabinetmakers are all supplied. Usually the eucalyptus are evergreens and hold tenaciously to their leaves. But they readily shed their bark, as a rule, and in such immense pieces can this be detached that the natives make a rude tent of a single piece. Of many species the bark is serviceable for paper making. For size no tree can equal these Australian gums in the magnitude of the timber afforded. A plank sent from Victoria, and intended for the London exhibition, but which arrived too late, sold for £100. It was a clear plank, over 223 feet long, two feet six inches wide, and three inches thick. But, though excellent timber, some of the species are of little worth for fuel. In these the wood burns with such difficulty that it is regarded as specially suited for shingles.

In the deep ravines of Dandenong, in Victoria, a *Eucalyptus amygdalina* measured 420 feet; while another, on the Black Spur, measured 480 feet, thus overtopping greatly the pyramid of Cheops and every human achievement, and even beating by 155 feet the famous *Sequoia gigantea* (Torrey), the biggest of the "big trees" of the Calaveras grove. Mr. G. W. Robinson found a eucalypt which, at the height of four feet from the ground, had a girth of 81 feet, or 27 feet diameter. It is notable, too, that for amount of timber per acre these gum-trees are unmatchable. We read that in one of the densest parts of the Mount Macedon state forests an acre of *Eucalyptus fissilis* contained forty-two large standing trees and twelve saplings. Many of the largest of these trees were from six to seven feet in diameter four feet from the ground, and were from 200 to 220 feet high.

Saplings fifty feet high, and but ten years old, are not remarkable. It is declared that seed sown in Jamaica at an elevation of 5,000 feet, in 1870, had in 1876 attained a growth of fifty feet. We have with our own eyes witnessed throughout an entire summer a growth of an inch a day.

While able to stand great heat, these rapidly-growing eucalypti cannot resist great cold, and without these home conditions we must not expect of them their home achievements. Even at home the tribe does its best with its semi-tropical members. And there is

a great range of variety until we meet even the Alpine species, of slow growth and very modest altitude. In our country, except in a few favored spots, little can be hoped of the semi-tropical varieties north of latitude 30°.

That the *E. globulus* has earned by fair experiment its name of fever tree, as a preventive, seems now to be settled. Its rapid growth must make it a great drainer of wet soils, while its marked terebinthine odor may have its influence, and it is highly probable that the liberation of this essence into the air stands connected with its generation of ozone. But, whatever the sanitary activities of the eucalypt may be, the fact is squarely settled that spots in Italy, uninhabitable because of the malarial fever, have been rendered tolerable by the planting of *E. globulus*, and it is believed that a more plentiful planting would nearly if not quite remove the difficulty. A military post is mentioned in Algeria, in which the garrison had to be changed every five days, such was the virulence of the malaria. A plantation of eucalypt cleared the miasma nearly away, and rendered unnecessary the frequent changes of the garrison. In this case 60,000 trees were planted.

But the eucalypt has not a few medicinal virtues. Its oils and essences are antiseptic. Diffused in the sick room, they purify the air and generate ozone. Already they have taken their places in the *materia medica* as very important internal medicines. The leaves contain the essence *eucalyptol*, and a resinous solid containing a bitter principle not yet understood, and which seems to afford the antifebrile virtue; hence an extract from the leaves, either aqueous or alcoholic, is used as a febrifuge. As a tonic, water may be aromatized by a slight infusion of the leaves. A liquor similar to that of mastic can be produced, and the pharmacy gives instructions for making a tonic eucalyptal wine. Some of the species are tapped for the sap, and gum-tree cider is obtained. The leaves of others yield manna. The famous East India kino of commerce, obtained from the *Pterocarpus marsupium*, a lofty legume growing on the mountains of India, now finds a rival in the Botany Bay kino, the concrete juice of the brown gum-tree (*Eucalyptus resinifera*), of which it is said that a single tree is capable of furnishing 500 pounds of kino in a year. A very interesting instance of what the therapist calls "masking" is an application of the oil of eucalypt for the deodorizing and aromatizing of cod liver oil, thus rendering palatable and even additionally tonic this repellent medicine.

Owing to the bluish-green of its leaves, *E. globulus* is popularly known as the blue-gum tree. Abroad it is most known outside of its systematic name as the Tasmanian gum-tree, and Australian fever-tree. Among the settlers, gum-tree is the general name of the eucalypts. But, as might be expected of a genus so numerous in species, there are many trivial names, such as blue-gum, brown-gum, the red and the white mahogany, stringy-bark, and iron-bark, etc. The botanists reckon 150 varieties. These all belong to the great order *Myrtaceae*, or myrtle blooms. And a decidedly respectable relationship have these trees which shed "their medicinal gum," for they are close cousins to the well-known myrtle, the pomegranate, pimento, or allspice, cajeput and clove.

INSECT PESTS AND THEIR REMEDY.

"MR. EDITOR: The season for insect pests upon our farm stock is now at hand, and it is the duty of every farmer to relieve his stock, as much as possible, from these annoyances. The Bott fly will now deposit its eggs upon the legs of horses. Every evening we should soften the hold of these eggs with warm water and scrape them off with a stiff brush or an old knife. These eggs are the cause of botts in horses, for the cure of which no sure remedy has yet been discovered. The ox bott-fly will now make his home in the backs of our cattle unless headed off by the application of crude petroleum along the loins of the animal.

While the existence of these larvae in the backs of cattle are not dangerous they must certainly cause more or less irritation to the animals. The sheep bott-fly will now lay its eggs in the nostrils of our sheep, and the maggots crawl from thence into the hollows in the bones of the forehead, inducing disease in the flock. Put tar upon their noses and prevent the fly from making a lodgment there. Our poultry, their roosting places, nests, &c., will swarm with hen lice, unless promptly attended to. Whitewash, and a solution of carbolic acid sprinkled over the roosts—coal oil will do as well—and a little sulphur sprinkled in their nests will destroy the vermin. These things will all be attended to by every careful farmer.—*Farmer, London Grove, 7th mo. 5th, 1878.*"

Our correspondent's suggestions are timely and appropriate to the season. In regard to the effects of the ox bott-fly upon the welfare of the animals in which it makes a lodgment, naturalists hold some rather strange opinions. It is held that the puncturing of the animal's back by the fly, and the growth of the larvae therein, acts as a counter-irritant upon the system, preventing the access as well as in effecting the cure of disorders; and has the same effect upon the ox as a leech, or a blister plaster, by its local irritation. A distinguished English naturalist recommends farmers not to disturb the worm in their oxen's backs, because they were deposited there by virtue of a great leading principle existing in nature, of leaving no space unoccupied that can possibly afford a situation for the convenient increase of animal existence; hence springs one of the causes for the extraordinary occupation of the ox's back by these animals. This is certainly a very complacent view of the subject, but if the writer had half a dozen holes in his back with half a dozen bott-flies comfortably located therein he would probably question the great leading principle of nature that made a convenience of his back for the increase of animal existence! There is one person at least who may reasonably demur to making the ox's back a convenience for the reproduction of the bott-fly—and he is the tanner. Many a valuable ox hide has been seriously injured from the holes made by the larvae of these insects.—*Village Record.*

CLOVER AND CHINCH BUGS.

Horatio Sparks, of St. Cloud, Wisconsin, in *The World*, says: From my experience with chinch bugs the last two seasons I am well satisfied that all grain-fields if liberally sown to clover at seed time—say from fifteen to twenty pounds of clover-seed per acre, salt at the rate of half a barrel, and plaster from 100 to 150 pounds per acre—no fear of chinch bugs need be entertained. The salt and plaster give the clover a heavy and luxuriant growth, so that it completely shades the ground, to the discomfiture of the chinch bug. It is a frail insect, and cannot flourish except in the sunshine and with the ground clean about the grain roots. The salt and plaster not only make twice the bulk of clover that would naturally grow without it, but add from 20 to 30 per cent. to the grain crop. The salt hardens and stiffens the straw, produces a rank growth, and prevents blight, rust and mildew, and destroys all grubs and cut-worms that come in contact with it. In 1876 I seeded three acres on one side of a ten-acre lot that was sown to Canada spring wheat with one bushel of clover-seed and half a bushel of timothy-seed, well mixed. The result was, it completely occupied the ground. After the wheat and grass were nicely up I sowed one half of the three acres with salt and plaster, mixed at the rate of two bushels of salt to 100 pounds of plaster. On the other half I sowed 200 pounds of plaster and no salt. The result was the half of the field that was treated with salt and plaster was much better than the half treated with plaster alone. The clover on the first was much of it headed at harvest time and was a perfect mat. I cut it with a strong light reaper, called the Triumph, and one of the best machines, I think, manufactured. I kept the wheat from those three acres separ-

ate from my other wheat and threshed eighty bushels of a No. 1 article. There was no chin-ch bugs on the three acres, while the other portion of the field was nearly destroyed by them, as were all my other fields that year.

In 1877 I sowed clover seed on all my fields and treated all but one four-acre field with salt and plaster. The result was all the land thus treated produced a luxuriant crop of clover, a fine crop of grain and the finest possible pasture in the fall. In consequence of the last my animals all got fat, and I had a fine coat of manure on my fields to plough under. On the four-acre field, not dressed with salt and plaster, the clover killed out in spots, and the wheat ripened prematurely in spots. On examination I found these spots black with bugs. But, on the whole, I got a fair crop of wheat from the field. I hold therefore that clover is the sheet anchor of success to the farmer in renovating and enriching his land, and salt and plaster compose the great balance-wheel that will crown all his efforts. I mix the salt and plaster on the barn floor in a box, at the rate of two bushels of salt and 100 pounds of plaster. When mixed I put it in my wagon-box, and, driving slowly over the field, apply the mixture from the rear of the wagon with liberal hand.

COAL ASHES AND CURCULIO.

I have for several years saved my plums from the ravages of the curculio by the use of coal-ashes. They become so completely disgusted with it that they leave for other parts. Just so soon as the blossoms fall I commence with my ashes. I take a bucketful of the ashes under my arm, and with the other hand I dash the ashes all over and through the trees, covering the plums completely with ashes; and go around every few days and give them another dose. If the rain washes it off, I renew the dose, and keep at it until my plums are ripe, when I am well paid for my trouble. I had last year eight bushels on seven small trees which I sold for thirty-two dollars. I have several trees of the Rheine Claud variety, upon which I did not use the ashes, because the plums were so scattered I thought it would not pay; but there was one limb of those trees that was close to those I put the ashes on. It got its share of ashes, and that limb ripened up all its plums; but not a plum was left on the other part of the tree or on any of the other trees of that variety. This was conclusive evidence to me that it was the ashes that saved my plums. When I first commenced the ashes, my brother told me that I would not succeed. That he made sure of saving his plums by placing a sheet under his trees and catching them on the sheet and killing them. But when plums were ripe I had plenty and he had none.—*Worrall, in Ohio Farmer.*

EXPLOSIVE DUST.

The American Miller, in a recent discussion of the causes of flour mill explosions, remarks:

"Not only is there no essential difference in the explosive character of different kinds of flour dust, but other substances, equally as harmless in themselves as flour, become explosive when diffused in a cloud. Witness the destruction of the candy factory on Barclay street, in New York city, by an explosion and fire that took place last December. Any inflammable substance contains within itself the requisite materials for an explosion if the circumstances are favorable. Fine particles of cotton, wool, or any other similar material, if floating in the air in sufficient quantities to ignite quickly on the application of heat, are all explosive or rather supply the conditions for an explosion. If any solid inflammable substance be reduced to powder and diffused through the air in such a manner that each particle has sufficient oxygen to enable it to burn under the most favorable circumstances, the application of heat will cause an explosion more or less violent. If the dust is diffused through an atmosphere confined within restraining limits, the explosion may be quite as terrific proportionately, as that which destroyed the Washburn mill. Richards has the fol-

lowing in one of his works: 'The inflammable and explosive nature of wood dust is not generally known, but few being aware that it is a fulminate, like gunpowder. Any dust of combustible material, even that of cast iron, when floating or thickly distributed in the air, explodes or burns up with great force. To prove this, let any one hold a candle beneath a girder or beam in a wood shop, and sweep off the fine dust from its top so as to fall on the light, and they will be convinced of its explosive nature.'"

In directing attention to the subject of explosions, the *North Western Lumberman*, of Chicago, speaks as follows: "Wherever there are liable to be accumulations of fine dust there is danger of an explosion; and it must be admitted that in wood-working factories, and particularly those converting dry material, it is rare indeed that dust is not to be found in abundance. It is true there have been but few if any fires in wood-working factories traced directly to this cause; but it will not do to argue from this that none have occurred. A large proportion of the fires in planing mills, and similar institutions, are of unknown or accidental origin, and it is far from unreasonable to suppose that many of them would be found, if it were possible to investigate the matter, to have been the result of explosions of this character. There are many ways in which the necessary combination of dust and air might be effected, and the fire to ignite it supplied, while the chances of discovering just how it was done after the mill is destroyed are very small indeed."

We quote the above opinions to show that an explosive character is not peculiar to flour dust, but common to all substances which have an inflammable nature. It is well to remember this fact when alarmists are attempting to show that flour mills are little better than powder mills, so far as safety is concerned. It is doubtless true that New Process milling, by making finer and drier flour, and making a greater number of separations, may materially assist in bringing about explosions; but the conditions may exist quite as well in any mill where dust and air are mingled in certain proportions in a confined atmosphere.

WINDMILLS ON THE FARM.

Hon. Lewis F. Allen writes to the *Country Gentleman* a very interesting account of the use of windmills on Grand Island, for the purpose of raising water for farm purposes. After describing the topography of the island, Mr. Allen says of windmills:

"These have been so perfected within the past few years, and of various kinds, that it is not worth while to specify any one as superior to another. They are made all over our northern and western States, widely advertised in the papers, and each one who has them can best judge of their working qualities. I only name them in a general way, and speak alone of my own trial of one of them.

"Although accommodated by access to the river, with water for all my household buildings, as well as stock purposes at the barns and stables, my convenience for all were not satisfactory. So, two years ago, I sank three different wells—one at the main barn, where the principal stock is kept, another at the farm house, convenient to the horse barn, and still another at a dwelling half a mile from the latter, all near the river shore. These wells were severally 52 feet at the farm barn, 42 feet at the farm house and 20 feet at the dwelling above named, all yielding pure, good water, touching only the surface of the rock at the bottom, where abundance of water was found. I should also add that a foot or two from the surface of the ground a hard red clay was penetrated until within a foot or two of the rock, when a layer of gravel and sand was reached, and on the surface of the rock a stream of water flowed, which formed the supply. All these wells were bored and socket pipe tiles inserted, as above stated, and into each one was inserted a good iron pump, with about one and a quarter inches delivery, producing a sufficient stream to fill a common

bucket in a minute's operation. I ought to say that in each one of the wells the water has a standing level within ten feet of the surface. So the wells stood, and now stand, sufficient for all practical uses.

"But finding too much hard labor necessary to pump water for forty or fifty head of cattle and horses at the main farm barn, I last fall had erected a windmill over the pump in the barn yard. It is 40 feet high, with a revolver 12 feet in diameter, costing about \$150 complete and in working order. The revolvers are usually only 10 feet in diameter for farm use; but wishing to be perfectly sure in supply of water I chose the large size, and at some \$25 more expense than the other. It has thus far worked to a charm, pumping all that the stock have needed, and working but a few hours, more or less, as the wind may serve, during the day. A tank or trough, 16 feet long, 16 inches wide at the bottom, and flaring two inches wider at the top, and 16 inches deep, securely tongue-grooved and iron-bolted, placed near the pump, where the cattle can drink at will, makes all the accommodations complete, and infinitely better than to drive them to the river sixty rods away, particularly in winter, when its shores are frozen (the river never freezes only along the shores a few rods out), and ice has to be cut away for access to the water, but in the expense of manual labor, and convenience and comfort to the cattle.

REMEDY FOR THE HESSIAN FLY IN WHEAT.

The farmer who recommends this remedy is a Virginian, and he writes to a local paper as follows:

"I hear there is much 'fly' in the wheat that was sown early this fall. To correct this evil I offer the following remedy, which I and others have successfully tested for a good many seasons. Sow of air-slaked, or water-slaked lime, one or two bushels per acre broadcast over the wheat in the early morning on the dew, or over night on a clear evening, when there is reason to expect dew or frost. As it dissolves it will form a lye, which will follow the leaf towards the root and destroy the chrysalis of the fly near that point.

"The sower must always sow with the wind, else the lime will be blown back into his face and eyes and on his clothes. And he must grease his hands, face and nostrils with lard, which renders contact with lime innocuous. If two or more sow, they should sow enechelon, at such a distance that the rear shall cast no lime on the front. A very good, but not indispensable, plan is to use tea scoops—diminutive sugar scoops—that will hold a double handful. It enables one better to take up and measure the quantity to be applied. This is an application so simple and cheap as to discredit it with many who are often looking to be told 'some great thing.' I can only say that I know it to be effectual as a remedy and that in no case can it do harm."

A WINGED HOST OF SENNECHARIB.

Two fly traps stand on the bar of the Central hotel, opposite the Desbrosses street ferry. The traps are the shape of coffee pots. The meshes are of wire, and the whole thing resembles the cage used at the dog pound. A little beer is poured upon the bottom of the traps. The flies enter from the counter through little gateways, fill themselves with beer, and pass up into the trap through a round hole something like the entrance to the sugar-loafed mouse trap. Once through the hole they leave hope behind, for they never know enough to retrace their steps. The traps are plunged in the water three times a day, and the prisoners drowned. Wishing to ascertain the number drowned, Capt. Waterman, one of the proprietors of the hotel, yesterday asked the barkeeper to count them. The dead flies were dumped on the counter, and the barkeeper counted until his head ached, when the job was turned over to General William Turner, a Fifth ward mathematician. After counting until his head swam,

the General used a pony brandy glass as a measure. It held 350 dead flies.

There were seventeen and a half glasses of flies to each trap, and nearly thirty-six glasses between the two. This gave a total of 12,250 flies. As the traps are emptied thrice a day, Capt. Waterman must kill 36,750 every twenty-four hours. If yesterday was an average day for flies, and he thinks it was, he has slaughtered 514,450 within two weeks, and there have been 1,064,750 executions since the 1st of July.

There are 184 hotels in this city. If each proprietor is as remorseless as Capt. Waterman, 6,761,000 flies bite the dust between sunrise and sunset. If this is so, 196,069,000 of these innocent insects have been swept from existence by New York landlords since the first of the month. But the flies seem to have a peculiar penchant for restaurants. If 36,750 a day are killed in a barroom, at least double that number ought to be killed in a restaurant. There are nearly 2,000 restaurants in the city, and the good Dr. Crosby sets the metropolis down for 8,000 liquor saloons. Each liquor saloon ought to return figures equal to those of Capt. Waterman. A table like the following would be somewhere near the truth. :

	No. flies killed.
Hotels.....	6,761,000
Restaurants.....	147,000,000
Liquor Saloons.....	294,000,000
Private Residences.....	50,000,000
Butcher Shops.....	7,000,000
Groceries.....	300,000,000
Markets.....	10,000,000
Candy Shops.....	3,000,000
Drug Stores.....	3,000,000
*Tribune Office.....	1,000,000
Total.....	\$21,761,000

*A moderate estimate, considering the condition of that journal.

These figures are believed to be under rather than over the number of flies actually trapped and executed in this city every day. They give the startling total of 23,747,069,000 drowned since July 1st.

Furthermore. Twelve of Captain Waterman's pony brandy glasses hold a half pint of flies. He murders four pints and a half every day. Carry out the figures on this basis, and we have the following astonishing result:

Places	Pints of Flies.
Hotels.....	826
Restaurants.....	18,000
Liquor Saloons.....	36,000
Private Residences.....	7,452
Butcher Shops.....	928
Markets.....	1,100
Candy Shops.....	400
Drug Stores.....	400
*Tribune Office.....	100
Total.....	65,208

*A moderate estimate, considering the condition of that journal.

The result is still more startling. If the figures are correct 1,879,432 pints of flies have been slaughtered by these traps since the beginning of the hot weather. Analyze the pints, and we have 936,316 quarts, or 23,424 gallons, enough dead flies to sink one of Commissioner Nichol's offal boats. All this is exclusive of those that lost their lives by accidents. At least 1,000,000 are drowned in milk, tea, and coffee; another 1,000,000 are whipped to death by the tails of mules and horses; many are talked to death, and a far greater number are poisoned by sampling Fourth ward whisky.

Nor is this all. Of the 821,761,000 (more or less) daily sent to a better or far worse world it is estimated that 60,000,000 are pie eaters, 100,000,000 sugar tasters, 500,000,000 participants in free lunches, 100,000,000 molasses samplers, 200,000,000 meat and fish destroyers, 19,242 politicians, 100,000,000 dock bummers, and the remainder of various professions.

At all events, if this is a truly great and good world, the above figures ought to rest heavily on the consciences of all the makers of fly traps.—N. Y. Sun.

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VERIFIABLE INCIDENTS IN CROWNOLOGY.

Among all the *Passeres*, probably there is no species which exhibits so much craft or memory as our common crow. Their cautious approach to corn fields containing strings tied to sticks and various devices of the scarecrow order, their employment of sentinels while feeding, and their adroitness in evading pursuit, with other evidences, certainly indicate considerable intelligence.

When tamed, some specimens manifest quite a shrewd faculty of apprehension. Among the many means resorted to for lessening their number is that of shooting down the nests containing young, during their breeding season.

About two years ago a young friend of mine brought back, all alive, from one of these expeditions, three young inhabitants of a bombarded nest. Dick, the one kept, has proved to be very talkative, and his inquisitiveness is perfectly comical when he has come upon something new to him. He will look it all over very carefully, chattering and making the queerest of noises, until he has thoroughly satisfied his curiosity. After he became old enough to fly, his primaries were kept clipped; but afterwards, by an oversight, his wings grew out enough to enable him to fly off to the woods, where he remained two days and then lit in a neighbor's orchard, and there kept up a continuous cawing. Finally the owner went out with his gun, saying, "I'll just let Mr. Crow have a little of the benefit of my yesterday's 'trap-shooting.' "

The report of the gun frightened Dick nearly out of his wits; he flew to the ground at the farmer's feet, entirely unhurt, but uttering the most frightful screams and fluttering about in the greatest distress, until he was recognized as Dick, promptly captured and borne to his home, where he has since remained, with full-fledged wings, in perfect contentment.

Dick understands farming enough to know that after a crop is planted it should be harvested; but he was a trifle too ready to harvest some rare bulbs, which were set out in flower-plats, with the crow along as an observer. No viridescent blades were seen to shoot forth in the little parterre, nor was a single bulb to be found, until a month afterwards, when all were discovered snugly piled under some rubbish in a corner.

He soon had the house plants fixed in the same way. His keepers, thinking they had broken him of his mischievousness, let the plants remain on the piazza; but more than once in Dick's favorite working hours, just before light, a crash of crockery and the crow's peculiar laugh and caw told them that a favorite coleus or geranium was riddled to pieces. His performances when the cat is eating are sure to excite a laugh all around. He will strut up beside pussy and suddenly strike her with his talon, and then run off, making the queerest kind of a chuckle, seeming to invite the attention of all to his smartness. His treatment of two kittens, however, was even a trifle worse. He killed and devoured every morsel of them, except their skins, and these he buried under some chips in the corner of the wood-house. There he guards them by fighting when necessary and screeching when any one approaches the spot, as vigorously today as when he first put them there.

Once he killed a young turkey; but being "caught in the act," the owner took him by the legs with one hand and whipped his head over the palm of the other, until Dick was in a demoralized condition, so that ever since his memory is excellent concerning the rightful "management of poultry." Not a dog dares touch him, except in play. A large Newfoundland and himself have great fun in mutual frolics. This dog has a small tuft of white hairs at the end of his tail, and in this Dick has always been so greatly interested that he has picked them out, little by little, until but few remain.

He will trip over an eight-quart pail of water left in his way. When he cannot reach the

rim so as to take hold with his beak, he has been known to drag a wash-basin and tip it over close to the pail and stand on it. One afternoon he was about the piazza, where a lady was engaged in sewing. Dick watched her closely. Soon she went in to supper, laying her thimble on a chair. Immediately Dick grabbed it up in his beak and flew into a neighboring tree, talking away at the greatest rate. Nothing would induce him to come down; but a well-directed stick brought out one of his wide-mouthed shrieks, and down came the thimble.

He hugely enjoys a wash-off in a rain-storm, and in winter he has great sport, diving into the snow, plowing under it out of sight, like a mole, and uttering his peculiar chatter and laughs of pleasure continually. The other night his owner, aroused by the most frightful screams in the wood-shed, rushed out there in a hurry, expecting to find Dick the prey of an owl; but a careful "canvass" disclosed nothing but the fact that his nest had fallen from its perch.

Without discussing the protection of birds or their benefits to man, it is certain that the crow's alert and suspicious nature, in its wild state, is beneficial to the farmer. If he but stretches twine across his corn field before a single blade has appeared above ground, he will not be molested by this inconsistently-detested bird, which in no year destroys as much of his crop as that not-to-be-frightened species, the purple Crackle or common Blackbird.—*De Vreux.*

PLEASURES IN FARMING.

Ex-Senator Chandler had something wise to say about farming, as well as something significant about politics, when he addressed his neighbors at his farm in Michigan not long ago. He declared that farming was not only the oldest, but the most respectable occupation known to man. "If I had a boy today," he exclaimed, "I would rather put him on an eighty-acre lot that had never had a plough or an axe upon it than place him in the best government office in the land!" Agricultural papers will please copy the remark, and farmers' lads who are growing up dissatisfied with country life, and who cannot overcome a restless desire to go to a city and enter a profession, will do well to remember it. "Make your home pleasant," continued the ex-Secretary, "make them so attractive that your sons and daughters will love their homes better than any other place on God's earth. Make this business of farming so agreeable that your sons will see that it is the most healthful and profitable occupation in which they can engage. Build good houses and buy good implements. Don't get an old cracked cook stove, but put in a good range. In fact, have every convenience that you can, so that your wives and daughters will deem it a pleasure to perform their household work. In this way you can bring up your sons and daughters on the farm, but when you make the home repulsive, you drive them into clerkships and other menial positions, when they ought to be God's anointed lords of creation." These are plain words, but they are crammed with hard sense.

HUMMING-BIRDS.

The humming-birds form one compact family, named *Trochilidae*. They are all small birds, the largest known being about the size of a swallow, while the smallest are minute creatures whose bodies are hardly larger than a humble-bee. Their distinguishing features are excessively short legs and feet, very long and pointed wings, a long and slender bill, and a long extensible tubular tongue; and these characters are found combined in no other birds. The feet are exceedingly small and delicate, often beautifully tufted with down, and so short as to be hardly visible beyond the plumage. The toes are placed as in most birds, three in front and one behind, and have very strong and sharply curved claws, and the feet serve probably to cling to their perch rather than to support the weight of the

body. The wings are long and narrow, but strongly formed, and the first quill is the longest, a peculiarity found in hardly any other birds but a few of the swifts. The bill varies greatly in length, but is always long, slender and pointed, the upper mandible being the widest and lapping over the lower at each side, thus affording complete protection to the delicate tongue, the perfect action of which is essential to the bird's existence. The humming-bird's tongue is very long, and is capable of being greatly extended beyond the beak and rapidly drawn back, by means of muscles which are attached to the hyoid or tongue bones, and bend round over the back and top of the head to the very forehead, just as in the woodpeckers. The two blades, or two laminae, of which the tongues of birds usually seem to be formed, are here greatly lengthened, broadened out, and each rolled up, so as to form a complete double tube, connected down the middle, and with the outer edges in contact, but not united. The extremities of the tubes are, however, flat and fibrous. This tubular and retractile tongue enables the bird to suck up honey from the nectaries of flowers, and also to capture small insects; but whether the latter pass down the tubes or are entangled in the fibrous tips, and thus drawn back into the gullet, is not known. The only other birds with a similar tubular tongue are the sun-birds of the East, which, however, have no affinity whatever with the humming-birds.

FOR THE LANCASTER FARMER.

REVU OF AUGUST NUMBER.

The Sparrow Nuisance.—Hu shal no when doctors disagre? Won thing we do no, ie—that tha ate very nerly al the buds off a plum tre which bor but wou plum wher it mit hav brot haf a bushel, thus outdoing the litl Turk ten to won. We ar in for ther extermination.

Ox Eye Daisy.—Som foks rais thes in larg quantities. Suppos tha dont cost as much as to go to florists to by flowers. Wel, every won to his fancy.

Best Time to Sow Wheat and How to Prepare the Soil.—J. G. givs som gud hints on soing wheat, but he gets everything mixed up with the mun. Wonder if the Hessian fly mit not be basled by working the ground and soing the wheat in the rising of the mun, so that the larva wud ascend the stock insted of going down as usual.

Random Thoughts.—A. B. K. alwas has somthing interesting. Tis a pity ther ar not mor such contributors to THE FARMER.

Strawberry Culture.—Everything from the pen of C. H. is worth re-eding. Mor practical riters are fu and far between. He shud use his pen mor.

Price of Flour.—The New Era pitches a brosids into our millers, but if the Era calcults rit tha can bar som criticisms.

Suga Beets.—We ar a litl slo geting into the sugar bisnes, but it is destined to becom won of the grar interests of the Northern stats. Mark our prediction.

The Agricultural and Horticultural, Tobacco-Growers', Linnean and Bee-Keepers' Societies sem al tu find rum for the discussion of ther special interests. Hop tha ma al flurish.

Condition of American Agriculture.—We beter not promis the world to much. We ma som da ned al we can rase if we continue the skinning system on a still largerscal than we du now.

Interior Fences.—We can no longer aford to continue midl fences, but the majority wil hav them whether tha can aford it or not.

Where to Plant an Apple Orchard.—This is gud advice, but a majority of farmers plant behind the barn, just wher the old orchard stud, believing it to be a gud plac, becaus tha used to hav plenty of appls. What foly!

Growing Chestnuts.—We believe strongly in the idea of the Germantown Telegraph.

To Cure Dogs of Killing Chickens.—Dogs that wil kil chickens wil kil sheep, and we hav a surer cur than that given in THE FARMER. Insted of tying the chicken to the dog's neck, cut off his tail clos behind his ers, and he wil be sur to let yur chickens alon.—Von Humbolt.

AGRICULTURAL JOURNALS — THEIR INFLUENCE AND VALUE.*

It will be found, on examination, that most of the large products in husbandry are obtained by farmers who are accustomed to read and think, and who are not only wise enough to profit by reading, but who select the best part of their material from books and papers devoted to their interest, and in which they find recorded the facts and the experience of successful men.

That the real progress of agriculture is in this way greatly promoted by the influence of the press is no longer an open question, for although it is undoubtedly true that the products of husbandry are directly and mainly the outcome of manual labor, yet the quality and amount of those products are largely determined by superiority of mental force, and by the kind of intelligence that comes from books and journals.

Let not the tillers of the soil, therefore, blindly imagine that physical development alone is sufficient to secure maximum crops, and a margin of profit. Let them bear in mind that a still higher power has its seat in the brain, from which physical development derives all its value; that the silent energy of thought is quietly doing its work over the continent from week to week, and from year to year, and that this free, earnest and unselfish thought, while continually achieving grand results, is also continually putting them on record for the benefit of all.

Thus it is that while we discover on one hand a grand army of thoughtful workers, everywhere intent on developing new and original facts, and new fruits of experience, we may also find, in the background of the picture, another army of workers, who are also thinkers of the highest type—a countless array of vigorous and enterprising journals, always ready and eager to seize and appropriate, to expound and improve these new and valuable results of practical farming, and then to scatter them broad-cast through the land to shed light in dark places, and pour new fertility into sterile soils.

How is it possible, then, not to see that the pen as well as the plow, the type-setter as well as the planter, the editor at his desk not less than the proprietor of a thousand acres, are all instrumental in propelling this great industry of the country, and have jointly contributed to make our agriculture all that it now is.

In confirmation of this view, there are many shrewd and practical men who have discovered in their own experience, and we do not hesitate to emphasize the fact, that the best investment they have yet made in their business is the money paid for agricultural papers, and who also make it a point to read them carefully, and to write for them often. These are the men who win the surest prizes of husbandry, whose success proves that farming can be made to pay, not only in the broadest and highest sense of the word, but also in its money aspect, and whose example kindles the faith, and animates the zeal of other farmers even in remote and unfavored sections.

So clearly and palpably have the journals of this class demonstrated their value, that it is often possible in passing through a rural district to discover by unmistakable signs the farms at which such papers are taken, and where they have found a welcome home; and it is easy to see that in the presence of these sheets of useful knowledge, the whole aspect of the farm is changed, and all the results improved. Manures and fertilizers are more efficient, as well as more abundant; the latest and best methods are adopted; a new impulse is given to vegetation; the very roots of the crop strike deeper, and spread wider than before, and even the meadows assume a brighter shade of green, and the cereal grains a deeper tinge of gold. And, finally, as a crowning evidence of what is here claimed for the influence of the press, along with this new

vigor of vegetation and more abundant yield, we find also a reduction of cost that is even more important than all the rest.

It would be easy to refer by name, if it were not invidious, to a score of such papers, in either of which a single number could be pointed out, which for intrinsic value is worth, to a shrewd farmer, the subscription of a lifetime. Even single passages could be referred to in various journals, in which the facts compressed in a few lines are worth more to an intelligent, practical man than a ton of guano, or an acre of land; for the acre of land is confined to one unchanging spot, and the ton of guano admits of only one application. But the great facts of experience in farming are not bounded by an acre, and do not expire in one application. On the contrary, they are developed by use, and grow by repetition. They spread and multiply from farm to farm, and from year to year, until a continent is made richer by them, and posterity hails them as a treasure.

Now, farmers, this is not a long sermon, but it has a moral and a purpose, and the meaning for each individual is this: If you are not already a subscriber to an agricultural paper, lose no time in securing the benefit of such a journal, for you are certainly losing every year far more than the cost, and sooner or later you will find this out. If you are already taking one or more such papers, don't be satisfied till you make the number three or four. Depend upon it, farmers are too generally under a mistake on this subject, and it is time to take up a new departure.

The timidity shown by many in applying a sum so limited as two or three dollars to obtain the priceless knowledge, on which depends the whole value and final profit of their business, is more than surprising. The trifling sums, often lavished without a thought on objects comparatively of little or no value, if applied to such a purpose as this would be sufficient to supply a variety of journals and valuable books that would at once create a new atmosphere of thought in the house, and, while thus rounding out the education of the family, would also enlarge the yield and the profit of harvests to come.

This is no mere picture of imagination, for I have more than once seen the proofs of it, and have heard the admission made by practical men.

Does it not then, farmers, clearly devolve on you to encourage and sustain the generous efforts of a press that is everywhere working in your interest, and lighting up your future with the experience of the past? I know that many of you so regard it. But what shall we say to those who excuse themselves by finding fault with the defects of the press, and who allege that among so many imperfections they do not know what paper to take?

To all such let me frankly say that this is not a reason, but simply an evasion. You do not expect perfection in anything human; then why exact it in the case of a farmer's journal? If you could really find an ideal journal, absolutely faultless and perfect, it would be cheap at \$10 a year, while the present range of prices is from one dollar to \$2.50, and it is safe to say that, taking them as we now find them, there is hardly one in the whole number that is not worth many times its cost, if rightly used.

The mere fact that a paper of this class is not perfect is the last reason in the world for neglecting it. If you have discovered the defects of your local paper, you are the very man to help improve it, by taking hold of it with a will. If you will order it at once, paying for a year in advance, you will be sure to read it, and after reading a few numbers you will find time occasionally to write for it. But don't be afraid to criticise and make suggestions. And, above all, send in new facts, giving your own experience and that of your neighbors. In this way your example will kindle a contagion throughout your town and county, and you will have the satisfaction of improving your local paper, and extending its circulation, while largely increasing the

* A paper read at the American Institute Farmers' Club by Courad Wilson.

sources of pleasure in your family, and the sources of profit on your farm.

Let us now see, in conclusion, what would be the broad national result if a new and decided impulse could be given to the circulation of these journals. It is not, of course, easy to say with accuracy what is the present sum total of subscribers to such papers, including, as they do, a considerable list of weekly editions of daily papers, which give ample space as well as liberal effort and outlay to this great and growing industry. Probably the nearest estimate now attainable would make the entire circulation of the agricultural press from one and a half to two million subscribers. The next census will probably show that the number of proprietary farmers is not far from seven millions, and the entire farming population from twenty to twenty-five millions. But if we assume the present total circulation even at two millions, this still shows a vast and dreary domain lacking the priceless knowledge which a well conducted press is fitted to impart.

Now suppose it were possible before the close of the present decade to double the circulation of the agricultural press. Who does not see that the new flood of light thus supplied would be an unspeakable benediction to a countless host of toilers, who sadly need such an illumination, which would not only impress on them a change of character, but would immensely increase the product of their farms. But is it possible thus to double this circulation? Probably not in so brief a period. But one thing is certain: If the right means are used, there is a possible increase for these periodicals not far short of the ratio here stated; and the prize is certainly worth the effort, not only of every farmer but of every journal in the country. The means for gaining this end include various conditions, but must be left for future discussion.

It would be easy to show that if the suggestions of Mr. Dodge were carried out, for doubling the total product of our farms, or if even one-half that increase were attained, the result would be sufficient to support the population of the globe for an entire year. It will be an immense stride in this direction whenever the farmers of the country shall rally to sustain the press, which is the very life blood of their prosperity, and give to its circulation such an increase as its importance demands.

EVERGREENS AND BIRDS.

Few persons who are not in position to notice it, are aware of what an interesting harbor for a great many varieties of birds, is a cluster of evergreens near a house. They are objects of interest for several reasons, and are frequented by birds at one time of the year for one purpose, and at another time for another; so that they are visited at all times by a number of different birds. In the winter the thick green boughs of balsam fir, Norway spruce and pines, afford an excellent shelter to such birds as stay with us during that inclement season. Among these are the common sparrow, song sparrow, ground and tree chippers, snowbirds, and sometimes the lesser red-pole of the far North, will, during extreme cold, visit us as far south as the northern part of New Jersey, and eat the seeds from the cone of such trees. During the breeding season, most birds that build a hanging or bag nest, besides many others, visit those trees to get the gum for sticking the threads of their houses together. While thus engaged gathering the gum, they are so busy that they allow no one to approach very close to them. The trees are also a great resort for birds that make their domicile in the branches, particularly robins and cat-birds. Such trees are kept clear from insects, and afford a fine shade in summer and are very beautiful also in snowy weather, affording a pleasing contrast in color to the pure white snow. A cluster of them near a farm-house or rural home, affords much interest to the family, and to those who are fond of bird life.—*Rural New Yorker.*

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The regular monthly meeting of the society was held on Monday afternoon, September 2d, in their rooms, City Hall. The following members and visitors were present: Simon P. Eby, city; Levi S. Reist, Manheim; Levi W. Gross, West Earl; Casper Hiller, Conestoga; Daniel Smeych, city; Jacob Bollinger, Manheim; Calvin Cooper, Bird-in-Hand; W. W. Gries, city; F. R. Difenderfer, city; John G. Resh, Willow Street; J. F. Witmer, Paradise; S. R. Hess, Ephrata; S. L. Fry, Ephrata; Elias S. Hershey, Paradise; Johnson Miller, Warwick; Henry Kurtz, Mount Joy; J. M. Johnston, city; Clare Carpenter, city; Ephraim S. Hoover, Manheim; M. D. Kendig, Manor; C. M. Hostetter, Eden; S. S. Rathvon, city; J. Hartman Hershey, Rohrerstown; J. Fred. Seiner, city; Jacob B. Garber, Columbia; Israel L. Landis, city; A. F. Hostetter, Manheim; J. H. Hershey, West Hempfield; Abraham Bausman, Manor; Christian Miller, Warwick.

The society was called to order by the President, Calvin Cooper, Esq.

On motion the reading of the minutes of last meeting was dispensed with.

Election of Members.

Mr. Christian H. Miller, of Manheim, and Samuel R. Hess, of Ephrata, were proposed and elected to membership.

Reports on Crops.

Levi S. Reist, of Manheim, called attention to a field of wheat just outside the city that yielded 273 bushels from 5½ acres. Another of three acres gave a product of 156 bushels. Wheat, corn, oats and tobacco will make an average crop. Potatoes are plenty but not so large. The Goodrich have done the best. Out of two hundred of his apple trees fifty are bearing well. At the head of the list for bearing are put York Imperial, Pennsylvania Red Streak, Rambo, Baldwin, Hubert's Nonsuch, Smokehouse, Sheep-nose, Cambridge and Golden Pippin. Of those bearing in a less degree he named the Pound, Berks County Cider, Russets, Sweet All Summer, Red Streak, Red Astrachan, Smith's Cider, Northern Spy, Bell Flower and Conestoga Pippin. Many other varieties have only a few on the trees. The best of his early peaches are Trotter's Early Red, George IV. and Crawford's Late. Hale's Early rotted on the trees before ripening; all the rest rotted more or less. The grapes are doing well. A new thing appeared in the grapes and also with the pears; the wasps destroyed a great deal, while the bees did not harm.

Henry Kurtz, of Mount Joy, reported a yield of wheat by weight of 44 bushels to the acre. Of his own he had a yield of about 40 bushels. The corn crop will be tolerably good. Tobacco is both good and bad.

Johnson Miller, of Warwick, reported that they could not do so well as the reports just given. There has been no such a dry spell for years. Tobacco will be a short crop. The early potatoes were a fair crop, but the late one will be a poor one.

Ephraim S. Hoover stated that in Manheim the wheat crop was a very good one; the yield was all the way from 23 to 44 bushels per acre. Corn is tolerably fair; the late planted is much the best. The grass fields are well set. The fruit crop is an average one. Potatoes also are a pretty good crop, except the late ones. The oats ripened too fast; it is long in the straw, but light in weight.

C. M. Hostetter said some tobacco is good, some poor. Grass has set very well. Corn looks tolerably well.

M. D. Kendig, of Manor, said their wheat average would be about 30 bushels; the weather is very dry, and the corn is very poor. The rain fall for August was nine-tenths of an inch. The grass is dying off and pasture is getting short. Fruit is an average crop only. S. L. Fry, of Ephrata, said he had traveled over a good deal of territory lately, but he has seen none so good as here at home. The Coalico valley average, a little over 25 bushels of wheat to the acre. Corn is scarcely much more than half a crop. Some, however, is better than it looks. In a trip of thirty miles he saw but two good fields of corn. Grass is well set, clover particularly so; clover is growing short. If we have rain soon there will be no lack of pasture. Potatoes are a short crop, hardly averaging a half crop. Clover seed is reported as yielding a full crop. On the farm of Hon. Thos. E. Franklin he had counted 35 stacks of grain.

S. R. Hess, of Ephrata, said fruit was doing better than for years. The Gravenstein and the Jeffries are doing uncommonly well. The Smokehouse are showing to excellent advantage; so are the Winesap. Peaches of the early varieties were a comparative failure. Old Nixon and Mountain Rose take the lead this year. The wasps have been very destructive. The grapes are doing tolerably well; the fruit is mostly small.

Henry Kurtz said a Mr. Snyder raised 38 bushels of wheat to the acre on his farm, the acreage being considerable.

The President remarked, while some members reported average crops, others selected the very best lots that came to their notice. It would be well to bear this in mind; unless this is done misunderstandings may occur.

Daniel Smeych, of the city, called attention to a good grape crop. The bees, however, are literally eating them up; they have carried off three bushels within ten days for him. He is the only person who reported harm from the bees.

Levi W. Gross said that he never believed the bees hurt grapes until yesterday, when they did a full day's work.

S. S. Rathvon observed bees to-day for the first time on his vines; they did no damage, however. What they may do hereafter he does not know. During the week he saw bees working at the leaves of the Osage orange, which they bruised considerably.

Reading of Essays.

Levi S. Reist, of Oregon, read an essay on the use of lime. The proper use of lime is not fully understood. It may be burned improperly and slaked badly. Some limestone makes better lime than others. He referred to the Porters of this city, who were among the first users of lime in this vicinity. Some contend manure and lime must be used together to produce the best effects. He questioned whether it paid big money to lime land heavily. He thought, perhaps, farmers would be as well off without lime as with it. The Romans used it until their lands became unproductive. Barnyard manure must, after all, be our final resort. We know that to be effective. We may also plow under clover and thus renew our soils. Our fields are now washed by rains, because the surface soil has been made so loose that rains and winds operate on them and carry off the fine dusty portions.

Henry Kurtz was surprised at the contents of the essay. It advocated a backward move in agriculture. The Pequea lime is a pure one, but not strong. Where land is not limed you can raise nothing. Land washes more now because it is turned up oftener. So far as grass is concerned as a manurial agent, of course that is good, but you must have lime to produce grass first. Lime is our great ally in growing crops.

Jacob Bollinger remarked, some fancy farmers have no faith in lime, but his experience was that lime does pay. Last year he burned seven thousand bushels of lime, and during the past six years he has burned, for his own exclusive use, twenty-five thousand bushels of lime, and he believed it has paid him. He criticised the address of Prof. Heiges for some of his views on the lime question, and also about shipping too much of our grain out of the county. But there are thousands of bushels of corn and wheat brought into this county and used here. The farmers of Lancaster county are not so stupid as to have used lime for a century without discovering that it has benefited their farms.

Ephraim S. Hoover agreed with the last speaker. He would be very sorry if all his past labor in liming has been in vain. Before we go to liming we ought to know what kind of soil we have. On a worn-down, bound-up farm, lime is the best of all fertilizers; it loosens that soil and puts it in a condition to grow crops. But when the soil is once loosened and becomes productive it would, perhaps, be better to use barnyard manure. As the same medicine is not good for all diseases, so, too, lime has not the same effect in all cases.

Joseph F. Witmer thought the members had misunderstood Prof. Heiges; he said it was a fertilizer, but not a manure. That a small quantity of lime was sufficient to supply the cereals; that it prepared vegetable matter so that plants could take it up and feed on it. He knew of a farm often manured, but on which light crops only could be raised; it was limed and produced thirty bushels of wheat to the acre the following year.

Levi S. Reist gave an instance of a man who experimented with lime, and who found it to be an absolute injury; his was a rich vegetable mould.

J. F. Witmer had asked Prof. Heiges how much lime he would apply to an acre, and he replied twenty bushels.

S. L. Fry, of Ephrata, also fell somewhat sharply upon Prof. S. B. Heiges' lecture. He was also surprised that an old farmer should tell us lime is a fertilizer. He alluded to a farmer who has had no fail crop on his farm for thirty years, and which has undergone only two limings in all that time. He does not believe it is a fertilizer. In itself, independent of other manures, you can raise nothing from lime. He does not believe that lime, if put on barren soil, will ever bring it into productive condition. He failed to understand the learned Professor's lecture as reported.

J. G. Resh alluded to farmers in a certain section, who limed their soil so heavily and constantly that they finally could grow nothing, so they have to return to artificial fertilizers.

Joseph F. Witmer said the lime question was easily tested. Take pure river sand and put your lime into it, and the seed into that, and see whether you can raise anything. You will then see it is not a fertilizer.

S. L. Fry called attention to the discrepancy into which two of the lime advocates had fallen. One said it would bring crops on a barren soil, while the other said if mixed with sand equally barren nothing will grow.

Bills Paid.

On motion a bill for the payment of some plates for fruit, and also the janitor's bill, were ordered paid.

Referred Questions.

Ephraim S. Hoover answered the question, "What is the best time for cutting corn?" When the tops have become dry and brittle and when the outward husks have turned yellow, then is the best time. The grain has become hard and will not mould. The stalks also will be better for fodder. Some persons prefer to wait for frost, but he preferred to cut when the indications he had just given were plainly visible. He prefers to cut off his corn to the old-fashioned custom of topping. He likes to have the whole stalk.

New Business.

The question of renting these rooms to the Tobacco Growers' Association was referred to the committee on lease.

Casper Hiller presented a huge stalk of millet, with a cane as thick as a thumb. This plant, according to circulars and advertisements sent over the country, was, by its immense growth, productiveness and superior feeding qualities, to supersede all other forage plants. It was also said the plant could be cut twice a year and afterwards produce as many bushels of seed as an ordinary corn crop. It is evident that it would require a different season from the present to bring out all that has been claimed for it. At present it looks very much as if the same fellow that disseminated it has been doing our Lancaster county farmers with Japan persimmons, Chickesaw and Wild Goose plums, dwarf peaches, and rhododendrons.

Report on Fruits.

The committee on nomenclature, after carefully examining and testing the fruits—assisted in the latter operation by the whole society—made the following report: The exhibit, although not very large, is fine and choice, and attracted universal admiration. Some of the fruit, especially the grapes and peaches, would do credit to a more pretentious exhibition than this impromptu one. Although the season has not been especially favorable, the fruits here to-day compare favorably with those of any previous year. The following are the exhibitors and the fruits shown by them:

S. R. Hess & Son, of Ephrata, six varieties of apples: Tompkins County King, Cumberland Seedling, Jeffries, Fall Pippin, Gravenstein, and a large yellow apple, of very good quality, for name; also, a plate of peaches.

J. G. Resh, Grapes: Iona, Maxatawny, Muscatine, Ives' Seedling and Concord.

Levi S. Reist, Peaches: Morris White, George IV. and Crawford's Late. Grapes: Concord, Maxatawny, Martha and Muscatine. Apples: Spornhauer, seven other varieties and a very small seedling.

Christian Miller, Grapes: Wild Fox, Rogers, Franklin, Delaware, Rogers No. 15, Perkins, Concord, Union Village, and a small grape for a name. Pears: Bartlett, Beurre Claireau, Flemish Beauty and Belle Lucrative.

Casper Hiller, Grapes: Rogers Nos. 33, 19 and 15, Perkins, Ives, North Carolina Seedling and Senasqua. Peaches: Susquehanna, Stump the World, Crawford's Late. Apples: Elick's Sweet, Benoni, American Summer, Pearmain and Autumn Strawberry.

Daniel Smeych, Lancaster, Grapes: White Tokay, Black Hamburg, Allen's Hybrid, Union Village, Diana, Black St. Peter and Creveling. Peaches: Sener and Susquehanna. Pears: Bartlett, Beurre Claireau, Belle Lucrative, Duchess and Russet. Also, an imported plum of fine size and great beauty, said to be curculio proof.

We cannot pass by this collection of Mr. Smeych without a word of commendation. The Sener peach was represented by some specimens from the parent tree and also from three-year old trees grown by Mr. Smeych. The former coming from the old tree were of course of superior size, but the fruit from the young tree was so exceedingly handsome that nothing we can say would do justice to it. It promises to be the peach in size, beauty and flavor. His collection of pears and grapes we also deem worthy of special mention.

Joseph H. Witmer, bearded wheat for name; fine, plump grain, and also large, handsome heads.

S. L. Fry, apples: Northern Spy and two for a name. Potatoes: Watson's Seedling and Burbank Seedling—both very handsome.

S. P. Eby, cotton plant covered with ripe and green bolls, brought from Forkland, Alabama, by J. L. Levy.

Casper Hiller, a fine specimen of Pearl Millet, and an ornamental plant, the Erianthus Ravenna, some ten feet high.

Mrs. B. F. Bear, of East Lemon street, Lancaster, a fine peach of the Susquehanna variety, of extraordinary size, being eleven and one half inches in cir-

cumference, and weighing three-fourths of a pound. Respectfully submitted,

J. B. GARBER,
M. D. KENDIG,
LEVI S. REIST.

Business for Next Meeting.

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

"How shall we treat the tramps?"

"Should not country roads be improved?"

"Are county fairs beneficial to farmers and fruit growers?"

A motion was made and carried to reject the first of the above subjects, as not properly coming under the legitimate work of the society.

On motion, a committee, Messrs. Rathvon, Eby and Smeych, were appointed to superintend the erection of tables along the wall for the exhibition of fruit. Adjourned.

TOBACCO GROWERS' ASSOCIATION.

A stated meeting of the Lancaster County Tobacco Growers' Association was held Monday afternoon, August 19, in the rooms of the Agricultural Society, City Hall.

The attendance was small, owing, no doubt, to the fact that the tobacco farmers are at the present time busily engaged in cutting and hanging up their crop.

The following members were present: Messrs. M. D. Kendig, President, Manor; Sylvester Kennedy, Salisbury; Wash. L. Hershey, Chickies; Jacob C. Garber, Rapo; Frank R. Diffenderfer, J. M. Johnston, Clare Carpenter, city; C. L. Hunsecker, Manheim; Mr. Royer, Ephrata; John Brady, Millersville.

The Secretary being absent, Wash. L. Hershey was appointed Secretary *pro tem.*

The reading of minutes of last meeting was dispensed with.

Crop Reports.

The condition and prospect of the local crop being called for, Wash. L. Hershey, of Chickies, reported that of 21,000 plants he had set out, he had cut off and housed about 12,000. His crop is about as good as it was last year, and he thinks the entire crop in his neighborhood will be at least two-thirds and perhaps three-fourths as large as last year. A good many patches are irregular in growth, and until last week, there had not been a good soaking rain since the 25th of June. There had been a very few worms on the plants. Some of his neighbors had already finished cutting, and all of them had cut off more or less. The average planted was about the same as last year. Some old tobacco was still held by the growers in the neighborhood. He held 105 cases, assorted in several grades, for which he wanted 13 cents round.

Sylvester Kennedy, of Salisbury, reported some very good, and some very inferior tobacco in his neighborhood, and thought that the acreage or the weight of the crop would not be more than half as large as last year, though he had himself put in the same as last year. The green worm was not so bad as usual. The stinkbug, scented soldier bug, *Euschesites punctaticeps* as it is called by the entomologists, had stung the leaves somewhat, but not so badly as heretofore. Some growers have finished cutting and others have only fairly begun. Rain is badly wanted for the late tobacco.

President Kendig reported the crop in Manor as looking very well and anticipated a full crop. The worms had not done much damage, though the "stinkbug" had injured a good many leaves. A few more showers of rain will complete the growth of the late plants and make a good crop. The acreage is about the same as last year and he believed the crop would yield more pounds to the acre than last year. Cutting has only commenced in a few small patches. The tobacco had generally been topped low and large leaves was the result.

John Brady said the tobacco around Millersville was generally very good, though some fields between that place and Lancaster are rather backward. There were less green worms than ever before. There were as many acres planted in Manor as last year; no damage resulted from hail. Jacob Warfel and perhaps others in the neighborhood have their entire crop cut off and housed.

C. L. Hunsecker, of Manheim, reported a good crop in his section—fully equal to last year's per acre, but not quite so many acres planted. About one-half the crop has been cut off, and rain is wanted to bring out the late plants.

Mr. Royer, of Ephrata, reported that there would be a full crop in that township if hail or some other untoward accident did not prevent its harvesting. The rains have been frequent and refreshing, and the late destructive hail storm had passed just south of them without doing any damage.

The Second Crop.

John Brady, of Millersville, asked whether it would not be advisable to plow down the ground after the crop has been taken off, and thus prevent a second crop from growing. The second crop was of

no value as tobacco, but he had noticed it was more infested with worms than the first crop. By plowing it down they would have nothing to feed upon and would die out.

Prof. Rathvon said the best way to get rid of the worms was to catch and kill them. The tobacco moth will lay its eggs on potato vines, elders and other plants if it cannot find the tobacco plant; still, it is a good thing to plow down the old stumps and prevent a second growth. The reason that some worms are more often found on the second than on the first crop, is because farmers pay no attention to the second crop, it being regarded as worthless, and yet the worms that feed upon it are thus propagated for the destruction of next year's crop.

The committee on room was continued with instructions to report at next meeting.

The question, "What is the cause of black root tobacco plants?" being taken up, President Kendig answered that he had noticed that it was only plants that were grown in old beds that were affected in that way. He supposed that the growing of plants repeatedly in the same bed exhausted some constituent of the soil that was necessary for the healthy growth of the plants. He supposed the adoption of new seed beds would end the difficulty, or if potash be applied liberally to the old beds it might be of value. He is sure that ashes is a capital top dressing for tobacco beds.

Some discussion was had as to the best means of inducing tobacco men to more generally attend the meetings of the society.

Mr. Kennedy suggested that one reason for the non-attendance of those interested in tobacco culture was because they obtained full reports of what was said and done at the meetings through the newspapers. He thought it might be well to hold no more public meetings, but that those who chose to do so might meet once a month and interchange views privately and socially.

Mr. Hunsecker thought the slim attendance was owing to the fact that growers are now busy with their crops, and that if a notice were put in the papers asking for a punctual attendance of members at the next meeting to consider the propriety of continuing the organization of the society, a large meeting would be the result. It is astonishing that so great an interest as the tobacco interest of this county is so little appreciated by the farmers. They make more off their tobacco than any other crop. They like to make money as well as other people do, and they might gain much valuable information by listening to discussions before the society. Mr. Hunsecker spoke of the wonderful growth of the tobacco interest in this county within the past ten years, and that no harm and much good might ensue from the monthly meetings of the society if they were more punctually attended.

Prof. Rathvon thought it would be well for the society to consider the propriety of uniting with the agricultural society, instead of continuing as a separate organization. He stated that the best possible results had flowed from the union in Philadelphia of the society of Natural Sciences, the Biological society, the Microscopical society, the Entomological society and several others. Each society became a "circle of one great society, and all were united under a single set of officers, with their libraries, apparatus, museums, &c., in one building, to the great economy and convenience of all concerned. He believed it would be well for the tobacco growers, agriculturists, horticulturists, millers and other interests of the county to form a similar union, each interest becoming a circle or department of a single organization.

Mr. Hunsecker announced that he would read an essay before the society at its next meeting, the subject of which will be announced prior to the meeting.

On motion the officers of the meeting were directed to report such other business as they deem necessary.

On motion adjourned.

SEPTEMBER MEETING OF FULTON CLUB.

The September meeting of the Fulton Farmers' Club was held at the residence of Grace Ann King, on the 6th inst. Visitors present by invitation: Alfred Wood, Alvin King, Samuel Davenport, Thos. Jenkins and William M. Way.

E. Henry Haines exhibited apples for a name, Clinton grape, two other varieties of grapes for name, and Belle Lucrative pear. Grapes decided to be the Martha and Christine or Telegraph; apples not positively identified. Thought to be Swarr and Cheese.

C. S. Gatchel exhibited some diseased grapes; also Isabella, Concord and Martha grapes, King of Thompkins county apple, and apple for name. Name of apple not known to any one present.

Asking and answering questions being in order, Montillion Brown asked: "What kind of flour does Clawson wheat make?"

F. Tollinger: Clawson wheat is becoming better adapted to this section. It is becoming softer. A few years ago it made tolerably good flour, but was rather hard and flinty.

Day Wood: Millers like it better mixed with other wheat.

F. Tollinger: That is the case with white wheat generally. Flour made from white wheat looks nice, but it dries too fast. It is better mixed with red.

C. S. Gatchell: Is there any danger of drilling in too much bone with wheat?

Day Wood thought 500 pounds to the acre safe.

E. H. Haines: No danger with any reasonable amount.

Wm. M. Way: 100 pounds to the acre, applied in the hill, will sometimes injure corn. 300 pounds per acre would be safe for wheat.

Josiah Brown: 300 pounds per acre safe.

Alfred Wood knew of 600 pounds per acre being applied last fall. It had done well.

Wm. King: Will bees eat and eat grapes?

Wm. M. Way: Bees have no apparatus for cutting. Don't believe they can do it.

Wm. King stated that the grapes on three of his vines were destroyed by bees and wasps. The grapes had not burst; they had been punctured, if not by the bees by something else.

Moutillion Brown: Do bees manufacture honey or only collect it?

C. S. Gatchell: According to the report of the Bee-Keepers' Association they manufacture it. If they are fed on molasses they fill their cells with it, where it is manufactured into honey.

E. H. Haines: If they merely collect it there would be a great many kinds of honey in one hive. It is scarcely possible that every flower produces the same kind of honey.

Wm. M. Way: Naturalists think that they manufacture it, but in the body of the bee. Afterwards it is deposited in the cell. It is as much an animal production as milk.

C. S. Gatchell: The substance that affects the change is in the wax.

Jos. R. Blackburn: Do they gather honey from poisonous flowers?

Wm. M. Way: If the flowers is poisonons it does not follow that the honey is also poisonous. The object of the honey is to attract bees and flies in order that the pollen may be carried from the staminate to the pistillate flower. It is not likely that nature, after making such provision, would poison the honey.

Rebecca D. King asked, by request of an outsider, "Does it take longer to churn a large amount of cream than a smaller quantity, the churn being in proportion to the quantity?" Nothing positive was given in answer, but the general opinion was that it would take about the same time. One member, however, stated that a large churn required more empty space in proportion to its size than a smaller one.

Criticising the Farm of the Hostess.

After partaking of a substantial dinner, the club took a look at the farm, live stock, &c., after which criticisms were given as follows:

Day Wood: The barn is well filled; corn not very good, a general complaint; stock, as far as seen, tolerably good.

E. H. Haines: The corn is neighbor-like; the hogs would be better running in the orchard than in the pen. [Henry has a prejudice against hog houses.—Kerfoot] Things around the house look neat and clean.

F. Tollinger: The farm is well managed, considering that it is done by a woman. She has the farm and house both to attend to.

S. L. Gregg frequently passes the place. It looks well, not only now, but at all times.

Rachel B. Gatchel had been admiring the yard ever since she came. A well-kept yard looks better without flowers than a badly kept one with flowers.

The hostess next read from *The New Era* "The Tree Agent." Several members thought it much like the reality, though a little overdrawn.

Day Wood read an article from the report of the fifth annual convention of the National Butter, Cheese and Egg Association, advocating the factory system, which must succeed the individual dairy. It does not pay to make poor butter. With the factory system we can have better buildings and apparatus than individuals can afford. Having these, butter can be made with which oleomargarine cannot compete.

Mary A. King read "The Pilot on the River," from *The New Era*.

Irene Tollinger read an essay entitled "Advice to a young housekeeper," which was very favorably criticised by the club. Carrie Blackburn recited "The old home," after which the question adopted at last meeting for discussion was taken up, viz.:

Resolved, That women will do more to make home pleasant than man.

The discussion of this subject occupied some time, but consisted principally in sharp-shooting between the male and female members, without bringing forth anything of general interest.

Lizzie Wood, Mary A. King, C. S. Gatchell and E. H. Haines, were appointed to read selections or essays at the next meeting.

The following question was adopted for consideration at next meeting: "Do the phases of the moon influence the changes of the weather, or have the signs of the zodiac any influence over vegetable or animal life?"

Adjourned to meet at Josiah Brown's on the fifth of October next.

LINNÆAN SOCIETY.

This society held their stated meeting on Saturday, August 31, 1878; President, Rev. J. S. Stahr, in the chair. The attendance was small. Dues were paid in and the minutes of previous meeting were approved.

Donations to the Museum

were examined and found to consist of shells, such as bivalves, one of a *Mediola plicata*, united to an *Ostrea Virginiana*, by rigid tufts of black-filaments from which was growing the common "Rock-weed," *Fucus Nodulosus*. In another the fibrous ligaments were connected to a species of Algae, perhaps *Ulvula latissima*, or "sea-cabbage." Another seemed like a minute rush. This adhesion of sea-weeds to shells is by no means rare, but not the less curious; no doubt the animals spin their thread to the plants for anchorage to hold it in place, and it gets dislodged by the waves with the plants attached, as is the case with the *Mytilus edulis*, often found in clusters, the better to resist the action of the waves. Clams and Pectens seem the most abundant. Also "mermaids purses," the egg receptacles of the dog-shark, or dog-fish *Mustelus canis*, per S. S. Rathvon taken on the beach at Atlantic City.

A species of lizard, "*Tropidolepis undulatus*," taken by Mr. S. S. Spencer below Ocean Beach, N. J., in an old wreck lying on shore. Three varieties of sun-fish, by Mr. Willig, from the Conestoga—*Pomotis vulgaris* and *P. catesbeii*. Also a shining, smooth flat fish, called "Silver-fish," taken at Rehoboth Bay, State of Delaware. It is the "*Argyreus Vomer*," and belongs to the family *Scombridae*. This is as thin as a pan-cake, and nearly as round, hence differs much in form from the mackerel, but still has the family characteristics; donated by Geo. F. Rathvon. Bottle of Larvae of the "Handmaid Moth," (*Datana ministra*); bottle of mixed insects, captured in New Jersey; one bottle of sundry sorts captured on the banks of the Conestoga, on the 24th of August. Leaves of the pitcher plant or, rather Hunter's cup, *Sarracenia purpurea*, per Rev. Mr. Pennybecker, of Elizabethtown, found in the Concago hills or spruig places.

A Singular Growth

of an apple tree, two branches interlocked or grown together both from the main branch; one descending is firmly grown to and united to an ascending branch, forming a bow of a continuous piece about four feet in length, and four inches apart, per Mr. Henry Eckert. A mineral called the "Amazon stone" of Pike's Peak, Col., (orthoclos) S. S. R. per Dr. Foote, of Philadelphia. "Mushroom coral," *Fungia*, and a brown colored specimen of rock-salt, box of fossil crinoids from Bloomfield, Perry county, Pa., per Mrs. McBride. A remarkable fungus, *Geaster hygrometricus*, like a puff-ball on a star-shaped flat-spreading base of thick cartilaginous pointed lobes; per Wm. B. Fabnestock, M. D., found common in South Carolina. The president stated that Mrs. Kerfoot had offered to donate a collection of minerals belonging to Dr. Kerfoot. A vote of thanks was passed for her offer, which is gratefully accepted.

Books and Papers, Literary and Historical.

Two volumes K. K. & Q. Penn Geological Survey. Report Penn Fire and Marine Insurance, 1877, from Mr. Steinmetz. Report Superintendent of Public Instruction, 1877, Prof. B. F. Shaub; Catalogue of Shells, &c., per A. E. Foot; LANCASTER FARMER for August, 1878, and sundry circulars and book catalogues—3 envelopes containing 31 clippings. A pamphlet containing the sermon preached by Joseph Hutchins, D. D., on the opening of Franklin college, July 17, 1757, in the Lutheran church of the borough of Lancaster, Pa., preceded by an address to the Germans and their descendants of said borough. Also tax lists or duplicates—Mount Joy township, 1782, Lancaster borough, 1779, Manheim township, 1771, and the returns from Lebanon county for 1758, per David McN. Stauffer; a fac simile of the New England Chronicle for November 30, 1775; per C. A. Heinrich.

Papers Read.

S. S. Rathvon, a descriptive catalogue of the donations, No. 500. Mrs. Zell read extracts of a botanical work by R. Bradley, Professor at Cambridge University, 1727, to show the advance of the science, No. 501.

Miscellaneous.

Rev. Dr. Burnham was proposed and unanimously elected a corresponding member.

The chairman of the committee on removal reported that the bills of lumber, glass, paint and carpenter work on the extension and addition of eaves and other incidental expenses amounted to \$233.65. Some is yet to collect, which, when paid in, will nearly liquidate the same.

On motion, a committee was appointed to label the various subjects in the museum. The president appointed the following members: S. S. Rathvon, J. I. Stauffer, J. B. Kevinski, Rev. Mr. Dubbs, Dr. Baker, W. L. Gill; and by acclamation the president, Rev. J. S. Stahr, was added. The labeling to be attended to as soon as possible, to put the museum in condition for the public.

After some comments and interchange of views on the various topics of scientific miscellany, the meeting adjourned to Saturday, September 28, 1878.

AGRICULTURAL.

The Pennsylvania Crops.

Thomas J. Edge, Secretary Pennsylvania Board of Agriculture, makes the following report for the month of July. From the average July returns of 300 official reports of this board, it would seem that our crops for 1878 may be estimated as follows, an average crop being rated at 100:

Wheat,	- - - - -	122	Apples,	- - - - -	47
Rye,	- - - - -	100	Peaches,	- - - - -	42
Barley,	- - - - -	93	Pears,	- - - - -	54
Oats,	- - - - -	114	Cherries,	- - - - -	58
Hay,	- - - - -	108	Plums,	- - - - -	51
Straw,	- - - - -	111	Grapes,	- - - - -	64
Garden products,	- - - - -	98	Berries,	- - - - -	91

The average of each crop, as compared with that of the same crop of 1877, the latter taken at 100, is as follows:

Wheat,	- - - - -	117	Hay,	- - - - -	98
Rye,	- - - - -	107	Corn,	- - - - -	111
Barley,	- - - - -	95	Potatoes,	- - - - -	100
Oats,	- - - - -	103			

The average crop of 1878, as compared with the average of the past ten years, is as follows:

Wheat,	- - - - -	117	Hay,	- - - - -	110
Rye,	- - - - -	106	Corn,	- - - - -	110
Barley,	- - - - -	104	Potatoes,	- - - - -	109
Oats,	- - - - -	107			

The average wheat crop of the State being about 15,750,000 bushels, we may place that of 1878 at 18,750,000, with chances in favor of a decrease to 18,500,000 under the final test of the half bushel. The increased acreage, when compared with that of the past ten years, is largely due to the fact that in the oil and lumber counties the stagnation of business has forced men into agricultural pursuits. Thus, in comparison with the past ten years, Warren reports double the area in with wheat; Potter reports two and one-half the average area of the past ten years, and Cameron one and three-quarter times.

Seeding for Pasture.

New pastures may be produced most speedily by preparing the ground as early as practicable in spring (by ploughing, harrowing, etc.) so as to give a fine, smooth, mellow surface to the soil, and then sow the grass seed alone, or without the intervention of any grain crop. If the soil is rich, and the grass gets an early start, it will make a good growth early in summer but it may not be advisable to turn in animals on the young plants before mid-summer, and then only when the ground is hard and dry. Clover and timothy may be sown together, or clover and orchard grass, except in such localities as orchard grass does not succeed well in. This grass must be kept grazed rather short or it will become hard and unpalatable, and is objected to on this account by some good farmers who wish to allow their pastures to make a heavy growth. If it is intended to allow the pasture to remain several years, and the soil is rich with a good deal of vegetable matter, a portion of Kentucky blue grass may be mixed with the grass seed. In order to secure a good dense pasture, sow three or four times as much seed as is done in common practice.

British Exports to the United States.

A statement showing the exports of the principal articles of British and Irish products and manufactures from the United Kingdom to the United States for the seven months ending July 31, 1878, as compared with the corresponding period of 1877, has been prepared at the Bureau of Statistics. The decrease in some of the articles is quite noticeable as favorable to the industries of this country. For instance, cotton piece goods have decreased from 42,259,000 to 25,822,000 yards, or nearly 39 per cent.; linen piece goods from 53,309,000 to 45,910,000 yards, or 13 1/4 per cent.; silk broadstuffs from 19,484 to 125,794 yards, or 34 1/2 per cent. A favorable increase is in the number of empty grain bags sent hither this year, which number 447,000, against 248,000 for the same time last year, indicating an increased movement of grain outward. Worsted stuffs have increased slightly, while the quantity of wool sent has decreased from 958,281 to 280,678 pounds, equal to 70 per cent.

Agricultural Products of England and France.

The agricultural returns of Great Britain show a small increase in wheat and barley and a decrease in oats. The acreage of wheat has increased 50,000. Estimating Ireland at a slight increase, the total acreage of wheat in the United Kingdom is 3,400,000. The new crop is fully up to the average, and better than for some years. It will yield 11,500,000 quarters, leaving 13,000,000 quarters to be drawn from abroad. The French wheat crop is believed to be below the average, and the French will be buyers instead of sellers. The present prices will probably be maintained, or, perhaps, be slightly increased, but there will be no scarcity. The potato crop will be about the same as last year. Young cattle have increased 40,500 and lambs 263,000.

HORTICULTURAL.

Reliable Pears.

Which are they and who will name them? How many of the new pears are reliable and desirable? We know all about the reliable sorts, such as the Seckel, Bartlett, Early Catharine, Windsor and Catillac. They are always with us, seldom failing in giving us a fair and generally an abundant crop. But what of the modern pears—we mean not simply as to quality, but as to quantity also? We do not want only a good pear, but plenty of them, and when we can come across such a one we shall bring forth and commend it to the notice of farmers, who like to raise such fruits, as a man likes to follow such a branch of business as has "money in it." Well, some one asks us to name a list of what may be called modern pears possessing these very necessary and acceptable qualities. To this we promptly reply and unhesitatingly give the following standards:

1. Giffard—very early and excellent pear, a constant bearer and strongly growing tree. 2. Ott's Seedling, a small but good early pear, a seedling of the Seckel, ripens gradually, and a very heavy bearer. In a dozen years or more it has failed only once with us. 3. Bloodgood. 4. Kirtland, on which we have grown heavy crops for some eight years up to the present year, which has given us only a few specimens. It is of good size, of a very dark russet, and generally good bearer, rather superior in flavor to the Kirtland. 6. Aujou. This is large and fair, and has much improved upon our premises; the tree a strong grower and an abundant bearer. 7. Glout Moreau. It seldom fails in a crop, is as ugly as sin, but is a pear of prime quality in January and February. 8. Manning's Elizabeth. This is a small but excellent fruit and constant bearer. We have not tested it fully or even moderately upon our own premises, but the concurrent accounts we have of it from credible informants satisfy us that it is entitled to a place in the list. 9. Lawrence. All things considered this is the best of the entire list of both old and new pears, so far as profit is concerned. It seldom fails in yielding a good crop of handsome fruit, which can be ripe at any time during three months, say November, December and January. Any farmer having room and planting a hundred trees of the Lawrence would find it a satisfactory investment.

There are other new pears that produce occasionally good crops, possessing the highest qualities, such as the Tyson, (which cannot be beaten in quality to the popular taste), Boussois, Comice, Louise Bonne de Jersey, Belle Lucrative, Urbaniste, &c., but they do not come within the list of reliability and desirability, and we have therefore omitted them. In a few weeks we shall republish our select fruit list, carefully corrected, in which is presented a list of pears (standard and dwarf), apples and other fruits worthy of cultivation, and from which a choice can be made of the best varieties known to us.—*Germantown Telegraph.*

Garden Culture of Strawberries.

The following directions are given by Ellwanger & Barry in their new strawberry catalogue:

"To cultivate the strawberry for family use we recommend planting in beds 4 feet wide, with an alley 2 feet wide between. These beds will accommodate three rows of plants, which may stand 15 inches apart each way, and the outside row 9 inches from the alley. These beds can be kept clean, and the fruit can be gathered from them without setting the feet upon them. We find from experience that no more convenient mode can be adopted than this. The ground should be well prepared by trenching or plowing at least 18 to 20 inches deep, and be properly enriched as for any garden crop."

"The season for planting depends upon circumstances. It may be done with safety from the time the plants begin to grow in the spring, until they are in blossom, and again in the fall, from the time the young plants are sufficiently rooted until the freezing of the ground. It is well, however, to plant at a time when the plants will at once commence growing. If planted in warm, dry weather, as August or September, it is necessary to water the ground thoroughly before planting, and then to shade the plants until they have begun to root. The culture subsequent to planting consists in keeping the ground among the plants clear of weeds, and frequently stirred with a hoe or fork, to keep the runners closely pinched until after the fruit is gathered, and to mulch the ground among the plants before the fruit begins to ripen, with two inches deep of cut straw or short grass mowings from the lawn, or anything of that sort, to keep the fruit clean and the ground from drying. In exposed situations, or where the winters are severe, with little snow for protection, a slight covering of leaves or litter will be of great service. This can be raked off and the beds dressed at the opening of the growing season. A bed managed in this way will give two full crops, and should then be spaded down, a new one having been in the meantime prepared."

SEND in your subscriptions, as the printer wants his pay. Do not forget it, but attend to it at once.

DOMESTIC ECONOMY.

Making Wine from Grapes.

A wine is manufactured from grape juice after the fashion of currant wine, which is sometimes very agreeable. The grapes should be picked when perfectly ripe, on a dry day, all the unripe, decayed and imperfect berries being discarded. Crush them in a small press (not too severely) if one is at hand, or it can be done by the hand in a large tub; let the mass remain in this state for forty-eight hours; then strain off carefully; add two quarts of soft water to one of juice, and one pound of best yellow sugar or "rock candy," put in a thoroughly cleansed keg or barrel, so that the vessel is full, leaving off the bung in order that fermentation may have vent and throw out the impurities; fill up with reserved juice to keep the vessel always full. At the end of two or three weeks, when the first fermentation is over, rack off, drawing the liquor carefully off by keeping it constantly running and removing it into a scalded out tub; then scald out the vessel again and return the liquor, leaving the bung rather loosely in its place, for the second fermentation. When that is over bung up tightly, and let remain for at least six months, or altogether, using as it may be wanted. It is better if racked off at the end of six months or longer and put into from two to five-gallon demijohns, though the usual bottles will answer very well. Unless you want excellent vinegar, be sure to add the sugar or rock-candy.—*Germantown Tel.*

Pure Milk for Sickly Children.

One of the greatest troubles in families where there are weakly children, or where the nursing arrangements are not good, is the obtaining of pure and wholesome milk. Where a cow is kept by the family this trouble is easily met, but in cities and large villages it is often found almost impossible to get a pure and fresh article. Milk from one cow is often particularly desirable for infants in hot weather. A farmer in Connecticut has adopted a method by which purity and exclusiveness in family supplies of milk are secured. He has a quantity of clear glass bottles made, each holding a quart or two quarts, and so shaped as to pack readily in boxes like those used for ale and mineral water that is hauled about the country. These bottles are filled and shipped to the city every morning, where they are received and delivered to customers by an agent. On each bottle is pasted a slip of paper bearing the number of the cow whose milk it contains, and the day and hour when it is milked. Thus a family can always be sure of getting the fresh product of a certain cow. It is a plan which has been practiced in France for some years with much satisfaction, and it should be successful here. Those who are interested can learn all the details from an article in *Scribner* for July.

Hints for Washing Day.

Aunt Hattie says in the *Agriculturist*:

The evening previous to wash day I boil in 2 gallons of soft water 4 oz. each sal soda and sliced bar soap until dissolved. Put fine white clothes in one tub, the coarse ones in another. To the water in the boiler add enough cold water to make it luke warm, pour over the clothes, cover the tubs with a blanket. In the morning add a pail of hot water to the fine cloths, rub them well from this, rub again in fresh water, boil 20 minutes, suds, rinse in blue water, hang out to dry. Treat the coarse clothes the same way. My colored clothes are washed, rinsed and starched before hanging out.

In starching muslins, shirt bosoms and wristbands, after the shirt bosom has been dipped and wrung out as dry as possible, I use boiled starch rubbed in and patted well with the hands. This is a secret known to all good laundresses and it is almost impossible to keep the iron from sticking unless this precaution is observed. I always use cold starch for shirt collars. Mix thoroughly two teaspoons of starch in half a cup of water, dip the collar, wring, rub, pat, spread on a clean towel, and when all are done, roll up the towel and iron in about an hour.

Stormy Days on the Farm.

Where farmers keep hired men, and stormy days abound, they are frequently at a loss to know how to put them to work profitably. It is a good plan to have a slate in the tool-house or the barn, and note down during pleasant weather what can be done in rainy weather. There are scores of little jobs which suggest themselves which ought to be done, and can be done as well in rainy as in fair weather. Such a slate would have upon it something like the following: "Clean out the cellar; oil and mend the harness; grease all the wagons; repair horse stalls; file saws; grind tools; sort apples; make kindling wood; repair the implements." A hundred other like jobs could be suggested.

Keeping Grapes Fresh.

I have seen grapes taken from the vine, and the stem where it was broken off dipped into red sealing-wax, the grapes then packed in cotton and placed in a large pasteboard box. They were in fine condition at Christmas time.

Household Receipts.

RUB magnesia or French chalk on greasy silk ribbon, hold near the fire, and brush off grease.

TO REMOVE WAX FROM CLOTH.—Soft soap spots, warm slightly, wash.

PICKLED CABBAOE.—Cut fine, put in jar with alternate layers of salt; next day draw off, and add vinegar and spices.

STAINS IN LIGHT GOODS.—Chloroform is very useful in removing great stains from light silk and poplin. French chalk is also very good.

TO RESTORE COLORS, &c.—Hartshorn will restore the color of woolen garments without injury. Turpentine removes grease or paint from cloth—apply till paint can be scraped off.

TOMATO TOAST.—Prepare the tomatoes as for sauce, and while they are cooking, toast some slices of bread very brown, but not burned; butter them both sides and pour the tomato sauce over them.

MILK PUNCH.—Pour two tablespoonfuls good brandy into six tablespoonfuls milk. Add two teaspoonfuls ground loaf sugar and a little grated nutmeg. An adult may take a tablespoonful of this every two or three hours, but children must take less.

TO CLEAN BLACK LACE.—Squeeze softly and often in skinned milk, when it seems clean put it in clean skimmed milk, squeeze again, lay it on sheets of stiff paper, draw out scallops and edges with fingers, cover with stiff paper and a heavy weight till dry.

SPICED CANTALOUPE.—Slice and pare half-ripe cantaloupe, and lay it over night in vinegar and water, with a good sized lump of alum in it; for every pound of fruit take half a pound of sugar and half a pint of vinegar, simmer them together and then remove the scum; then put in the fruit and cook as other preserves. Use spices according to taste.

SOMETHING ALWAYS READY TO MEND CHINA.—Mix a little lime with the white of one egg; to use it take a sufficient quantity of the egg to mend one article at a time; shave off a quantity of the lime, and mix thoroughly; apply quickly to the edges and place firmly together, when it soon sets and becomes strong. Calcined plaster of Paris will answer in the place of lime.

SPICED PEACHES.—Take nine pounds of ripe peaches; rub with a towel and halve them; take four pounds of white sugar and one pint of strong vinegar, one teaspoonful of cloves, cinnamon and mace, boil a few minutes; then put in a few peaches at a time and stir till clear; take them out and lay on a dish in the sun; boil the syrup till quite rich and fill the jars, first with fruit and then with syrup. Cherries are nice done this way.

OATMEAL PUDDING.—Mix two ounces of fine Scotch oatmeal in a quarter of a pint of milk; add to it a pint of boiling milk; sweeten to taste, and stir over the fire for ten minutes; then put in two ounces of sifted bread-crumbs; stir until the mixture is stiff, then add one ounce of shred suet and one or two well-beaten eggs; add a little lemon flavoring or grated nutmeg. Put the pudding into a buttered dish and bake slowly for an hour.

GALL SOAP, for washing silks, ribbons, etc., is prepared as follows: Heat to 60 degrees, in a copper vessel, 1 pound cocoanut oil, then stir in half pound caustic soda and add half pound white Venetian turpentine heated quite hot in another vessel. Cover the kettle, heat gently 4 hours, then increase the contents until they are perfectly clear, then add one pound ox gall and stir in castile soap till the mass will yield but little to the pressure of the finger. Cool and cut up. This soap will not injure the most delicate colors.

BLACK CAKE.—Two pounds of currants, two pounds of raisins (after washing both currants and raisins, when they are dry dredge with flour), one large spoonful of ground cinnamon, one large spoonful of ground mace, four nutmegs, one gill of molasses, one gill of brandy, one gill of rose water, if you choose; sift one pound of flour into one pan, and one pound of sugar into another; add to the sugar three-quarters of a pound of butter, and stir to a cream; beat six eggs light and stir into the butter and sugar alternately with the flour, then add, by degrees, fruit, spice, and liquors, and stir hard; bake in a moderate oven about four hours; let it remain in the oven to cool.

TOMATO CATSUP.—The following recipe will be found to give a superior article: Tomatoes, half bushel; salt, 6 ounces; allspice, ground, 6 drachms; yellow mustard, ground, 5½ drachms; black pepper, ground, 3 ounces; cloves, ground, 6 drachms; mace, 3 drachms; cayenne pepper, ground, 2 drachms; vinegar, 1 gallon. Mix. Cut the tomatoes to pieces; boil and stew in their own liquor until quite soft. Take from the fire, strain and rub through a middling fine hair sieve, so as to get the seeds and skins separated; boil down the pulp and juice to the consistency of apple butter (very thick), stirring all the time; when thick enough add the spices, stirred up with the vinegar; boil up twice, remove from the fire, let cool, and bottle.

LIVE STOCK.**The Management of Horses.**

They should be fed in proportion to their work. An idle team may be wintered upon good hay alone; when working lightly a feed of grain at noon will be sufficient, with hay morning and night. With heavy work, ten quarts of ground corn and oats, and chaffed straw or cornfodder, will be good feeding, and in many cases, for small horses, less will do. Good grooming is necessary for health in winter. 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 in 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. Fresh air should enter the stables at the bottom and the foul air escape at the top. Make small sliding doors for ventilation, and cover them with wire netting on laths, to exclude vermin.—*Agriculturist.*

Raising Calves by Hand.

In reply to a question as to the best way to bring up calves by hand, the editor of the *Massachusetts Ploughman* gives his own experience and practice. He began by allowing the calf to suck four or five days, until the meconium had passed off, after which nothing but skimmed milk was given, on which the calf grew well and maintained good condition; in no instance was there any sickness, while many of his neighbors who thought skimmed milk too poor, and gave their calves the milk direct from the cows, often suffered in consequence, losing more or less from staggers, the stomach after death revealing its engorgement with caked milk. Doubtless the result was partly due to the rapid swallowing; had the animal drawn the milk from the teats, it would not as often have been fatal. Possibly in some cases skimmed milk does not contain a sufficient amount of nourishment to support the animal; we then should add a little oatmeal or linseed, but care should be taken not to give too stimulating food.

The Texas Cattle Plague.

The Spanish fever, or Texas cattle plague, is a disease peculiar to the cattle breed of Texas and Spain. The symptoms of the malady are very similar to the rinderpest, or cattle plague of Europe, and the results have proved to be equally fatal. The symptoms are a dull, stupid, stiff appearance, an inclination to separate from the herd drooping of the head, disinclination to eat, trembling, cramping, staggering, falling, and, in some cases, compression of the jaws; some become perfectly blind. The best preventive measures are complete isolation. The diseased and healthy stock should be kept wide apart. All dead animals should be immediately burned or buried deep in the ground. Disinfectants should be freely used, both internally and externally. The chloride of lime, carbolic acid, permanganate of potash, &c., are said to be excellent remedies.

Among the Points

In judging of the quality of a lean ox is the nature of the bone. A round, thick bone indicates both a slow feeder and an inferior description of flesh. A flat bone, when seen on a side view, and narrow when viewed either from behind or before the animal, indicates the opposite properties of a round bone. The whole bones in a carcass should bear a small proportion in size and weight to the flesh, the bone being only required as a support to the flesh.

The Average Age of the Horse,

When allowed to live without the risk of accidents and disease which he incurs in his usual work, is about twenty-five years. Instances of greater longevity are recorded on good authority, and, there is reason to believe that occasionally he has reached thirty-five or even forty years, but these are rare exceptions, and few live beyond the twenty-eighth year, while a large proportion die before the twenty-fifth.

Remedy for Choking Cattle.

Remedy for choking cattle is opportune about this time when they are more than usually exposed to the danger of getting an apple, potato, or small turnip stuck in the gullet. A certain remedy is said to be to open the mouth of the choking animal and throw upon its tongue, away back, a tablespoonful of saltpetre, then let the beast go and the obstacle will either pass out or in, in a very short time.

If You Want

to keep your hogs, horses, cattle and sheep healthy, give them salt regularly. There is no better vermifuge than salt. Much of the so-called hog cholera is due to intestinal worms. Plenty of salt would prevent the accumulation of these worms. All animals desire salt, showing that it is a want of their nature, and undoubtedly for wise purposes.

POULTRY.**Care of Fowls in Transportation.**

Among the numerous instances of cruelty to the lower animals, we have had special occasion to remark the inexcusable negligence of breeders in sending fowls away on long journeys ill-provided, or not at all, with food and drink. The negligence is culpable and, moreover, foolish, for thereby the greatest injury is done to the fowls themselves, and if the fact that the animals will suffer painfully has no influence upon the owner, it would seem as if the selfish wish to avoid loss should have some weight. For a prolonged abstinence in an animal, feeding so frequently as the domestic fowl, and subject to such extensive draughts on the system, is often followed by irretrievable injury to the constitution. We would avoid breeding from a bird that we knew had been thus treated, just as we would avoid one that had any great defect, such as a bad form, producing weakly chicks and the like. The evils of all under-feeding are well enough understood; in this case, however, the difficulty is increased by the suddenness of the shock, the fowl not having time to accustom itself to it. What is said of feeding is also true of the supply of water. A healthy fowl will drink fifteen to twenty times per day, and in a close coop, or in hot weather, still oftener. Therefore all possible pains should be taken to properly fasten water-cups in the traveling cages.

If, however, a fowl comes to hand—for we will do the reader the honor of supposing that he would not be guilty of such an offence—that has been deprived of food and drink for a long time, we must remember that the powers of the system are lowered, that the ability to digest is diminished, together with the general nervous power, and that from the lack of material the amount of gastric juice is also lessened. We must, therefore, for a time, limit the supply both of solids and liquids, and the food first given should be quite wet. "Sopped bread" is recommended, and this is probably as good as anything else. We would also endorse the recommendation to soften bread in ale, if there appears to be unusual depression. This care ought to be extended during, at least, a couple of days.—*The Poultry World.*

Hen Roosts.

"Young Farmer" in the *Boston Journal*, comes to the front again with another new idea. This time it concerns hen's roosts. He says:

Seeing a farmer near me building a new hen house the other day, I took occasion to give him a new idea. He was putting in his roosts in the old-fashioned way, one being above the other on an angle of about forty-five degrees. In this way the fowls are led to attempt to all get upon the highest roost, and as it gets full the weaker ones are crowded off and fall to the ground; they begin again to climb up, only to repeat the same performance until it gets so dark that they stop climbing, resting contented upon a lower roost, or even upon the ground under the roosts. In the morning the fowls will not go down as they went up, from one roost to another, but fly from the roost to the ground. In this way, and by falling from the roost to the ground at night, heavy fowls, especially when very fat or very full of eggs, are often crippled in the legs or otherwise injured. Many likely hens I have seen completely spoiled in this way. I told him that I should build the roosts all of the same height, and no more than two and a half feet from the floor, putting them about fifteen inches apart. Before I left I had the satisfaction of seeing him commence to undo the work he had done, and to build his roosts as I suggested, and of hearing an old farmer who was present declare his intention of taking out his roosts, which were of the "ladder" style, and putting in new ones level and lower. I think they will save hens enough before spring by doing to more than pay for the labor it will take.

Feeding Fowls.

Where fowls have free range it is the most economical to feed them twice a day. The fowls should be left out early in the morning; in fact if there is no fear of enemies or thievery the hen roost had better be left open, so that the birds can come out at will. This they will do at daybreak, and by wandering over the fields secure a large amount of worm and insect food. They should receive their morning meal at a fixed hour, and immediately after breakfast is a convenient time. So much depends on the size of the birds that it is impossible to give a precise rule as to the quantity of grain to be given to each. It is obvious a Dorking of ten pounds weight and a game fowl of four pounds would require very different quantities of food. Again, more food is required to keep up animal heat in winter than in summer. When a hen is producing eggs she will eat nearly twice the amount of food that she requires at another time. Hence, the successful poultry-breeder will need to observe carefully the requirements of his fowls, and govern himself accordingly. The best rule, both as to quantity and time, is to give fowls a full meal in the morning, a second shortly before going to roost. There is one important advantage dependent on having fixed hours of feeding, namely,

that the birds soon become accustomed to them and do not hang about the house door all day long, as they do if irregularly and frequently fed. They constantly obtain a greater amount of food for themselves, and are less troublesome than they otherwise would be.

To Tell the Age of Fowls.

If a hen's spur is hard and the scales of the legs are 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 under bill soft, and the comb thin and smooth.

An old turkey has rough scales on the legs, callousness on the souls of the feet, and long strong claws; a young one the reverse of all these marks. When the feathers are on, the old turkey cock has a long tuft or beard; a young one but a sprouting one, and when they are off, the smooth scales on the legs decide the point, beside the difference in size of the wattles of the neck and in the elastic shoot upon the neck.

An old goose when alive is known by the rough legs, the strength of the wings, particularly at the pinions, the thickness and strength of the bill and fineness of the feathers, and, when plucked by the legs, the tenderness of the skin under the wings, by the pinions and the bill, and the coarseness of the skin.

Ducks are distinguished by the same means, but there is the difference that a duckling's bill is much longer in proportion to the breadth of the head than the old duck's.

To Make Hens Lay.

Put two or more quarts of water in a kettle, and one large seed pepper or two small ones, then put the kettle over the fire. When the water boils stir in coarse Indian meal until you have a thick mush. Let it cook an hour or so; feed hot. Horse-radish chopped fine and stirred into mush as prepared in the above directions, and for results we are getting from five to ten eggs per day; whereas, previous to feeding we had not had eggs for a long time. We hear a good deal of complaint from other people about not getting eggs. To such we would warmly recommend cooked feed fed hot. Boiled apple skins, seasoned with red pepper, or boiled potatoes seasoned with horse-radish are good for feed; much better than uncooked food. Corn, when fed to the hen by itself, has a tendency to fatten rather than produce the more profitable egg laying. A spoonful of sulphur stirred with their feed occasionally will rid them of vermin and tone up their systems. It is especially good for young chickens or turkeys. Out of a flock of ten hatched last November we have lost but one. They have been fed cooked feed mostly and are growing finely.—*Ohio Farmer.*

The Langshans.

Says the *American Agriculturist*: Some time ago we introduced to the notice of our readers the Langshan, a variety of fowl that had been recently imported into England from a part of the Chinese Empire. Since then further experience with these fowls has given them a favorable reputation, and we see it noticed in English papers that they are proving to be very early layers and excellent table fowls. A correspondent of the *London Live Stock Journal* reports that he has had eggs from pullets only four and one-half months old, which is remarkable, even with the most precocious specimens of the breeds noted for early laying. An importation of these fowls has been made by Mr. Edward A. Samuels, of Waltham, Mass., and if the reputation they have made in England is maintained in this country, we expect them to become very popular.

Eggs in Winter.

A correspondent of the *Country Gentleman* gives the following recipe for keeping eggs through winter, and says: "It has never failed during the twenty-five years that I have used it. It is simply to set the eggs on end as soon as gathered and keep them in a cool place. I have kept eggs laid in September until April, and they were just as nice to fry with ham, or any other use, as new eggs. There is no use of any pickle. If the eggs are good and fresh when put in position they will be good all winter."

Doctoring Sick Fowls.

Doctoring chickens is a poor business at the best. It is true that valuable mature fowls are worth saving if they fall ill, when we know what their trouble is, and have a remedy for the malady they may be suffering with. But the attempt to doctor sick young chickens will scarcely pay. If the birds do not grow thrifitly in the first three or four months after hatching they will never pay for the raising for any purpose.

Bone Meal and Crushed Shells

may be used generously in feeding fowls. That is, if the crushed oyster shells and granulated bones are mixed and placed in a box inside the hen-house, where the birds can have access to these articles freely, they will eat of them no more than they need. If these are mixed with the food given, either in the dry grains or in the soft mash, much of both is wasted, to say nothing of the additional trouble caused in preparing it thus. Fowls devour no more of the oyster shell particles than they naturally require to assist digestion and to help in forming the shells of eggs. Of pounded bones they will eat more freely; but if both are left where they can always get them handy, they will not eat too much of either for their good.—*Poultry World.*

Of all Domestic Fowls,

The *Germantown Telegraph* says, the goose is the longest lived. One died a few days ago near Baltimore that was hatched in 1824, on the day that Lafayette visited that city, and during the fifty-three years of its life, its owner, now living at an advanced age, believes that she has realized from feathers and goslings between five and six hundred dollars. Although this specimen was not the fowl that laid the golden egg, she produced for her owner a pecuniary reward nearly equal to her weight in gold.

When a Few Fowls

Are confined in a small space they may be encouraged to take needful exercise by suspending a piece of meat just high enough so that they must jump a little to reach it. Forking a piece of ground and raking therein grain or scraps is another good way to accomplish the like result, and at the same time divert the active minds from such mischief as egg-eating and feather-plucking.

Lice on Chicks.

The following is the quickest and most effective way of disposing of the pests: Take a sponge, dip it into kerosene and squeeze dry, then mop the feathers and puff of the mother hen; and in the evening and next morning you will be satisfied with the result. An occasional application will keep young chicks entirely free from vermin. Care must be taken to squeeze the sponge dry, as it is the odor that removes the critters.

LITERARY AND PERSONAL.

"FIRST ANNUAL REPORT of the United States Entomological Commission, for the year 1877; relating to the Rocky Mountain Locust, and the best methods of preventing its injuries, and guarding against its invasions; in pursuance of an appropriation made by Congress for this purpose. With maps and illustrations." We have been favored with a copy of this work a little in advance of the general distribution, for which we are exceedingly thankful. This is a royal octavo of 771 pp., including copious appendices, and printed on calendered paper, of a better quality than usual; with 3 maps and 5 full page illustrations containing many figures; besides 111 groups of wood cuts (from one to ten in each) illustrating the insects in their various stages; their modes of transformation and reproduction; their natural enemies; allied species; their anatomy; and the various implements and machinery used for their prevention, capture and destruction. This volume contains much interesting reading, and much information to those who take the trouble to read it. But in order to be of any use to those for whom it is especially intended, it will be absolutely necessary to read it, ponder it, and carry its recommendations into practical effect. Although elaborated and compiled in the interest of western farmers, especially those residing within the "grasshopper" region, there is much in it that is of interest to the whole country; and the American people owe a debt of gratitude to the indefatigable commissioners, Profs. Riley, Packer and Thomas, for the sacrifices and labors in behalf of the material interests of the farming public. We observe, too, that the commission asks Congress for an additional appropriation of \$18,000, in order to complete and render effective the labor they have begun, and we hope no ideas of false economy will interpose between Congress and its reasonable duty.

CHURCH'S MUSICAL VISITOR, an independent journal of music. The September number of *Church's Musical Visitor*, the popular journal of music, contains eight complete pieces of music, in addition to the large quantity of reading matter, including contributed articles by well-known writers. The vocal selections in this number are: "Don't Leave the Farm," song and chorus; "Harp that Once thro' Tara's Hall;" "Song of the Sailor;" "Pharisee and Sadducee," comic song; and "When the Star of Eve." The instrumental pieces are "March of the Commission," "The Winding Brook," and "Bird of Paradise Waltz." This is a large quantity of good music to be given with one number of a journal costing but \$1.50 a year. These pieces alone in sheet form would cost fully \$2.00. The October *Visitor* will open a new volume. It will contain ten pieces of new music, besides the reading matter.

Musical people can secure plenty of good music at a very low figure by subscribing for the *Visitor*, and now is a good time, beginning with the new volume. Every subscriber also receives a premium. Send stamp to John Church & Co., Cincinnati, O., for full particulars.

BEE CULTURE; or the successful management of the apiary, by Thomas G. Newman, editor of the *American Bee Journal*, Chicago, Ill. Published by Thos. G. Newman & Son, No. 974 West Madison street. Price 40 cents, in paper.

This is a very handsome little 12 mo. of 80 pages, on heavy calendered paper, and plainly and cleanly printed. It embraces every subject that will interest the beginner. Commencing with a short chapter on the natural history of the honey-bee, it passes on to the consideration of the situation, stocking and arrangement of the apiary, giving minute details of the management and manipulations necessary to make bee-keeping a success. It describes all the newest discoveries in the art by which the production of delicious and healthgiving honey is obtained, as well as how to prepare it for the market in the most attractive form. It is embellished with 56 beautiful engravings, and is the most perfect work of the kind for the price, that has ever come under our notice. What will enhance its value in many parts of Pennsylvania, is the fact that it is published in both English and the German languages, and either edition is sold at the same price. The whole subject is here contained in a nut-shell.

AS A NECESSARY sequel to the foregoing notice we have received from the enterprising publishing house of Jones, Brothers & Co., of Cincinnati, Philadelphia, Chicago and Memphis, three beautifully illustrated and remarkably well executed 12 mo. volumes admirably adapted to public schools and seminaries; namely: *First Lessons in Arithmetic, including oral and written exercises*; and the *Practical Arithmetic*, including the same features; and both on the inductive plan, by William J. Milne, A. M.; 144 and 391 pp., respectively. Also a Grammar School edition of a History of the United States, prepared especially for schools; on a new and comprehensive plan, embracing the features of Lyman's Historical Chart. By John Clark Ridpath, A. M.; 377 pp. It seems to us that nothing could facilitate the learning of arithmetic more than the pictorial object plan of the "First Lessons." The solid illustrations, and the appended answers in the "Practical Arithmetic," are also worthy of commendation. Nothing can be superior to Ridpath's school histories, and this is fully up to the standard of former publications.

We are under obligations to Prof. B. F. Shaub, the courteous Superintendent of the Public Schools of Lancaster county, for a copy of the "Report of the Superintendent of Public Instruction of the Commonwealth of Pennsylvania, for the year ending June 1st, 1877." This is a royal octavo of 967 pages of beautiful letter-press, and on paper of an excellent quality; and, on the whole, possesses more than ordinary interest, inasmuch as it contains historical sketches of the public and private schools of each county composing the Commonwealth of Pennsylvania, from their respective origin down to the present time. Although the details are necessarily limited, in order to bring the work within the compass of a single readable volume, yet so far as it relates to the older counties no work in relation to our public schools has appeared possessing the same interest, and none perhaps may appear again, for another decade at least. This work ought to be in the hands of every progressive teacher.

TWENTY-THIRD edition of the Descriptive Catalogue of Fruits, of Ellwanger & Barry's Mount Hope Nurseries, Rochester, N. Y. No. 1. Established in 1840. A beautiful royal octavo pamphlet of 68 pages, with a magnificent full-page colored frontispiece illustrating Sharpless's Seedling Strawberry, and numerous other well-executed engravings illustrating choice varieties of apples, pears, peaches and gooseberries, systematically classified, giving their foreign and American origin, and a brief description of each particular variety, with hints about transplanting and other useful information, so that their patrons may be able to act intelligently in their purchases and mode of culture. The fact that an establishment can afford for such a long series of years to issue such elaborate catalogues, ought to evince their worthiness of the patronage of an appreciating farming and fruit-growing public. To amateurs and young beginners, these catalogues are of as much value as the best text-books on horticulture.

THE *House Keeper*, monthly, by the Buckeye Publishing Company, Minneapolis, Minn., at 75 cents a year; a 16 page quarto, in the interest of the household. No. 1, Vol. 1, for August of this well executed journal has reached our table, but too late to notice it in our last No. This paper as its title indicates, is devoted purely to domestic affairs and nothing else, and this being its specialty, it can work more effectively in that hitherto neglected department of human economy. If there is not an ample field for it in the domestic literature of our country, and if it cannot fill the measure of that field, then we have greatly erred in our perceptions and ap-

preciations of it, and so will the community at large. The *Lancaster Farmer* and the *Housekeeper* will be furnished to any part of the country, post paid, at \$1.50 a year.

WARD'S MUSEUM of Mineralogy, Geology and Zoology, No. 2 College avenue, Rochester, N. Y. A live natural science establishment, where colleges, academies, seminaries, institutes, museums, schools, societies, scientists and amateurs may, at reasonable prices, purchase fossils, or casts of fossils, of the extinct animals of the different geological periods of the world, including casts of celebrated fossils, skins of animals, stuffed specimens, skeletons, anatomical preparations, birds' eggs, invertebrates, minerals, archaeological and ethnological specimens, glass models of invertebrates, singly or in series, for the use of schools, academies and colleges. This establishment has been endorsed by the highest scientific authorities in the country, and there are few museums in the Union that have not received rare "missing links" from this celebrated depot.

PREMIUM LIST and judges of the Twenty-fifth Annual Exhibition of the Pennsylvania State Agricultural Society, at the city of Erie, Pa., Monday, Tuesday, Wednesday, Thursday and Friday, September the 23rd, 24th, 25th, 26th and 27th, 1878. A royal octavo of 58 pages, including all the necessary rules and regulations for the orderly conduct of the exhibition, and one of the most liberal and most carefully detailed and properly discriminating lists of premiums ever issued by the society in Pennsylvania or elsewhere. Those who intended to be exhibitors should send to the Secretary, D. W. Seiler, Esq., Harrisburg, Pa., and get a copy of the catalogue.

A SPLENDID NURSERY.—Messrs. Ellwanger & Barry, whose advertisement appears in another column, have a great reputation throughout the country for their large assortment of the choicest selections of trees, plants or bulbs. Without exception, their establishment at Rochester, New York, is the largest and most reliable in the United States. Parties desiring to lay out their grounds, should send for a collection of their catalogues, and select what they wish. They are full of descriptive cuts, and are an ornament, as well as very instructive.—*Spirit of the Times.*

MODEL FARM.—During the present season the cannery has turned out seventy-five thousand cans of blackberries, ten thousand 3 pound cans of asparagus, one hundred and fifty thousand 2 pound cans of peas, and seventy-two thousand 3 pound cans of tomatoes, and will probably put up four hundred thousand cans more of the latter vegetable, besides the product of 130 acres of sugar corn.

THE *Lititz Record*, published on every Friday morning, at \$1.50 a year, in advance. This is a very handsome medium folio, (about as large as the *New Era*) fine paper, well executed, and ably conducted, and is a credit to the village of its paternity, as well as of the county and the State.

THE *Commercial and Tobacco Leaf*, Richmond, Va., a weekly demi-folio at \$1.00 a year, devoted to the mercantile, manufacturing and agricultural interests of Virginia. We clip the following from a graphic description of "Lester Manor" one of the estates of Mr. Jno. B. Lee, of Richmond, Va.:

CATALOGUES of minerals, geological specimens, fossils, shells, plants, &c., &c. A. E. Foote, M. D., publisher of "The Naturalists' Leisure Hour and Monthly Bulletin of Science and Practice," No. 1223 Belmont avenue, Philadelphia. See advertisement in our columns.

THE *Farmers' Advocate*, published at Stroudsburg, Pa., at 50 cents a year, a medium folio weekly—in the interest of the national labor green-back party—conducted with spirit.

SPECIAL attention is invited to advertisement of Eureka Red Oil. County rights for sale by P. J. Fitzgerald, 103 and 105 North Fourth street, Philadelphia.

CARTER'S SELF-OPERATING GATE, for the farm, residence, nursery, park, cemetery, asylum, church and enclosures having a driveway. M. Carter, patentee, Plainfield, Indiana.

AMERICAN NEWSPAPER DIRECTORY.—Edition for 1878; 484 pp. Price, 50 cents. Published by Geo. P. Rowell, N. Y.

WHOLESALE PRICE LIST OF GRAPEVINES, fruit trees, &c. Autumn, 1878. T. S. Hubbard, Fredonia, New York.

DESCRIPTIVE circular and price list of small fruit, plants, &c., offered by Gibson & Bennett, nurserymen and fruit-growers, Woodbury, N. J., for fall 1878.

PURE WATER, Brach's Union Filter, latest invention, patented April 30, 1878; warranted. J. Brach, 916 Spring Garden street, Philadelphia, Pa.

WHOLESALE price list of the Bloomington Nurseries, Bloomington, McLean county, Illinois, for fall of 1878. W. F. Baird, Trustee.

WHOLESALE price list of fruit and ornamental trees for sale by E. B. Richardson, nurseryman, Geneva, N. Y. Office, 35 Seneca street.

WOOD'S HOUSEHOLD MAGAZINE.—S. S. Wood, 161 Franklin street.

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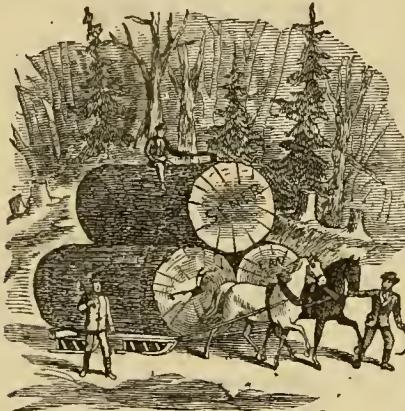
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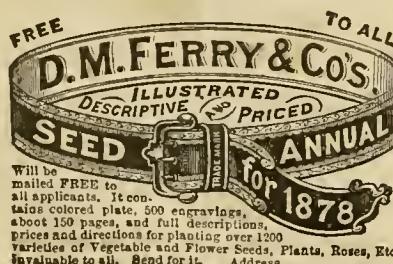
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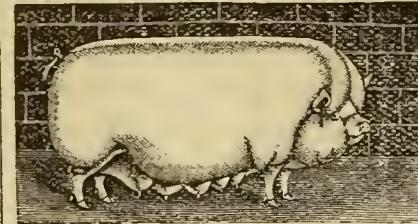


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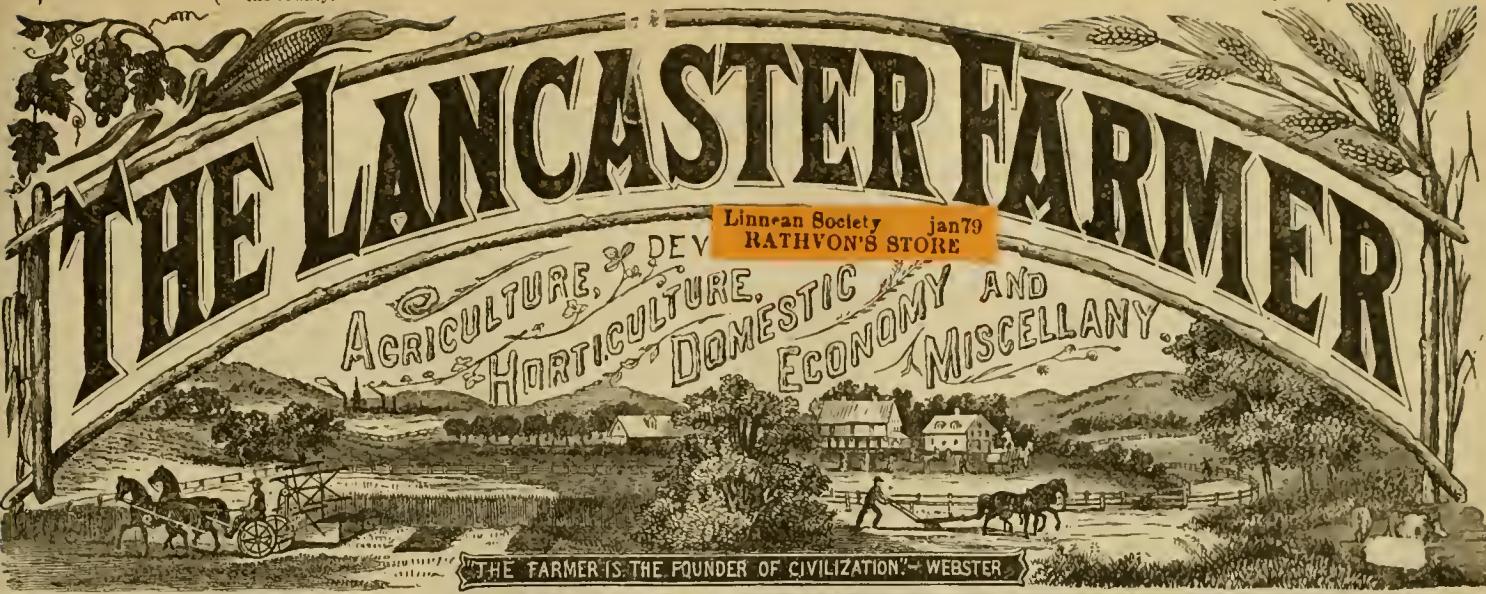
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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor.

LANCASTER, PA., OCTOBER, 1878.

Vol. X. No. 10.

AN APPEAL.

It is with feelings of unqualified regret, mingled with much anxiety of mind, that the publisher of THE FARMER is compelled to again call the attention of its patrons to their unpaid subscriptions and other pecuniary obligations. We are largely indebted for necessary material and labor, and we have no other resource from which to obtain the means to meet the demands against us save from our subscribers and advertisers. The amount due us from each is but small indeed, and will fall lightly upon them, whilst in the aggregate it is large to us, and our failure to realize it must overwhelm us in financial disaster. For nearly two years we have been thrusting our hands into our pockets and dealing out all that came into them, in the payment of bills involved in our publication, and now we find them entirely exhausted and large balances against us still unpaid and due. We have been a very slave during the last twenty months in the service of THE FARMER, and if we obtained every penny due us we would hardly realize the wages of a common street scavenger above our unavoidable expenses.

When we assumed the responsibilities of publication we did so hopefully and with a determination to do our best; and we also supposed we should at least be able to indemnify the editor (who has toiled so long without remuneration,) for the paper, ink, stamps, envelopes, and "midnight oil" exhausted in his labors, but we have not done anything of the kind for the want of means.

Dear patrons, think of these things, and remember the absolute necessities of the

PUBLISHER.

ACKNOWLEDGMENT.

Our friend Mr. William Weidle, of East Orange street, has again remembered us materially by a generous donation of pears and grapes from his premises near the prison grounds, for which we make our most grateful bow. The grapes were of the *Israella* variety, and although there may be varieties superior to them in size and flavor, yet the *Israella* possesses a quality of some importance in an economical point of view. Mr. W. brought us some of these grapes that ripened in August, contemporary with the Hartford Prolific, and they continued from that time hanging on the vines up to the present time, (Oct. 10,) without dropping or wilting; as solid, as luscious and as fragrant as they were in August. They are somewhat thicker in the skin than most other popular varieties, and are, therefore, less liable to injury from wasps, hornets, bees or other insects, which surely is of some value now, since this subject is becoming one of more or less public discussion. Mr. W., however, thinks they should be protected from a too cold winter exposure.

The pears were of the Sheldon, Seckel, Lawrence, Henderson, Anjeau, Buerre Diel, Buerre Maria, and Duchess Angouleme varieties, and although there are differences in their qualities, yet to one who is not a cultivator of pears, who only enjoys an occasional opportunity of partaking of them, and who may not taste two different varieties in the same day, or the same week, they all seem

good, and he cannot so readily distinguish between them. This was our "fix," for we wanted them to last as long as possible, as a sort of appetizer, and when we tasted a second variety we had almost forgotten what the first was like. There are some varieties of the pear, however, that are so pronounced that they can nearly always be told even by those who only indulge in them semi-occasionally, such, for instance, as the Bartlett and the Seckel. In regard to this last named, the specimen we refer to could not consistently be classed with "small pears," for it had developed itself to the dignity of "medium" at least, and this should suggest some distinguishing prefix or affix to the name, for we have seen them differing in size as much as "shellbarks" and "Susquehanna peaches"—almost.

ENGLISH SPARROWS.

Lancaster city is just at this time pretty well stocked with these active, saucy and pugnacious little denizens; and now, since they have become more or less discredited, the prospect is that next season they may be resolved into an intolerable nuisance. Taking an afternoon walk through the northwestern part of the city, a few days ago, we met with several large flocks of them, numbering from fifty, probably, to one hundred in each flock, and seeing so many of them thus congregated together, it suggested the idea that they possibly might learn the American habit of migrating to a mere congenial region. We know this would be very desirable to a good many people who have lost all confidence in them as insect scavengers. And this is not all, for no doubt those same people—should the sparrows conclude to emigrate—would earnestly wish that they might find their new quarters so agreeable as to prevent them from ever returning again. Now that the season is over and there is no fruit for them to appropriate—if they ever did depredate much in that way—we think it would be difficult to estimate in dollars and cents just how much damage we did sustain from them during the past season. Indeed, their sins are probably more of omission than commission. They were introduced into this country for the purpose of destroying caterpillars and other noxious insects, and it is alleged that they "don't destroy them worth a cent." Now, that the thing has been done and they have been domiciled amongst us, we may well wonder how any well informed person could expect that granivorous, or seed-eating birds, should manifest any special liking for insects. True, if nothing else were accessible, they would probably rather eat them than suffer hunger or starve; but fortunately to them, and unfortunately to us, they have access to many desirable little "tit-bits" in the public highways and back yards of the cities and towns, and many of these are intentionally furnished by benevolent citizens. Families shake their table-cloths three times a day in their back yards or garden walks on purpose to feed the sparrows, either through sheer charity, or as an expedient to prevent the birds from depredating upon their fruit in summer, or from destroying their fruit-buds in the winter. All summer our streets have been full of sparrows, and the more public the thoroughfare, and the more horses traveling over them, the more numerous the sparrows; showing their normal granivorous proclivities by industriously exploring the daily excrementitious droppings, appropriating every undigested grain or seed they yield. If ever these birds have been insect scavengers, they seem to be perfectly demoralized now.

But "give the devil his due," for they certainly do destroy some insects; perhaps more than they get credit for. In common with

many other birds, of divers families and habits, they do feed their young with the softer kinds of insects, but whether those are among the most noxious kinds has not yet been determined. They do not seem to have any particular love, however, for caterpillars and slugs, but they will devour a goodly number of even these in rearing their young broods. Some caterpillars, however, must be very repugnant to any kind of birds. A few days ago a gentleman in this city brought us about fifty caterpillars that he found on his premises, destroying the foliage of a Scotch pine, (*Pinus sylvestris*) which we feel certain no bird would eat any more than they would drink turpentine, for they emitted a strong turpentine odor that could be smelt two or three feet away from them. With whatever bad qualities they may be endowed, their presence certainly enlivens the dull tedious of dreary winter, and whatever they have done, or left undone during the summer, when the winter's cheerless frosts prevail, and they approach our doors and plead for their "daily bread," our hearts must be callous indeed if we can withhold it. We reflect that it is not their fault that they are here, and whilst here we must either feed them or let them starve.

In the foregoing we have given our reflections upon the English sparrow from the town side of the question mainly; but if any reliance can be placed in newspaper paragraphs, the following from the *Utica Observer* gives a view of the "little folks" as they sometimes appear and act in the country, where the charge has been made that they are gradually driving out all the other birds; and not content with that, it appears that they are making an attempt to also drive out the people. If such conduct is a forecast of what they will do when they get the power, we can't be made acquainted with it too soon, in order that we may be forearmed against it; for we may reasonably expect that what they have done in New York they probably will do in Pennsylvania at the opportune time. There is one thing certain, that, like the Colorado potato beetle, they are "making history," and have gotten their name pretty well up in the agricultural, scientific, social and domestic chronicles of the times. Had they proved a real and unadulterated blessing, it is very probable that their notoriety or fame—whatever we may be pleased to call it—would not have spread as rapidly and as far as has been the case under their present ambiguous (some think diabolical or pernicious) character.

Sparrows Attack and Put to Flight a Man.

"One mile and forty rods north of the beautiful village of Sauquoit resides Mr. Andrew J. Green. Day before yesterday he started to walk to the village. Swinging along with his wonted stride, and reaching a point within half a mile of his destination, his attention was attracted by the strange actions of a large flock of sparrows, hovering down over the sidewalk, flying rapidly hither and thither in great excitement. As he approached them, and when in their midst, they evinced no fear of his presence, and instead of flying away on his entrance among them, they pressed around him in greater numbers, and almost immediately attacked him with their sharp bills with great fury. At first he was disposed to treat the attack as a trivial matter, and attempted to brush them away with his hands, but the few thus displaced were immediately replaced by myriads more, darting, chattering and piercing him with their sharp bills, like "the flight of a cloud of arrows." Their immense numbers and persistent charge was so great that he was soon thrown to the ground. Now thoroughly alarmed he struggled to his feet. Covering his eyes and face

with one hand as well as possible, he endeavored with the other hand to wrest from the fence at his side a stake or picket with which to defend himself, but not succeeding, and the wild and infuriated little warriors still increasing their attack, he was forced to fight them again with his hands, when again he was thrown to the ground. Now really terrified for his life, he pulled his coat over his face and head for protection, regained his feet and fled for his life, but they did not pursue him far. Exhausted and with his hands bleeding he reached the village, convinced that he had a narrow escape."

The Passions of the Fishes.

That fishes manifest anger, fear and other passions is insisted on by Rev. S. J. Whitmee in the Proceedings of the Zoological Society of London. His observations were made in Samoa, where he kept the native fishes in aquaria, and watched their quarrels, which are by no means infrequent among the individuals of the same species, and constantly occur between different species and genera, the signs of anger being obvious, especially as seen in the movement of the fins and spines. Under the influence of great anger or fear the dorsal fin is raised to its extreme height, and the spines, both of the dorsal and anal fins are very prominent. Besides this the scales all over the body are raised, so that the fish looks larger than when its mind is unruffled. The spines are used for defense and as they are pointed backward, predaceous fishes swimming after them less easily swallow them, and this is probably the chief if not sole use of the spines. The slow swimming Diodon and Tetradon, covered with spines, are thus protected. These views are in the main confirmed by Dr. Day in the same Proceedings.—*Harper's Magazine for October.*

To some extent—that is, so far as we have had an opportunity to make the observation—our experience, we think, is in confirmation of the above, with perhaps some slight modification. We have had sunfishes of the Conestoga, gold-fishes and stickelbacks in the same aquarium. The last named were alway pugnacious, and would drive even larger species almost out of the tank. Their dorsal fins would expand to the utmost tension, like "bristling bayonets," their eyes would become dilated, and they seemed to make a passionate assault upon their less pugnacious companions. Sun fishes, with seemingly fiery anger, would drive about the gold fishes, and on one occasion a specimen of the latter jumped the tank. We have at this time two small sun fishes (*Pomotis catesbeii*) in a tank, nearly of the same size; but, from the moment they were placed in it up to the present time—a period of about a month—the larger has been ceaseless in his assaults upon the smaller. Perhaps he is only playing "make believe" (for he does not seem to have injured his weaker companion any,) but he at times appears to manifest a good deal of "spite." But so far as our observation extends it is only the assailant that elevates the dorsal spines. The assailed dilates his tail and ventrals, and tries as much as possible to get out of the way and keep out of it. Perhaps it might be different if the one was large enough to swallow the other, but this not being the case he "trims his sails" in such a manner as to enable him the more surely to elude the attacks of his foe.

DERIVATION OF COMMON NAMES.

Certain names of common articles seem to lack meaning, and how some of the inappropriate appellations were derived is a mystery. Many wonder what meaning there is in the words "horse-chestnut" and "horse-radish." The Germantown Telegraph says that the original English words, however, were "harsh-chestnut" and "harsh-radish," but the prefix "harsh" was translated "horse" into French and Swedish, hence the common error is believed to have been derived.

The Germantown Telegraph is considered good authority in many things, and may be so in this, but "we can't see" that he has exactly "hit the right nail on the head"—at

least there is sufficient room left to warrant a different conclusion. Perhaps our most common species of "horse-chestnut" is the *Aesculus hippocastaneum*. Several species are known under the common name of "Buckeye," especially in the west, and we may suppose that this name may have been derived from a fancied resemblance between the fruit of these trees and the eye of a "buck." The common German name of horse-chestnut is *Wilde Kastanie*, and the Latin is *Castanea caballina*, both of which are literal translations of the English name. The French name is *Marron d'Inde*. Marron means a large chestnut, and d'Inde may indicate the original locality of the tree. Webster says, "the fruit was formerly ground and fed to horses, whence the name." The tree itself was brought from Constantinople about the beginning of the sixteenth century, either native there, or introduced from "the Indies." If the fruit was ground and fed to horses, it seems easy to see how the term "horse-chestnut" in time became the common designation of it, "harsh" as it may be in its taste and texture.

The horse-radish (*Nasturtium armoraceum*) belongs to the Mustard and Cress family (CRUCIFERÆ) and is the *Raphanus agrestis* of the Latins; and the *Rave sauvage* of the French. The German name is *Meerrettig*, literally interpreted sea-radish. Now, among the common people the transition to horse-radish might have been easily effected, especially in an intermingling of the English and the German common people; because meer is pronounced *mare*, the name of a female horse. It was doubtless called meerrettig by the Germans because it may have been originally found growing in marshes, or along their sea or river coasts, as the "sea kale" was found and named. From such an origin *marsh-radish* might be derived, but hardly "harsh-radish." Not unlikely the name was derived from a tree that is found in India called the "horse-radish tree," (*Hyperanthura pterygosperma*), the fresh root of which has a pungent odor and a warm taste, much like the common horse-radish; but we confess that it is more likely still that the former was derived from the latter. The root of the horse-radish tree is or was used to some extent in medicines, but this member of the cress family is generally used as a condiment, and sometimes as a seasoning to sauce, in which its "harshness" is entirely subdued and it becomes very palatable.

Rind, in his "Vegetable Kingdom," says: "The horse-radish is found growing wild in marshy places, and by the sides of ditches in England." As to the horse-chestnut the same author says: "It is a native of the northern parts of Asia, from whence it was introduced into Europe about the middle of the sixteenth century. Its progress can be traced from parts of Northern Asia to Constantinople, thence to Vienna, and thence to Paris, where the first tree was planted in 1615. The Turks are said to grind the nuts and to mix them with the food of their horses, and they devoured them with avidity;" and, furthermore, that from this originated the common name of *horse-chestnut*.

We don't pretend, however, that all this to the contrary, "settles the question." We have merely given our impressions from the limited authorities we have been able to refer to. In the long lapse of time which often supervenes, and the transpositions from one nationality and language to that of another, as well as through illiteracy and the absence of an intelligent record, names often become considerably "mixed up," and their origin more or less obliterated. Therefore, although we in our deductions may be somewhat wrong, yet we cannot see that the *Telegraph* is exactly right.

THE SULKY PLOW.

According to the notice given in the papers, the Champion sulky plow, made at Dayton, Ohio, was exhibited on the farm of Col. William L. Peiper, near this city, yesterday

afternoon. It was operated by Mr. Lane Reed, and was shown in what had been a potato patch. The plow has an iron beam, iron frame and iron wheels, and is made in a very simple manner. The mold and share are made of the finest cast-steel, which can be repaired by any blacksmith. The plow was used to open and back furrow in such a way as to turn every inch of ground. At the request of Colonel Peiper the plow was set for depth and a furrow slice was turned 18 inches wide and averaging 10 inches deep. The plow was drawn by three horses, and it was estimated that during the time of plowing, 1½ hours, ½ an acre of land had been completely turned up. In all cases it turned up the hard, dry subsoil, such as had never before been plowed, and turned it over completely pulverized. It was the opinion of all the farmers present that such plowing had never before been seen in the vicinity.

The plow is worked by two levers, one of which throws the plow in and out of the ground, and the other for leveling the bottom of the furrow. These levers are directly at the control of the plowman, who sits on a comfortable spring seat. The plow is thrown out of the ground by disengaging the lever and pushing it slightly forward, when the horses in moving pull the plow out of the ground without further labor to the rider. The machine can be adjusted to the plow at any depth required, and being locked in the ground will plow hard ground that otherwise would be impossible. A boy who can drive three horses can run this plow, and can do as much work in one day as two two-horse plows. All sorts of trash can be plowed down and turned under completely out of sight.—*Examiner and Express.*

REMINDER FOR OCTOBER.

In the Middle States, the labors of the gardener are varied, as during the preceding month; but he who then neglected duties necessary to be done, has lost time not to be regained—the autumn is upon him. Seeds of a few varieties may still be sown. The principal labors are, however, the protection of crops, already grown, transplanting others, and setting out trees and shrubs. Asparagus beds dress. Cabbage plant out in light land, for next season's use. Beets and carrots store now, or early next month. Lettuce plant out for next spring. Potatoes dig. Spinach sow at once, if not sown last month. Vacant ground trench.

SUGAR FROM CORNSTALKS.

The agricultural department has for some time been experimenting as to the possibility of making sugar from cornstalks. These experiments were brought to a close on last Saturday. The results so far obtained are believed to be sufficiently favorable to be brought to the attention of farmers throughout the country. It is too late to have the method thoroughly tested during the present season, as the cane will be too mature to give the best results, but if it shall prove to be what is claimed for it, doubtless it will be widely tested next year. We are the largest sugar consuming nation in the world. The amounts we import annually are enormous, and immense sums of money are sent abroad to pay for it.

We have tried to make sugar from sorghum or Chinese cane, but the experiments were not satisfactory. The sugar beet has also been tried, but up to the present time the manufacture has not proved profitable, although we cannot but believe that this industry will at no distant day become one of the most extensive in the land. Most of Central Europe now makes all the sugar it consumes from this material; it has been found largely profitable, and there exists no good reason why the manufacture cannot be successfully established here.

The growth of sugar cane in this country is confined by natural laws to several of the Southern States, and has even declined there very largely since the war, but Indian corn is raised in every State in the Union. The sup-

ply of cane is almost beyond calculation now, and will continue to increase as the vast regions towards the Pacific fill up. If, therefore, it can be made available in supplying the constantly increasing demand for sugar it must become a vast source of national wealth. If the juices it contains are at all rich in saccharine matter cheap sugar would be the result. Its culture would assume still greater proportions than at present. It would prove one of the farmers' best crops. At present the stalks are rarely utilized except for the manure pile. Should they be found to possess a value beyond that they will assume a more important place in agricultural economy. We await with much interest the report of the department, and trust it will be such as to justify the anticipations that have been formed from the little that has already been made known.

AMBER SUGAR CANE.

Minnesota's Experience—An Industry Worth the Attention of Lancaster County Farmers.

The cultivation of "Sugar Cane," or "Sugar Grass" (*Sorghum saccharum*), as it is called specifically, in order to distinguish it from the Southern or true sugar cane (*Saccharum officinarum*), involves an agricultural and commercial, as well as a domestic interest, that must eventually elicit the attention of progressive farming in all the Northern and Middle States, if not the entire Union. It is well known that the true "sugar cane" (*Saccharum*) is cultivated from cuttings, and from cuttings alone, and that it is not adapted to the peculiar climatic vicissitudes of the Northern States. Because, if overtaken by a severe spring frost—which often affects it disastrously even in the "Sunny South"—it cannot be so readily renewed, or replaced by replanting, as can be done in crops raised from seeds alone; for when the sprouts push forth and start to grow in the spring they cannot well be retarded, but must be planted; moreover, it seems to be exceedingly difficult to mature the seeds of sugar cane in our country, or anywhere else, except, perhaps, in the country where it originated; at least sugar cane cultivators never make the production of seed a specialty, and never depend upon it as a means of perpetuating the crops. But in the cultivation of "sugar grass" (*sorghum*) the case is very different. This is grown from seeds alone, and is as sure a crop in the Northern States as the common Indian corn, or broom corn, and it matures its seeds as surely and as thoroughly as wheat, corn rye or oats do, and when touched by a severe late spring or early summer frost, can be as easily replaced by replanting as the common corn (*Zea maize*) can, and with as certain results. The trials which have been made in the cultivation of sorghum or sugar grass in the Northern States have been as satisfactory as could have been expected under all the circumstances, and with the moderate stock of knowledge on the subject possessed by our farmers generally. There was no necessity in abating their efforts, or in relinquishing its cultivation altogether, because they did not realize their maiden anticipations. Some forty years ago the whole North went spasmodically into the silk culture, or rather into the speculation of *Morus multicaulis* trees, and when the bubble bursted, the whole enterprise was just as spasmodically abandoned, and yet the cultivation and manufacture of silk still goes on, and is perhaps the largest industrial interest in the world, and before we celebrate our second centennial, our own California will supply our entire Union. The question in such a matter should not be solely, how shall I benefit myself, but how may I benefit mankind? Some of the Western States, even those north of our parallel of latitude, have persevered in the cultivation of Sorghum, and in the manufacture of syrup and even of sugar, this industry is increasing. They are now cultivating a variety called "Amber Cane," and the results have far transcended their most sanguine expectations.

Last week the State Agricultural Society of Minnesota held its annual industrial exhibition at St. Paul in that State, whilst another was held at Minneapolis by the Agricultural and Mechanical Association in the same week, and on the whole the occasion has been considered "the most remarkable in the history of agriculture in the country." The exhibition of sugar, sugar mills and sugar evaporators was very ample and very satisfactory, as the following extracts fully illustrate:

The St. Paul *Pioneer Press* publishes a remarkable announcement from the Department of Agriculture. It says a sample of sugar made from the Minnesota amber cane was some time since forwarded to the Commissioner of Agriculture at Washington, and by him placed in the hands of experts for a thorough and careful analysis. To the surprise of all who are acquainted with it, the result was as follows:

Cane sugar (true saccharine).....	58.9
Grape sugar, glucose.....	5.6
Water	5.5
	100

"The result," says a correspondent of the *Prairie Farmer*, "is one of the most important that the Department of Agriculture has ever ascertained. It now only remains to perfect the processes by which true sugar has been obtained from sorghum in the banana regions of this country, and then go on to supply the demand, which amounts to fully \$200,000,000 a year. This opens up a new avenue to American agriculture almost boundless in extent, and fully equal to the production of bread food among us. The new enterprise will demand technical skill and intelligence of a high grade, and is worthy general attention and patient perseverance until complete success is commanded." If the *Pioneer Press* or the *Prairie Farmer* would give further particulars in regard to the care, culture and average yield of the amber cane, and the comparative certainty of its growth in Minnesota or elsewhere, the facts would be of much interest to farmer readers in all parts of the country.

Now, we may naturally suppose that what can be accomplished in the cold regions of Minnesota, all other things being equal, can be accomplished in Pennsylvania, and especially in Lancaster county; for wherever "broom corn"—a species of sorghum—will grow, the "amber cane" can also be cultivated. True, as the writer of the above paragraph says, "the new enterprise will demand technical skill and intelligence of a high grade, and is worthy of general attention," and although this may be a sort of terror to "old fogies," yet it is the very condition that the rising generation of farmers is preparing itself for. Everything requires more skill and intelligence now than it did fifty or a hundred years ago. Our soil and its manipulation have passed beyond its virgin state, and like a gold, iron or coal mine, nothing can be gotten out of it with profit, unless it is intelligently and skillfully worked. Theoretical works on the subject of sorghum culture have already been published, and by the study of these, with persevering industry, the practical part can be surely and efficiently acquired.

The *Prairie Farmer* says, "it is not aware that any condition of soil or of climate peculiar to the State of Minnesota, render the cultivation of 'amber cane' there any more certain of success than in other States," and further remarks, that it "would advise those who are desirous of making experiments to consult with Mr. C. F. Miller, of Dundas, and Seth H. Kenney, of Morristown, Minnesota, who will furnish full particulars and information in regard to seeds, culture, etc." The State Society of Minnesota purchased an acre of growing cane for experimental purposes at the exhibition, and when cut, stripped and headed, the canes weighed 19,914 pounds. We believe our Lancaster county corn lands could exceed that much easier than they could produce 80 bushels of corn to the acre.

Pay your back subscriptions.

"A SNAKE IN HIS EYE."

Much ado is now being made about a certain horse standing in a stable in Sansom street, Philadelphia, alleged to have a "snake in his eye," and many people in and about that city are flocking thitherward in order to see the wonderful phenomenon, declaring that they "have never seen the like before." Inasmuch as among those wonderstruck visitors are to be found learned physicians, veterinary surgeons, and others "who have dipped deep into the mysteries of anatomy, and have absorbed the lore of American colleges and German universities," it is a little remarkable that nobody has seen or heard the like before, especially as it is by no means a new thing, a number of similar cases having gotten into the columns of secular newspapers during the past ten years. These phenomena being reported usually as involving the presence of "snakes," the wonderment of the people is greatly enhanced, because the same idea attached to a subject of the Ophidian order, is also attached to these little animal parasites. Of course, it is not a snake they have seen, nor anything like a snake, although there may be present a miniature animal, somewhat approximating to a snake in outward appearance. In point of fact, physiologically or anatomically speaking, these animals don't come as near—or any nearer—in organic structure, to a snake, as they do to a man, or any other animal, whether fish, flesh or fowl, belonging to the great division of vertebrates. A snake, properly so-called, is an air-breathing vertebrate animal; so is a man, a horse, an elephant, or a hen; and to call an animal a snake only because it is long, tapering and cylindrical, would be about equivalent to calling every fruit a plum or a peach, only because it happened to be spherical or round. The exact position of these worms (not snakes) in scientific classification is not yet fully determined, on account of their infrequency and the difficulties attending their consecutive investigation, but their analogy to the Gordiaceous ("Hair-worm" family) and other worms, leads to the supposition that they are migratory in their habits, and that one part of their lives is passed in a locality quite different from that in which they have at various times times and under various circumstances been detected. The "gapes" in fowls is caused by the accumulation of worms in their trachea, or breathing organs, which belong to a division of the same family. Various species are found in pigs, calves, dogs, sheep, birds, beetles, grasshoppers, fishes, etc., etc., as well as in men, horses and other animals. We have often found them in grasshoppers, and on one occasion in a large water beetle—(*Dytiscus*). Among the zoological specimens collected by Mr. Merriman, in the explorations of Prof. Hayden, in the summer of 1872, a new species of these threadworms, or hair worms, was found under the eye of a hawk (*Buteo*). It seemed to be entirely new, and was described by Dr. Packer under the name of *Eustrongylus buteonius*, and is allied to a species (*E. papilliferus*) found very frequently in the brain of the "Anhinga-Bird" of Florida. Mr. Walker took two specimens of a species from the brain of a "Night hawk" (*Chordeilis Virginianus*) shot at Compton, New Hampshire, in June, 1863, which has been described as *Eustrongylus chordeilis*.

A very interesting (?) account of "A snake in his eye" (taken from a Philadelphia paper) was published on the first page of *The Intelligencer*, some days ago, in which some suggestions were advanced in reference to "the beast" that were "wise and otherwise," but somehow as soon as the writer encountered the authority that could have enlightened him on the subject (vide the last paragraph) he fled; perhaps because it undermined his pet theory of "a snake," and was likely to take "all the wind out of his sail." We don't blame him for fleeing, because he was under the special pay of his employer, and was writing for the masses, and the masses always prefer the sensational before the scientific.

This is the case, perhaps, "all the world over," and it will require a long time yet before the readers of daily papers are educated up to a scientific standard—possibly not until there is more unanimity in scientific deductions. But the fact is, that science in many respects is comparatively in its infancy, especially on the subject of "thread-worms." The existence of these worms was discovered many long years ago—some say two hundred years ago—and yet there seems to be as little known specifically of their habits, modes of reproduction, migrations and transformations at the present day, as there was at the time of their discovery, or within a reasonable subsequent period. In vol. iii. of the "Naturalist's Miscellany" (which is now before us), edited by George Shaw and Frederic P. Nodder, and published in London, somewhere in the eighteenth century, we have an illustration and description of the common "hair-worm" (*Gordius aquaticus*), which details nearly or quite as much about the history of that peculiar worm, as is usually to be found in modern accounts. It was believed by the "common people" at that period to be an animated horse-hair that had accidentally dropped into the water—and, to illustrate how slowly the common people unlearn such erroneous notions, that class of people of the present day believe pretty much the same thing. Scientists also knew then already that hair-worms pass certain stages of their existence in the bodies of beetles, caterpillars and other insects; and the writer records the fact that he found a number of *Gordii* in the brain of a species of "Water newt" (*Lacerta aquatica*, Linn.), which is still more remarkable than to find them in the "eye of a horse." Modern science has been busier in classifying and renaming them than in developing their histories. On several occasions we have found species of them in the middle of a solid head of cabbage, and on one occasion one was brought to us in the heart or seed-cavity of an apple. The family to which they belong is by no means a large one, but they are all so very peculiar in their habits and are found under such various and complicated circumstances that many almost insurmountable barriers to their study in detail are continually interposed. But this we may pretty surely know, that they are not snakes, nor the progeny of snakes.

RED BIETIGHEIMER.

There is no fruit cultivated on the continent of North Amerien—if anywhere else on earth—that, under all the circumstances, is more generous to the human palate, more healthful to the human system, more economical in its various adaptabilities to human wants, nor one which retains its flavor, its soundness and its edible qualities longer than that of the apple. One thing more, there is no fruit of so simple culture that is so misrepresented by the growing, or, allowing to grow and palm upon the market, such miserable apologies for fruit as the apple. Perhaps it may with truth be said:

"They are like Jeremiah's figs,

The good are very good, the bad not fit for pigs."

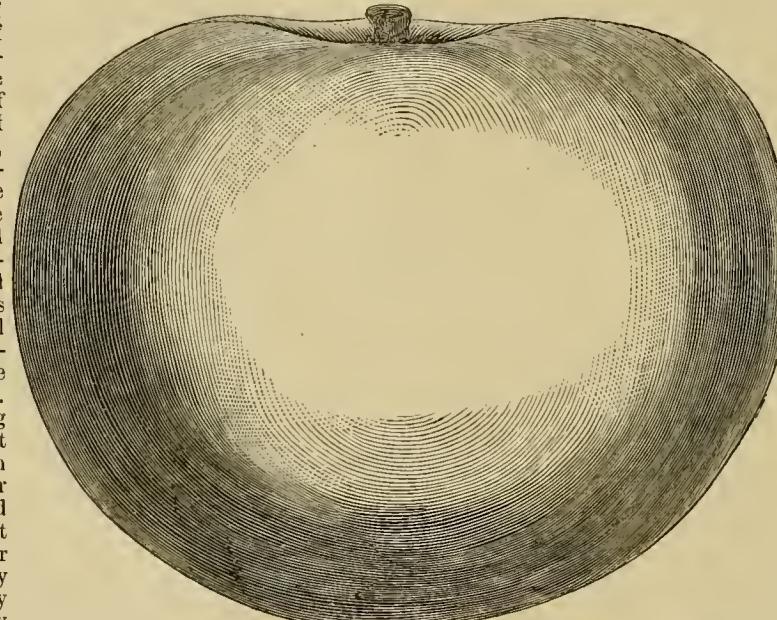
It affords us rare pleasure in being able to chronicle and illustrate in this number of THE FARMER a rare and valuable German variety of the apple—that Germany from whence we have derived so much in this country that contributes to the domestic health and comfort of its people. "Fruit, large to very large; roundish, inclining to conical; stalk short, stout, in a deep cavity; calyx closed in a large, deep basin; skin, pale cream-colored ground, mostly covered with purplish crimson; flesh white, firm, sub-acid, with a brisk, pleasant flavor; tree a strong grower and abundant bearer. This is one of the largest and handsomest apples, and worthy of extensive culti-

vation." It is an early fall variety, and is grown and for sale by those veteran nurserymen, MESSRS. ELLWANGER & BARRY, of "Mount Hope Nurseries," Rochester, New York. Two to three years standard and dwarf trees, \$1.00 each. A business established in 1840, increasing and maintaining its integrity down to the present time, ought to be a sufficient guarantee to those who are looking abroad for reliable varieties of fruit.

BEST WATCH MADE IN AMERICA.

Unbiased European Endorsement of the Lancaster Watch.

At the request of the officers of the Lancaster Watch Company, State Superintendent Wickersham carries with him on his European trip one of their finest watches. The company had designed to enter the Lancaster watch at the Paris Exposition, but were unable to prepare their exhibit for competition at the early date named in the French regulations. As the next best thing they sent out one of their finest nickel movements with Dr. Wickersham, requesting that he should have it examined at the best centres, in comparison with any other watch that might offer, and report the opinion of unprejudiced European experts. The city of Geneva, in Switzerland, is everywhere admitted to be at the very head and front of the watch manufacture in Europe.



More watches are made there than anywhere else in the world, and the finest grade of Geneva watches is, perhaps, unequaled elsewhere for elegance of finish, accuracy as time-keepers, and extravagance of price. Favorable endorsement from such a quarter, therefore, carries weight. It "means business." Dr. W., after his party had been shown through one of the leading factories, had his Lancaster watch examined, and reports as follows in a private letter dated at Venice, August 11th:

"Tell Mr. —— that I have good news for the Lancaster watch. I visited one of the most celebrated watch factories at Geneva, and the manager there, in the most public manner, before thirty or forty persons, said, after examination, that it was *the best watch made in America!*"

The italics in this extract are Dr. Wickersham's. The endorsement is of a very strong character, and will give renewed encouragement to the men whose faith in the success of their great enterprise is equaled only by their pluck and the intelligent energy with which they are driving it forward. There are some eighty employees now in the factory, a part of whom, during the past month, have been at work day and night. No better man than Abram Bitner could be found for financial manager and executive head; while Chas. S. Moseley, the superintendent, has already "run" three watch factories successfully—

Waltham, Nashua and Elgin—and proposes, with the aid of his skilled assistants, to add Lancaster to his honored list. It is but fitting that his fourth and last success should produce—"the best watch made in America." Those of our readers who have not yet seen the Lancaster watch will find it on exhibition, side by side with the Springfield, the Waltham, and one or two other movement, in the show window of Ezra F. Bowman, No. 106 East King street, where we had the pleasure yesterday of comparing these timepieces.

SCIENTIFIC.

The Cabinets of Natural History in England, the United States and other civilized nations are from time to time greatly enriched by collections made by their armies. As an instance of these contributions we notice that Post Surgeon Wilcox, at Camp Supply, Indian Territory, contrives, with the assistance of his steward, Seymour Kitchen, to send, through Col. Hambright, specimens of the insects of that far-off land to our genial townsman, Mr. Lewis Haldy. The specimens are packed in small boxes, in cotton, and sent through the mail to Mr. Haldy, who forwards them to an entomological friend in Philadelphia. The last lot received consists of butterflies, moths, bees, wasps, beetles, locusts, crickets, spiders, etc., including fine and large specimens of the centipede and tarantula. It

is true, there may be busy times when our soldiers cannot be spared for such peaceful pursuits as the gathering of scientific material, but it is evident that much more might be accomplished in this direction during those long periods when the problem before post commanders is how their men can be profitably employed. There might be at each post one wide-mouthed jar or bottle into which all insects that will bear immersion could be deposited, and when enough have been accumulated they might be packed in boxes, between dampened layers of paper, securely closed and mailed to some enthusiast, like our own Dr. S. S. Rathvon, who would make the best use of them in the interest of science. Any package weighing less than four pounds can be sent through the mails, provided it contain no liquid or other substance that can injure ordinary mail matter. Small tin or wooden boxes are

the best for the transportation of insects; if packed in paper alone, they are liable to become crushed and rendered useless for scientific inspection.—*Examiner and Express.*

HOW PLANTS PROVIDE FOR THE FUTURE.

Each species of plants must, of course, solve for itself the problem, during the course of its development, whether its energies will be best employed by hoarding nutriment for its own future use in bulbs and tubers, or by producing richly endowed seeds which will give its offspring a better chance of rooting themselves comfortably, and so surviving in safety amid the ceaseless competition of rival species. The various cereals, such as wheat, barley, rye and oats, have found it most convenient to grow afresh with each season, and to supply their embryos with an abundant store of food for their sustenance during the infant stage of plant life. Their example has been followed by peas and other pulses, by the wide class of nuts, and by the majority of garden fruits. On the other hand, the onion and the tiger-lily store nutriment for themselves in the underground stem, surrounded by a mass of overlapping or closely-wound leaves, which we call a bulb; the iris and the crocus lay by their stock of food in a woody or fleshy stalk; the potato makes a rich deposit of starch in its subterranean branches or tubers; the turnip, carrot, radish and beet use

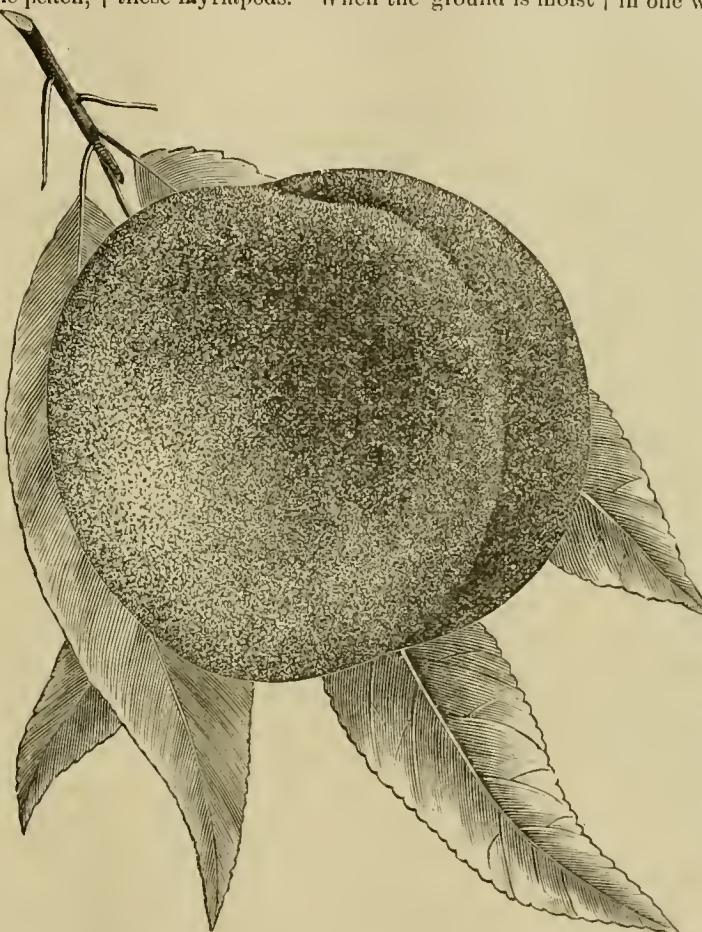
their roots as the storehouse for their hoarded foodstuffs; while the orchis produces each year a new tubercle by the side of its existing root, and this second tubercle becomes in turn the parent of the next year's flowering stem. Perhaps, however, the common colchicum or meadow saffron affords the most instructive instance of all; for during the summer it sends up green leaves alone, which devote their entire time to the accumulation of food-stuffs in a corm at their side; and, when the autumn comes round, this corm produces, not leaves, but a naked flower stalk, which pushes its way through the moist earth, and stands solitary before the October winds, depending wholly upon the stock of nutriment laid up for it in the corm.—*Popular Science Monthly.*

WATERLOO PEACH.

This is a seedling originated in Waterloo, New York, by Mr. Henry Lisk, of that place. The exclusive right to propagate and sell it, however, has been transferred, by purchase, to Ellwanger & Barry, of the Mount Hope Nurseries, Rochester, New York. The peach, of course, occupies a place in our social and domestic constitution which nothing else can supply or supplant, and therefore it is entirely in harmony with itself, and with everything else of the fruit kind. The "Waterloo" is an entirely new variety, but has been sufficiently tested, and is backed by sufficient authority to entitle it to the confidence of the people. A good idea of it may be found by our illustration, and the following description: "Size.—Medium to large, good specimens measuring nine inches. Form.—Round, with a deep suture on one side, from stem to apex; stalk in a deep cavity; apex slightly depressed. Color.—Pale whitish green in the shade, marbled red, deepening into dark purple crimson in the sun. Flesh.—Greenish white, with abundance of sweet vinous juice; adheres considerably to the stone, like Hale's, Amsden, &c. Season.—The first specimen ripened this season July 14th, and measured ten inches in circumference. All were picked and mostly over-ripe on the 19th of July. It is believed to be a week earlier than Alexander and Amsden. Mr. Lisk says that in the summer of 1877 it ripened several days earlier than these varieties, and this year, judging from unripe specimens of Alexander and Amsden, now before us, we think "Waterloo" fully a week in advance. It is a remarkable keeper, ripe specimens having been kept in perfect condition in our ofice nearly a week after being picked. These same specimens were ripe at the time they were gathered. It will, therefore, be of good value for shipping. We think we are perfectly safe in rating it as one of the largest and finest of all the very early peaches. Price, \$2.00 each." Any of our readers who may feel a desire to go beyond the excellent varieties originated in this county, we think may surely repose confidence in such a firm as that of ELLWANGER & BARRY.

BLACK-ROOT AND THE MYRIAPODS.

For some months past, and especially about the beginning of the tobacco growing season, we have heard many complaints, and tobacco growers have interrogated us about a disease of the tobacco plants which they called "black-root." Of course, from their representations alone, and without having seen any of the diseased or infected roots, we could not divine what was the matter with their plants—especially as no one had sent us any of the diseased plants—but we supposed they might have been affected with a parasitic fungus, or something of that character.



they are found on or near the surface, but when it becomes dry they bury themselves deeper in the soil. He has tried lime over and over again, but without any beneficial effect. We recommended the saturation of the soil with scalding water as the simplest and cheapest remedy, and in order to decoy the animals to the surface, we recommended moistening it with tepid water.

Most of the myriapods contained in this specimen of soil are quite young, and must have been produced from eggs deposited last spring or during the summer; therefore they will be just in a condition to create havoc at the next planting season, and consequently it is important that they should be destroyed before that time. It may be necessary to repeat the application of this remedy several times, in order to secure the desired result. It no doubt would be beneficial to expose the beds to intense freezing, having first kept them securely closed and the earth moistened, as before stated, in order to induce the enemy to come to the surface at the most appropriate time, followed by several repetitions.

Intense cold is, however, not an effective

But, on the 3d inst., Mr. J. F. Shaeffer, an extensive tobacco grower of Upper Leacock township, called on us and exhibited a small box containing about one-fourth ounce of dark earth in which were from twenty-five to thirty small, whitish, living centipedes or myriapods, from a quarter to half an inch long, which he has discovered, from practical observation, to be the little animals that cause the "black root" in the tobacco plants. He represents them as coiling themselves around the root, and girding it, or nearly separating it from the plant. From that moment the young plant either wilts or dies—at least, it makes no progress forward, but becomes yellowish and stunted, if it does not immediately die. When this is not the case, under the most favorable circumstances it recovers very slowly, and then only when the root has been able to throw out laterals, or rootlets, above the wound.

Mr. Shaeffer states that the small quantity of earth he exhibited to us was an average specimen of the whole of his plant beds, and, if so, they must be permeated by millions of these myriapods. When the ground is moist

remedy for the destruction of insects in any case, except where it is frequently alternated with heat and moisture. Some insects may be frozen stiff during the winter, and remain so until spring, without sustaining any injury. But where they are frozen and refrozen, alternated with thawing and rethawing, and moisture superadded, they seldom survive it.

As additional remedies we would suggest the thorough saturation of the plant beds with a liquid infusion of tobacco or sumac blossoms, common lye, a solution of whale oil soap, or diluted carbolic acid; always being sure of decoying the enemy to the surface before the remedy is applied. In regard to the tobacco remedy, we have often seen large quantities of the liquid running to waste at factories. This should be husbanded and kept as an insecticide. Moreover, it would return to the soil, as a manure, what had been drawn from it in the tobacco crop.

It is somewhat astonishing what a source of sustenance the tobacco plant is becoming to a large number of insects. There are now known to be eighteen or twenty species, that in one way or another prey upon it. The successful tobacco grower must therefore increase his vigilance, and not be unwilling to go to some trouble to secure a good crop.

And now a word about the enemy. The class *Myriapoda* (many-footed) is conspicuously divisible into two grand divisions, namely: Millipedes (thousand-footed) and Centipedes (hundred-footed). The first are herbivorous, and the second carnivorous; therefore, the latter never need disturb the equanimity of the tobacco grower. Although many of the first division feed on decayed vegetation, or on fungi, yet some of them are very destructive to garden vegetables. The first division have cylindrical bodies composed of many segments or rings, and four feet attached to each ring underneath, and they move slowly. The second division have flat bodies, two feet to each segment, attached to the sides, and their movements are rapid.

Each of these divisions is divided into several families, and these into genera and species. The above two grand divisions are scientifically called *Chilognatha* and *Chilopoda*, and down at the lower end of the first named is a family called *Polydesmidae*, a kind of connecting link between the two great divisions, similar to the first in structure and habits, but allied to the latter in the flattened form of the body; and to this family the little individuals belong that are the subject of this paper. They belong to the genus *Polydesmus*, which is the type of the

family, but they are still too immature to determine their species. Color, whitish to gray.

CORNSTALKS vs. SORGHUM.

For some time past the chemist of the Department of Agriculture at Washington has been wrestling with the constituent substances that exist in the shape of cornstalks and sorghum, endeavoring to separate their saccharine properties and ascertain how much crystallized sugar could be obtained from a given quantity. His experiments are now given to the world as follows: The aggregate weight of the cornstalks used was 11,237 pounds, and the weight of sorghum 13,958 pounds. The weight of the juice from the cornstalks was 2,773 pounds, and from the sorghum 4,963 pounds. The specific gravity of the cornstalk juice was 10.54; that of the sorghum juice, 10.58. The percentage of juice in the cornstalks as they came from the field was 24.68; the percentage of the sorghum, 35.56. Thus 2,571 pounds of cornstalk juice yielded 382 pounds of syrup, and 4,355 pounds of sorghum yielded 660 pounds of syrup. This syrup contains 75 per cent. of its weight of

sugar. The mill used in these experiments was an indifferent one, and the sorghum was in small stalks. Better results would have been reached had the stalks been larger. Dr. Collier says he is satisfied that there is not a farmer in the country who cannot rely upon results 50 per cent. greater than he has secured, with a better mill.

ANSWERS TO CORRESPONDENTS.

S. P. E., Esq., Lancaster, Pa.—The large black and yellow spider you sent us is the common "Garden Spider," (*Epeira riparia*.) Since it has been in our possession it has spun a large, brownish, silken, spherical cocoon, after which it died. The cocoon is about an inch and a half in diameter, and we therefore presume that the specimen was a female, and that the cocoon contains a large number of eggs; which, in due time, will produce as many young spiders; but somehow very few of them comparatively reach the adult state; at all events we never see one-tenth part of them reach maturity.

Again, the faintly greenish-white worm, about an inch in length, with a yellowish-brown head, six black pectoral legs, sixteen prolegs, or proplegs, and two dorsal longitudinal rows of squarish black spots, and two lateral rows of the same, which you found destroying the foliage of your "Scotch Pine," (*Pinus sylvestris*.) are the larvae of a "Pine Saw-fly," (*Lophyrus*), perhaps the *L. Leontii*, but we cannot determine the species until we breed the "fly." About twenty of them have spun yellowish-white cocoons, about three-eighths of an inch in length, of an oblong oval form, and very smooth externally; they look something like the white "field-bean," but not so white. These insects are said to produce two broods in a season. These we have, commenced spinning on the 28th of September, and they continued so occupied until the 3rd or 4th of October. Keeping them in a warm room we may get some of the flies this fall yet, but it is very probable we shall not get them until next spring.

Six or seven species of these flies have been described as infesting the pine in their larva state, but the number may be greater. These larva have a strong smell of turpentine, and they seem to be saturated with that substance, which may indicate that they cannot easily be killed with any ordinary remedy.

E. K. H., Creswell, Lancaster county, Pa.—The whitish insects, with long hairlike antennæ, which you obligingly sent us, we have long known as the "Tree cricket," (*Oecanthus niveus*) but their depredations upon the tobacco plant is a new characteristic altogether. Years ago we only found them occasionally, singly or in pairs, on the willow and other trees, or on garden shrubbery. Subsequently we noticed them on grape vines, more numerously, where they were charged with cutting off the clusters of green grapes; but now, according to your representations, corroborated by the observations of a number of other tobacco growers, they are next to the "Horn-worm"—(*sphinx*)—the worst enemy among the dozen which now infests the tobacco plants in Lancaster county. They attack the young leaves as they are successively developed, eating numerous holes in them, and as the leaves expand by subsequent growth, these holes increase proportionally in size so that when the leaf is fully matured its quality is marred by the unsightly mutilations of this enemy, and they become either worthless or only of a much depreciated value. We are surprised at the immense numbers reported, fully fifty now to one a few years ago. Their acute sight, and their wonderful agility in secreting themselves is very remarkable. They seem to be far worse than any of the slow and almost immovable caterpillars that infest the tobacco. They are so quick in hiding, or otherwise in making their escape—especially after the development of their wings—that it is almost impossible to apply a remedy to counteract them with any kind of success. All we are able to suggest is "eternal vigilance," and their destruction at as early a

period of their development as possible, and while they are yet very young carbolize them. (See September number).

We reply to a dozen querists that the "queer bugs" (but really caterpillars), which they sent or brought us, are commonly called the "saddle-back moth," (veritable "Greenbackers,") the *Euphretia stimula* of Dr. Clemens. They appear to be more numerous the present season than we have ever known them to be, one observer assuring us that he counted ten on a single Gladiola leaf. They appear to be endowed with the peculiar economical faculty of adapting themselves to a variety of plant-food, for they have been found during the past summer on the apple, pear, quince, plum, cherry, rose, cabbage, gladiola, grape, corn, beets, lilac, morning-glories, and a number of other shrubs and plants. So far as we have been able to learn they do not attack the peach or nectarine, and probably the apricot is exempt; but nothing else comes amiss, and they are particularly fond of the common plantain. We admonish our readers to be careful not to let any exposed part of their bodies come in contact with the bristling spines on the fleshy horns at both ends of their bodies. Painful irritation or inflammation sometimes follows. Eventually they spin a brown, smooth, hard cocoon, in which they pass the winter, and appear as moths in June. (See August number.)

Bug or Beetle.

A very curious bug, found on one of our streets by Samuel J. McDowell, was brought to our office on Saturday. It is about one inch long by half an inch wide, with a hard oval case of dark brown color. On the under side four short legs are located, near the head, and about the centre of the body are two longer paddle-like legs, furnished with a brush, which the insect revolves with great rapidity on being turned upon its back. When walking these paddles drag behind like rudders. In the absence of any correct knowledge of the insect we have named it the clock bug, because it appears to wind itself up with such dexterity whenever placed upon its back. It has been sent to Prof. Rathvon, the celebrated entomologist of Lancaster.—*Oxford Press*.

The "bug" (not a bug but a beetle) alluded to in the above paragraph was duly received, and proves to be a fine specimen of *Cybister dissimilis*, one of our largest species of "water beetles." They are amphibious in their habits, breeding and feeding exclusively in the water, but when perfectly matured, they are provided with an ample pair of wings which, by transverse folds, lie closely packed under the shield-like elytra which cover the back. By the aid of these wings they are able to emerge from the water and fly a considerable distance, but when wandering too far, they often fall to the earth and are unable to rise again. These migrations are supposed to be stimulated by their sexual impulses, or in pursuit of a more favorable locality to propagate their species. Their larva, a long-lizard-shaped animal, with large and strong jaws, lives exclusively in the water, and feeds upon anything of the animal kind it can capture in its native element, being carnivorous in its habits, and a most voracious feeder, often devouring the fry of fishes.

The above description from *The Press* is correct enough, without needing one from us, except that it does not exactly "revolve" its paddles (that motion in a short time would twist them off), but uses them pretty much as an oarsman does a pair of oars; and it is by means of these paddles or oars that the insect propels itself through the water. On land its locomotion is very imperfect, but in the water it is perfectly at home, and boatmen, by studying its form and its manner of plying its oars, might gather some new ideas. We thank the editor of *The Press* for this very desirable specimen, which we shall register and place in our cabinet.

Foreign Wheat.

The following correspondence will explain itself:

Mr. S. S. RATHVON—Dear Sir: I send herewith some heads of wheat. The two longer ones I picked in a field in the north of France, and the shortest one was given me by a Belgian, who had taken many

medals, I believe, for success in agriculture and kindred pursuits. Please to keep the wheat for me, as our farmer proposes to plant it.—With high regard, &c., respectfully yours, *P. E. G., Bird-in-Hand, Lancaster county, Pa.*, 9th mo. 21st, 1878.

These fine specimens of "foreign wheat" were duly received and exhibited at the meeting of the Linnaean Society, held September 28th, and at that of the Agricultural and Horticultural Society, held October 7th, 1878, in the proceedings of both of which societies they were favorably noticed. The following will explain how it was disposed of, and also where we may look for whatever may result from its cultivation.

S. S. R., Esq.—Dear Sir: Please let the bearer, Mr. Henry Shiffner, have the three heads of Belgian and French wheat after the meeting of the Agricultural Society.—Yours, &c., *P. E. G.*

The order has been accordingly honored.

Three heads of wheat may be a little thing to write about, to talk about, or even to think about, especially in a year like the present, when there was so much fine wheat raised in nearly every State and Territory of the Union; but sometimes the largest interests and greatest events have their origin in beginnings quite as seemingly insignificant. Two young sprigs of rival noble houses had a quarrel in a flower garden in England, the one plucking a red and the other a white rose, as mementoes of their hasty spleen. But the wars of the "Red and White Roses" prostrated and elevated thrones, suppressed and reconstructed dynasties, and drenched England in blood for many subsequent years, and the finger of history often traces it back to the petty quarrel in the flower garden. Should there be a revolution in seed wheat; should a variety be developed that is proof against the ravages of the Hessian fly, the midge and the weevil, the rust, the smut and the mildew, in the future of our country, the intelligent agriculturist, still unborn, may trace its origin back to the present period, and its early record be found in the columns of *THE LANCASTER FARMER* for October, 1878, long after the journal and its sponsors have passed the "boundaries of another world." In this, as in many other events, posterity may realize that

"Tall oaks from little acorns grow,
Large streams from little fountains flow."

WEST EARL, Oct. 11, 1878.

PROF. RATHVON—Dear Sir: Enclosed find a kind of bug. Will you please answer through *THE LANCASTER FARMER* what it is, and oblige yours, &c., *D. G. R.*

This dull, brown insect, about an inch and a half long, and half an inch broad across the lower part of the body, with a toothed ridge on the top of the thorax, is commonly called the "wheel-bug" (*Reduvius novarius*). Protect and treat kindly all the bugs of that species you find on your premises, for they do not subsist on vegetation, but on other insects. Some of them will hibernate during the winter, but most of them will deposit their eggs on any protected place they can find, if they have not already done so. It may be well to state here, however, that this insect can inflict a painful wound with its piercer, but it may be handled, if care is taken. Under any circumstances, knowing that it does not injure vegetation, it may be "let severely alone."

EUROPEAN SHIPMENTS FROM PHILADELPHIA.

The following shipments were made from the port of Philadelphia for the week ending September 28: Petroleum, 1,359,911 gallons, \$144,237; wheat, bushels, 352,598, \$379,859; coal, tons, 599, \$1,937; lumber, feet, 92,324, \$1,623; pipe staves, 4,843, \$724; corn, bushels, 439,305, \$231,024; cheese, boxes, 2,555; provisions, packages, 1,322; flour, barrels, 1,125; butter, tubs, 638; tobacco, packages, 289; tallow, hogsheads, 100; spokes, cases, 99; duck, packages, 117; bark, packages, 168; beef, tierces, 50; carbon, casks, 32; canned goods, cases, 46; skins, packages, 35; sundries, packages, 30.

CHRONOLOGICAL HISTORY OF TOBACCO.

1496—Romanus Panc, a Spanish monk, whom Columbus in his second voyage left in America, published the first account of tobacco under the name of "Cohoha."

1525—The negroes on the plantations in the West Indies began to use it.

1559—Jean Nicot, envoy from France to Portugal, sent some of the seeds to Paris, and from him acquired the name of "Nicotiana." When it was first used in France it was called *herbe du Grande Prieur* of the house of Lorraine, who was very fond of it. It was also called *herbe de St. Croix*, from Cardinal St. Croix, who first introduced it into Italy.

1550—At this date in Holland tobacco was smoked in conical tubes made of palm leaves plaited together.

1575—First appeared a print of the plant in Andrew Thevet's *Cosmographic*.

1585—The English fleet saw the Indians of Virginia use clay pipes, from which time they began to be used in Europe.

1604—James I., of England, sought to abolish the use of tobacco by heavy imposts upon it.

1610—The smoking of tobacco was indulged in at Constantinople. To render the custom ridiculous a Turk, thus detected using the plant, was led through the streets with a pipe thrust through his nose.

1615—The cultivation of tobacco was begun in Holland.

1619—James I. ordered that no planter cultivate more than one hundred pounds.

1620—Smoking first introduced into Germany.

1631—First introduced into Austria by Swedish troops.

1634—The use of tobacco forbidden in Russia under penalty of having the nose cut off.

1653—First used in Switzerland, where the magistrates first punished those found smoking, but the custom became too general to be suppressed.

1690—Pope Innocent XII. excommunicated all who should take snuff or use tobacco while at church.

AROUND THE FARM—No. 12.

"Did you hear of the accident last week?" asked a neighbor the other day. "No, said I," what has happened? "A party of ladies and children were driving down a hill, when the breech strap broke and the horse ran away, injuring several of the occupants, broke the shafts and mashed a wheel before he could be stopped." "It was lucky no one was hurt very bad," said I, but it again brings me to think of a very simple device, which, if applied in this case, would have saved more than the cost originally, besides the damage the horse sustained, for if a horse once runs away he is not safe afterwards. The device I have reference to is a good pad-lock, with which every market carriage should be provided.

I am surprised that so many people drive without a good pad-lock. It will save more than its cost in horse flesh in a single season, for going down hill with a heavy load to hold back is as hard on the horse, if not harder, than going up. If I could persuade all my readers to apply locks to their carriages I would immediately do it. You might as well try to drive a two or four horse wagon without a lock as carriage. This is the third accident happening within three months from the same cause (in one of which a man broke both arms at the elbows), and I have taken pains to ascertain if they had locks to their wagons, and I found neither of them had.

Cutting Cornstalks.

No doubt my readers will remember that I advised them, last autumn, to cut off the cornstubbles before husking. To do this expeditiously I had a hoe made out of an old axe, which is a capital implement for this purpose. By getting your blacksmith to make a hole through the flat side of the axe and affixing a handle, your hoe is complete.—*Ruralist*, Creswell, October 5th, 1878.

FOR THE LANCASTER FARMER.
LARGE FLOWERING SPURGE.
(*Euphorbia corollata*.)

The Spurge family consists of herbs, shrubs, or even trees, often with a milky juice, chiefly represented by the genus *Euphorbia*. The *E. fulgens* of Mexico, and *E. splendens* of Mauritius, are ornamental hot-house flowers often met with. The native species, *E. corollata*, is found frequently along fence rows or in old fields of a rather sandy soil. New York is its northern limit; it grows two or three feet high, and by its neat form and conspicuous branching umbels of white "flowers" cannot fail to attract the attention of any one having his eyes open to grace and beauty. But what we commonly term flowers are peculiar in this genus, which is at once known, however, by having a three lobed ovary, raised out of a kind of flower-cup, on a curved stalk, and milky juice of the plant. The Indians were acquainted with it as a medicine. In a letter written by Mr. Clayton to Dr. Grew, contained in the "Transactions of the Royal Society for 1730," states that "the aborigines made use of this root, called 'Tythymal,' as



a purge, though it sometimes vomits. It is quick but moderate in its effects, and has this peculiarity, that it opens the body when other more violent purgatives will not move it." The root is large and branching; stems erect and round, mostly simple; the leaves and habit of growth is well shown by the rough cut. The "*Euphorbia corollata*" has several common names, such as "Milk-weed," (this name usually applies to the *Asclepias* also,) "Snake's Milk," "Ipecauanha," and "Indian Physic," which latter name applies to several other plants; this shows the uncertainty of local common names.

W. Zolliekofer, M. D., of Baltimore, some years ago brought the plant into notice as a medicine of considerable power, in place of the Ipecauanha of the shops, and thinks it in no respect inferior to that article. He relates seventeen cases in which he administered the powdered root of this plant in doses of from ten to twenty grains. Fifteen to twenty grains act as emetic, without an unpleasant taste or producing any material uneasiness. Dr. McKeen used smaller doses, giving from three to twelve grains of the powdered root, as a cathartic, chiefly, however. In one case a dose of three grains was actively cathartic; in another five grains produced vomiting—these are exceptional cases. It rarely proves inactive. The conclusion of

Dr. Bigelow is: "The *Euphorbia corollata* must undoubtedly be ranked among the more efficient medicines of the evacuating class." So much as to its medical character. What farmers have frequently experienced that it is very hurtful to small grain when it grows in great quantities, as it sometimes does, and the common means that are made use of, such as plowing down and harrowing, in order to kill *blue grass*, have the effect of increasing the quantity and rapid growth of the plant. It is never eaten by animals. Thus, like the Canada thistle, it is a bad weed, but it would pay to dig up every plant and preserve the roots in such cases. Dr. Darlington, in his "Agricultural Botany," does not mention this species; but several kinds that lay flat on the ground, often met with in corn fields, the *E. maeulata*, L., said to cause salivation or *slabbering* in horses in the latter part of summer. The other is *E. hypericifolia*, L.; it is well to know these low, milky weeds.

This milky juice will soon become viscid and clammy between the fingers. This family has various plants, which yield *caoutchouc* or India-rubber. The common source is from a tree growing in Para, Demarara and Surinam, called the *Hevea Guianensis* by Aublet; the *Siphonia elastica* of Persoon.

I have collected of the juice of our low plants and formed it into a pill, the size of a pea, and it became so much like a light-colored India-rubber as to satisfy me that the milky juice was of the same nature—the "Milkweed," "Wild Cotton," genus *Asclepias*. The milky juice is bitter and acrid and contains *caoutchouc*; so also the Dog-bane, family of plants, *Apocynaceae*. The *Urseola elastica* of Sumatra belongs to this family. They all contain genera that are highly poisonous; others valuable medicines.

In conclusion I will only add that *caoutchouc* exists in the form of minute globules, diffused as an emulsion, Dr. Gray says, "in the milky juices of plants, most abundantly in *Urticaceae*, *Euphorbiaceae* and *Apoynaceae*." *Gutta-percha* is a similar product of the milky juice of a sapotaceous plant. Many persons consider the two products identical; not strictly so, however.—J. Stauffer.

FOR THE LANCASTER FARMER.

LIME AS A FERTILIZER.

PROF. S. S. RATHYON—Dear Sir: With your permission I will offer a few remarks on the efficiency of lime, as an agent in the enriching or amelioration of the soil, differing with the lecture of our friend Levi S. Reist, Esq., as published in *THE FARMER* for September. There are often articles in *THE FARMER* that ought to be reviewed or criticised, if the writers would give their names in full, but to reply to anonymous scribblers, is very much like the old saw of "the dog barking at the moon!"

Mr. R. firstly asks the question, "Does lime benefit our soils to that extent as to assure us that it will pay all the expenses connected with it?" and tells us "in his opinion it does not pay."

Now, if I am allowed to refer back sixty years, I may say that I well remember the farms in West and East Hempfield townships, and a few farms in Manor township, Lancaster county, as also along the turnpike in Chester county, that were so very sterile that neither corn, wheat nor clover could be grown. How are those farms now? equal in quality of productiveness to the best in the State of Pennsylvania! If we could ask those farmers who so improved these poor farms, they would say, one and all, lime, in connection with stable manure! But those farmers who made this great improvement of the soil are nearly all gone.

I particularly remember a farm not far from Columbia, that was so poor nothing would grow on it but chestnut trees—all was lying out as commons, no fences, and all the available income of the owner was chestnuts, of which they gathered wagon loads and sold them in town. That farm now brings as good crops of corn, wheat, clover, tobacco, &c., as any farm in our township.

Another farm I particularly remember, is on the turnpike between Mountville and Lancaster, on which was a public house, where many of the teams stopped over night on their way to Pittsburg. Here was considerable droppings of the horses and manure made, yet corn on that farm would not grow higher than the fences around the fields; no attempts made to grow wheat or clover; rye was occasionally sown, but it produced little more than the seed sown. But when they began using plaster (gypsum) then clover began to grow; and now, with lime in connection with animal manure and vegetable matter in the soil, they can grow as heavy crops of corn, wheat, clover and tobacco as on the best farms. To what can this wonderful change in the soil be attributed, unless the lime is credited with most of it—decomposing the vegetable and animal matter, making it available for plant food?

All over Chestnut Hill, in West Hempfield township, the land was so sterile that with all the animal manure they could rake and scrape together the people could barely grow a few vegetables in their gardens for home use; though many had from one to ten or more acres, most of it was lying out in commons, too poor to pay for plowing, as it would not produce enough to pay expenses. Now, what is the condition of this, as then considered worthless land, selling at—five dollars per acre! Now one hundred dollars would be refused! Sixty years ago they did not attempt to grow any of the cereals, unless a few stalks of corn in the garden. Now wheat, corn, oats, clover, and fifteen hundred to three thousand pounds of tobacco are frequently produced on an acre of this *poor land*, as it was considered sixty years ago.

What has brought about this wonderful change in the producing quality of the soil? So far as my opinion goes, I attribute it mainly to the application of lime, of course in connection with vegetable and animal matter, for the lime to exert its influence in decomposing these as a preparation for plant food.

I am certain that even our friend R— has some land of a gravelly, flinty, or slaty nature, which if he applies lime he will find on trial will pay all expenses of liming and leave him a profit besides.

I do not pretend that lime alone will enrich a soil where there is not a particle of vegetable or animal matter, but with a crop of the most worthless weeds plowed under, and an application of, say 30 or 50 bushels of lime on an acre, will soon show its value.

If any reader of these crude remarks should be so unfortunate as to be in possession of a farm so poor that insects and killdeers would have to emigrate to more fertile fields for a living, let him apply a dressing of 20 or 30 bushels of lime per acre and plow it under, then he will be able to grow some clover; plow this under, with twenty more bushels of lime, then a coat of stable manure, and in a few years another light application of lime, and he will be able to grow paying crops of vegetables or cereals, with nine-tenths of improvement credited to the lime.—Respectfully, J. B. Garber.

FOR THE LANCASTER FARMER.

LETTER FROM IOWA.

HOLLAND, Grundy County, Iowa, }
Sept. 12, 1878. }

EDITOR FARMER: Since my last we have been having very pleasant weather, and soon the "sere and yellow leaf" will begin to show itself. We had a slight frost last night, and farmers will soon be thinking of picking their corn crop, which will be immense; some will doubtless yield one hundred bushels per acre. You may think that considerable; come and see for yourself, and you will be apt to change your opinion. This seems to be the soil for corn, it being of that rich, black loam, and has the peculiar virtue of alike standing the ravages of drouth or heavy rains, the soil having just enough sand in its composition that the plowman never has to wait for it to dry after the heaviest shower of rain, and yet

has enough of clay, which makes the wheat field as fruitful as the corn, and the good farmer will succeed here, provided he does not become afflicted with the land mania, and become land poor, which is the case with many of the first settlers who came to this county. Men came in here, purchased 10,000 to 15,000 acres of land, more than they were able to farm, yet would not part with it, but now are gradually selling off. The largest land owners in this county now are Messrs. Bailey, 20,000 acres; Geo. Wells, 8,000; E. Marble, 3,000, and a number owning from 500 to 1,000 acres. These men not being able to keep up with the improved farming of the times, and suffering from too great a waste from improper farming, are selling off their fine lands, thus opening up a field for men of smaller means, and, as a consequence, a better system of farming is being inaugurated, and the county is correspondingly better off.

This country is not a whit different from any other. If well tilled and cared for, will produce abundant crops; if indifferently farmed, will yield correspondingly. I am confident that if your Lancaster county lands were no better taken care of than some of these lands are, they would not produce one-third of what these lands here produce.

Mr. John S. Gable, of your city, paid this county a visit several days ago. He has a large tract of land in this county (Grundy), as also in Tama county. He is of opinion that this soil and climate are especially adapted to the culture of tobacco. He has experimented during the present season with about one-half an acre, and with the very best results, the tobacco being of first quality and burning white as chalk. Mr. Gable's opinion carries great weight with it, having had large experience in growing and handling tobacco; he knows whereof he speaks. What an opening this would be for tobacco growers; land \$12 to \$25 per acre; a good crop of tobacco would purchase considerable land, and if Mr. Gable's theory is correct and taken hold of some one will make money out of these lands.

The hog crop of this county will be heavy, and large numbers will be ready for market in about a month from this. Large herds of cattle are also fed here and sold east.

Wheat is coming in, and the yield in quality and quantity is far better than was expected, and the spirit of the farmer is correspondingly elated. Oats was sold here weighing 38 lbs. per bushel. Hard to beat that. 36 lbs. was thought to be "boss," but a few days ago the 38 lbs. were brought in. Next.—W. H. S.

FOR THE LANCASTER FARMER.
RANDOM THOUGHTS—No. 5.

Wheat from India.

England is the great wheat-consuming country which does not produce enough to supply its own wants. To supply the deficiency she has been compelled to import large quantities, principally from three countries. The United States stands at the head, the next in order being Russia, to supply her wants.

This state of the case did not suit her, as she would sooner have her wants filled by some of her own colonies and dependencies. At the time of the high price of cotton she encouraged India in the raising of the latter crop, in every possible way, hoping to become independent of American cotton, but very little success rewarded the effort.

Now India is to come forward as a wheat-supplying dependency (empire, I believe, is the term used by the English,) and, in fact, considerable quantities have been brought from that country, but not enough yet to make a perceptible impression on other wheat producing countries, and until railroads and canals become more numerous there is very little danger from this source of the markets of the world being flooded. But does it not sound a little curious to Americans that India should export wheat and at the same time suffer from more frequent and more desolating famines than any other part of the world?

Queer as the case may be, it is yet too true,

and the theory of the reason is that *the people are too poor* and must sell the wheat in order to raise money for taxes, they themselves living on an insufficient quantity of some inferior food. I have seen the statement that it is a common fact for these people not to have a hearty meal for years. As long as such a state of things lasts there can be very little energy in the people, as laborers in order to be pushing and effective need abundant and non-nourishing food. We have therefore but little to fear that they will take away our wheat market, as our intelligence and energy is more than a match for the inefficient management of their millions of half starved laborers.

Tea Raising.

In June number of THE FARMER I enumerated several products that could probably be raised with profit in the United States, tea being one of these. The Agricultural Department, at Washington, has been sending out tea-plants for the last few years to such places as seemed suitable for the growing of the plants. Individual efforts, before this time, showed that the plants could be raised very readily, but that they could not be produced with profit on account of the much higher wages that had to be paid our laborers than the Chinese laborers received.

With our improved agricultural machinery there is no doubt but what the plants could be raised as cheaply as is done by hand labor in China; the plucking of the leaves could be done by the cheaper labor of children and women, so that with the import duties on tea, and the transportation charges, we could possibly compete with the Chinese; but as every housewife of the land knows, the tea comes in a peculiar shape; some round and shot-like, as Imperial; some of the same form but grains smaller, as Gunpowder; some twisted, some curled; each brand having its own peculiar shape, and so accustomed have the people become to them that tea dried flat, though just as good as that rolled or twisted, could not be sold; to produce these shapes has always been done by the slow process of carefully manipulating each separate leaf by hand until the desired form was produced.

This has been the only bar against American raised tea becoming known on our markets, and I believe even this has been removed by the invention of machinery that will produce the same results at a much less cost as was formerly accomplished by hand labor.

This, if true, will be good news to tea drinkers, as they probably can indulge in this (to some) necessity at a lower expense and higher quality, for it seems to be inherent to Americans to produce everything of the best quality at the lowest prices possible.

Our Government Against the Farmers.

It is always supposed that a just government makes no distinction amongst its different subjects, or that it makes a distinction in favor of the subjects of foreign governments as against those of its own. Yet we must say, that this is the actual case with our own government, the discrimination being in favor of trade and commerce as against farmers, and in some cases of foreign subjects as against its own.

One of the grievances of the farmer is, that in the trades the Government will impose such a rate of duty on that class of imports that such trade can establish itself, and when once on a fair footing the rate of duty is lowered and the trade not hurt. The iron and steel industry is one of the most prominent examples. Can the farmer point to any of his productions, or any production possible, that is shown this favor?

In commerce it is the same story, with a variation. In this case millions of dollars are appropriated for improvements, &c.; to throw a sop to the simple farmers thousands are enough. Why is this distinction?

When commerce and trade are favored, of course the farmer is indirectly benefited and we do not look for such excessive appropriations, but we would like to see the Government recognize our services by a little more

liberality, and establish farmers' experimental stations, &c., or what is better, making appropriations for such purposes, to be paid to the different States upon compliance with some stated rules and regulations.

The Post-office Department has, however, taken the plan for the most direct discriminations and annoyances of which the farmer can complain.

The business of seed-growing is becoming of some importance, and some years ago postage was reduced to eight cents a pound on all seeds, cuttings and plants. A year or two later the very last act of Congress changed the law from eight cents to sixteen cents per pound, the law taking immediate effect. The effect of the law was such that the mails at some places became clogged with seeds that could not be forwarded on account of the insufficient postage that had been paid thereon. It was only by a stretch of authority on the part of the Postmaster-General that a complete dead-lock, or the throwing out of thousands of dollars' worth of seed, was prevented. But the increase in postage was the least evil inflicted on our people, for the Canadians can send seeds through our mail, and it costs them but four cents postage, which is paid to their government, not ours. Suppose that one of our farmers goes into raising turnip seed and can retail it at 50 cents per pound; if he wants to send it by mail he must ask 66 cents per pound; the Canadian is enabled, by the liberality of our Government to send it for 54 cents, or in plain words, our Government, through the Post-office Department, enables the subject of a foreign power to undersell our own people as much as twelve cents on a pound of seed, which in case of turnip seed amounts to about twenty-five per cent., or if so minded the foreign subject can make the larger proportion of the difference and still undersell us.

A very bad case of the want of care for the interest of the people, on the part of the Post-office Department, occurred during the summer. For a few years past it has been the custom to send queen bees through the mail, they being received and forwarded as matter of the third-class, on the payment of one cent for each ounce. The department gave no intimation, but all at once came the ruling that queen bees are not mailable matter, and numbers of such bees, worth from two to six dollars each, were thrown aside to die. Could not the department have notified postmasters to receive no more bees, but to forward to their destination such as were already in the mail? But what did it matter to the officials at the head of the department. The annoyance and loss fell simply on farmers and others engaged in rural pursuits.

This, it may be said, is not to discuss politics, but would it not be a little to the interest of the farmers to see that more of their own calling were to be seen in Congress. It is a pity that the Granger movement so soon fell into the hands of mere politicians, for it could have accomplished untold good for the farmers, had they seen to it that it be used only as such, for it is a fact to be remembered, that the farming community has such numerical strength as to make itself felt and recognized in every department of the Government, and it only needs their intelligent action and co-operation to secure such recognition.

How Many Seeds Grow.

The above caption is found at the head of an article in the *Scientific Farmer* for September.

It calls attention to the printing on each package, by the seeds, of their non-responsibility for any loss or damage from any failure of the seeds, but that non-responsibility paragraph is not printed of the packages to cover bad seeds, as the article referred to seems to imply.

A number of seedsmen had been sued for damages, resulting from the seeds not being of the variety sold, two important cases being as follows:

One truck-raiser bought seeds of a variety of cauliflower, but when they came up I believe they proved to be that of a Savoy (?)

cabbage; the trucker should have tried to remedy the error, as he easily could have done, but instead he farmed the crop to the end and brought in a bill of damages, laying it at so much a head for some acres of cauliflower, which is one of the most uncertain crops to raise known. He knew that if allowed by a jury that he could make more money by damages than by a crop, and the jury awarded the damages. The seedsmen then printed the conditions, claiming that unprincipled parties might not sow the seed sold to them.

In the other case the man raised "wintered" cabbage plants of the Early York variety, and on being planted shot up into seeds instead of forming heads. A suit for damages was the result, but the seedsmen showed conclusively to the court that the man, being a German, and not used to our climate, sowed the seed from five to ten days too soon, and that had he sowed at the later dates the cabbage would have headed. This being a plain case, it was decided in favor of the seedsmen, as it should have been. We see thus that the seedsmen are not to be wholly blamed for their obnoxious conditions.

As to the germination of the seeds there is some ground for complaint; the journal referred to giving the results of some of the experiments on their germination, made by Prof. Beal, of the Michigan Agricultural College. The number of seeds that germinated in four different lots, from as many seedsmen, were respectively 49, 47, 37 and 23 out of every hundred, which is a very bad showing. These seeds were not purchased directly from the seedsmen or they might have been better, but were such as are sold on commission at a great many grocery stores. Speaking of these commission seeds Prof. Beal says: "They are sent around the country in the spring and gathered up late in autumn, we presume to be sent around again, in a similar manner, again and again, till they are all sold. He who buys them, in most cases, throws away his money." Mr. Vick says that he once saw the seeds of five different seedsmen at the door of a store in a small village. Mr. Vick says, "remarking to the merchant that he must do a large business in seeds, we were informed that he only sold eight or ten dollars worth in a year." Only eight or ten dollars worth of such a perishable thing as seed sold out of probably fifty or a hundred dollars worth! Nobody could stand such a business as that and offer fresh goods!

Prof. Beal compares the cloverseed on the college grounds with that purchased from the best seedsmen in New York city, and claims that while the college cloverseeds gave a result of 90, 92 and 98 per cent., respectively, that purchased in New York gave only 88 per cent. in common clover. It has to be taken into consideration that the seed saved at the college probably received a great deal more care than can be bestowed on the articles raised in large quantities for commercial purposes. I would say that 88 per cent. was a very good showing.

In the grasses the result from New York seed was, timothy, 96 per cent.; Hungarian grass, 67 per cent.; in the other grasses, from none at all in Kentucky blue grass up to 39 per cent. in orchard grass.

Grass seeds are of two kinds: 1st. Those that, like wheat, hull out of the covering or seed-pod: timothy and Hungarian grass belong to this class; 2d. Those that like oats, are covered with an envelope, and most grasses belong to this latter class. Oats having a large, heavy seed the lighter kernels can be blown away, and you have good seed oats. In what are called the grasses, the seeds are very light, and, of course, you have at all times to sow the bad seeds with the good; but, unfortunately, this is not the worst, for in nearly all these grasses, where there are two or three grains with a kernel in them, you will find as many, or perhaps more, that have no kernels; this will be found to be the case in the very best samples, as any farmer can soon convince himself. I think that 23

per cent. in red top and 39 per cent. in orchard grass was at least a fair showing.

I think Prof. Beal should have called attention to this fact, for some persons not knowing this to be the case might make a trial and denounce a seedsmen for poor seeds, when they were the very best of that kind.

Farmers should in all cases buy farm seeds near home, if possible, and from neighbors, if they have any who raise such seeds, and are known to keep their crops clean from weed seeds.—A. B. K.

PARIS LETTER.

PARIS, Sept. 7th, 1878.

The irrevocable tendency of civilization is from the East to the West. We have heard that axiom before. The movement is from sunrise to sunset; so that, when "all earthly things shall come to gloom" and "the sun himself shall die," as the poet Campbell gloomily sings, it will be in the remotest of occidents that fashion will expire. The Palais Royal has only experienced the application of a universal law. Fashionable civilization spreading westward, spreading to innumerable new boulevards, spreading to the Parc Monceaux, overrunning the Champs Elysees, and threatening to overlap the Bois de Boulogne, has contemptuously pronounced the Palais Royal, as things go, out of the world. It is no longer a place to dine, to promenade, to flirt, or even to conspire in. It is too far away. It is, fashionably considered, at Pekin. The great restaurateurs, Vefours excepted, have deserted the *cercle* of the Palais Royal for the western boulevards. The cafes are, socially and intellectually, only the shadows of their former selves; and, finally, the edifice has—temporarily perchance—lost the slight political importance which, under the second empire, it possessed. The side of the vast quadrangle facing the Rue St. Honore is, as most people know, a magnificent palace, east the town residence of the Dukes of Orleans. Thither did the profligate cynic, Philippe Egalite, turn sad eyes as the death tumbrel bore him through a floating mob, past the old splendid home of his forefathers, to where the guillotine awaited him, in the Place de la Revolution, now the Place of Concord. And in July, 1830, from the windows of that self-same Palais Royal did the son of Egalite look wistfully, half fearfully, half hopefully on another mob, pouring, yelling and triumphant from the Louvre, which they had just sacked—screching the Marseillaise, roaring "Vive la Chartre!" "Vive la Republique!" "Vive Lafayette!" "Vive Louis Philippe!" The last cry won the day; and Louis Philippe, Duke of Orleans, went forth from the Palais Royal a citizen king. Eighteen years afterwards the mob came back to his house to turn it out of windows. The Palais Royal had, however, enjoyed full twenty years of splendor. Even before the re-establishment of the empire it had been the residence of old Jerome Bonaparte, ex-King of Westphalia, the brother of Napoleon I., and the consort of the ill-used Miss Paterson, of Baltimore, and whom his Imperial nephew, not knowing very well what to do, made at last Governor of the Invalides. The old gentleman was a Waterloo man—it was his corps that had opened the battle on that fatal wet morning—and he had not behaved badly in the fight. By the Parisians he was generally, in virtue of an atrociously twisted conundrum, called "l'Oncle Tom," since it was argued, Napoleon I. being "le Grand Homme," and Napoleon III. "le Petit Homme," old Jerome must necessarily stand in the relation of "Uncle Tom," or "t'homme" to the latter. His son, Napoleon Jerome, kept high state at the Palais Royal, gave good dinners and bad cigars, and hatched vain intrigues there against his cousin and benefactor, until the empire tumbled to pieces like a pack of cards—cards marked by gamblers who had lost their cunning and could no longer "sauter le coup." Very dreary must be the saloons of the Palais Royal Palace now. Very dark and dismal must be the empty stables and coach-houses

in the court-yard adjoining the Galerie d'Orleans. The ghost of the Napoleonic era is a very woe-begone one, and Bonapartism, for the moment, seems to exercise less influence over the minds of the multitude than at any former time during this century. Still, it must be admitted that the second empire, while it lasted, did things very handsomely indeed. The pieces in its *repertoires* were got up regardless of expenses, and its *pourboires* were unstinted.

Disestablished politically, ostracised by the fashionable world, the Palais Royal might ostensibly run the risk of sinking to the level of a tenth-rate neighborhood. It is not only the great eating-house and coffee-house keepers who have quitted it for the boulevards. To a great extent it has suffered abandonment at the hands of cheap tailors, who have discovered that a "coin de rue," or corner of a populous street, is a necessity in carrying on the business of a slop-shop palace on a large scale. There yet remain slop-shops in the Palais Royal; but they are few in number, and subdued in aspect. Their dummies look dusty, clammy pallid, and generally dejected, from their obvious inability to cope with the pretentious lay-figures of the "coin de rne" slop palaces; the boys in Glengarry jackets, knickerbockers, purple hose, and preposterously rough faces; the aristocratic coachmen with buff great-coats reaching down to their feet, white neckcloths, bushy black whiskers, and gold-laced hats with monstrous cockades; the dashing Amazons with Tyrolean hats and golden and coral-handled whips, and who never forget to lift a corner of their habits to a sufficient altitude to assure the spectator that they are provided with undergarments of chamois leather, with black feet. The artistic exuberances are beyond the poor old Palais Royal. The Palais Royal, built in deliberate imitation of the Piazza San Marco, and presenting a really noble, albeit imperfect copy, must always bear a pleasantly dim resemblance to its peerless Venetian original. Unfortunately the incurable mania of the French for the ornamentation of every monument of architecture which they possess has led to the conversion of the immense area between the arcades into a garden. It never was a handsome garden; and at present it is more than usually ill-kept, exhibiting a gravelly walk, with a few patches of grey-green herbage and scraggy shrubs here and there. Were the whole expanse smoothly paved *a l'Italina*, in a simple but elegant pattern in white and grey, or white and pink marble, and were the ugly newspaper kiosks, the toy and cake stalls, and the supplementary booth fronting the rotonde, all of which impede the view to an exasperating extent, swept away, the garden of the Palais Royal would assuredly be one of the most magnificent spectacles in Europe, especially at night, since the basement of every one of its sections is a shop, or a cafe, scarcely ever closing until after ten o'clock, and necessarily brilliantly lighted with gas. The majority of the entresals and first floors are again occupied by restaurants, and the illumination of these saloons enhances, to a wonderful degree, the nocturnal brilliance of the scene. We had had heavy rains yesterday afternoon, but it cleared up at night, and the moon was superb. It was aggravating to have no full and sweeping view of the arcades on either side, and the radiant frontage of the Galerie d'Orleans, at the extremity, parallel with the palace. It was more aggravating to find no military band present, as in olden times, to discourse enlivening strains.

THE COMPARATIVE EXHAUSTIVE POWER OF THE CEREALS.*

Friends and Fellow-Laborers: I feel highly honored in being called upon again at our annual re-union, to address you. I would do violence to my own feelings if I did not sincerely thank you for the pleasure it affords me

to add my humble mite toward making this immense gathering alike pleasant and profitable.

You have assembled at the close of one of the most bountiful harvests to spend a single day socially; to renew old acquaintanceships and to form new ones, to compare results of old plans and methods, and to devise better ones; with thankful hearts, we hope, to enjoy, to appreciate, to acknowledge the lavish gifts of a Power that never tires in giving. None more fully deserves this day of recreation than you and your helpmeets, for from you, and from you alone, spring all the means of sustenance upon which all other pursuits and callings primarily depend.

Withhold the labor of your hands, and the products of your broad acres for but a single year, and all other pursuits would languish. Yet our interests are so nicely interwoven that our success and theirs mutually depend upon each other. Whatever militates against the interest of the consumer falls with equal force upon the producer. This immutable law controls, ramifies and permeates all pursuits which engage the time, capital and labor of the human family.

In order that we may become a more important factor in the execution of this grand law, I have chosen as my theme that which will render your labors more successful, profitable, intelligible: "The Comparative Exhaustive Powers of the Cereals."

How strange it is that the most subtle deductions of science, in many instances, are but the sayings, maxims and proverbs of the most observant. This declaration presents itself with more than usual force when we introduce to your consideration and inspection a full analysis of our subject.

Farmers for a long time have believed the oats crop to be the most exhaustive of all the cereals generally raised. They have come to this conclusion by noticing the amount of manure applied for the crop of corn immediately preceding the oats, the beneficial effects of which, they rightly conclude, cannot all be removed by the corn; the amount of manure required to produce a good crop of wheat from the oats ground, or the almost total failure if they seed the oats stubble to wheat without the application of manure or some other fertilizer. Here is a single instance in which the habit of close observation, one of the most valuable powers of the human mind, has led the farmer to a great truth which the chemist reaches by an entirely different, yet no more reliable process. If time would permit we could cite many more, all tending to prove that close comparative observation is a process of truthful scientific deduction. But we desire to make our first mentioned observation with reference to the oats crop the basis of our remarks. We present to your view a somewhat novel analysis of three general cereals:

NUMBER OF LBS. EXTRACTED PER ACRE.	25 bushels of wheat taken from the soil.....	50 bushels of corn taken from the soil.....	75 bushels of oats taken from the soil.....		
				the soil.....	the soil.....
Phosphoric Acid.....	7.7	12.6	14.2		
Nitrogen.....	34.5	50	75		
Potash.....	6.4	11.8	23.5		
	(48.6)	(74.4)	(118.7)		
Soda.....	.9	.5	9.5		
Lime.....	1.4	1	10.1		
Magnesia.....	2.2	4.2	75		
Sulphuric Acid.....	.8	1	3.7		
Chlorine.....	Trace	Trace	Trace		
Total.....	53.9	81.1	217		

We have departed from the usual plan of the chemist, and have given the analysis of a *profitable* crop of wheat, corn and oats respectively. We have carefully considered the average cost of land per acre, the annual interest upon the cost of the land, the deterioration of fences and buildings annually, the cost of manure or other fertilizers, the cost of cultivating, harvesting and preparing for market, etc., and in order that farming may prove profitable the respective crops should be at least twenty-five bushels of wheat, fifty bushels of corn, and seventy-five bushels of oats per acre.

These cereals, through a long term of years of peace, the natural condition of an agricultural people, would average, at least, one dollar per bushel for the wheat, fifty cents per bushel for the corn, and thirty-three and one-third cents per bushel for the oats. This would produce a crop worth twenty-five dollars per acre from each of the several cereals. We shall charge each of the crops, together with the necessary amount of straw and fodder to carry them, with the chemical elements extracted from the soil in their production, and conclude, from a scientific standpoint, if farmers are right in declaring oats to be the severest of the general cereals upon their soil. Of nitrogen, phosphoric acid, and potash, the three substances most easily extracted from the soil, the twenty-five bushels of wheat will take 48.6 pounds per acre, the fifty bushels of corn will take 74.4 pounds per acre, and the seventy-five bushels of oats will take 118.7 pounds per acre.

Calling the exhaustive power of the wheat, (48.6 pounds) one, the exhaustive power of corn and oats would respectively approximate one and a half and two and a half times as much. That is, of these three most easily removed substances, oats takes two and a half times as much as wheat.

Let us now consider soda, lime, magnesia, sulphuric acid and chlorine, the other substances required to produce these respective crops. They, with the nitrogen, phosphoric acid and potash, aggregate in the twenty-five bushels of wheat, 53.9 pounds; in the fifty bushels of corn, 81.1 pounds; in the seventy-five bushels of oats, 217 pounds. Calling the entire exhaustion of the wheat (53.9 pounds) one, the exhaustive power of corn and oats would respectively approximate one and a half and four times as much.

Whether we consider the three substances most easily extracted from the soil, or all those that constitute wheat, corn and oats, the fact stares us in the face, that a crop of oats of equal value per acre is from two and a half to four times as exhaustive as a crop of wheat.

How closely do declarations based upon careful observation conform to the searching deductions of science! The analysis that we have here presented may serve another purpose besides deciding upon the comparative exhaustive powers of the crops that we have considered—it may lead us to inquire concerning the origin of these various substances—the sources from which they may be most readily and cheaply obtained, and the most profitable manner of applying them.

All fertilizers may be divided into two classes: Those which actually supply food to the plant, and those which convert foreign substances into food. The four great organic elements, those that largely make up the bulk of animals and plants, are carbon, oxygen, hydrogen and nitrogen.

Nature has bountifully provided the soil with the first three, both as soil and atmospheric food, and man need but provide most soils with the fourth, nitrogen, as a fertilizer.

Of the mineral elements entering largely into the constitution of most plants, nine in number, iron and silica are always found in sufficient quantities in a soluble condition.

While nitrogen constitutes four-fifths of the atmosphere, but a comparatively small portion is furnished from that source. It would be contrary to "the eternal fitness" of nature to extract it from the atmosphere and eventually render it unfit for everything that breathes. The air is possessed of a fixity, whether it be examined resting on plains covered with most luxuriant verdure, or on tracts of cursed sterility. Nitrogen is always absorbed by the soil, and consumed by the plant in the form of ammonia, or of nitric acid combined with a base.

Nitrogen, in the form of ammonia, is most rapid in its action and most powerful in its effects; in the organic form of vegetable or animal albuminoids, it is rapidly converted into ammonia whilst undergoing putrefaction, and in the form of nitrates (nitric acid combined with a base, potash or soda, for instance,)

*An address delivered by Prof. S. B. Heiges, of York, Pa., at the Tri-State Pic-Nic of the Patrons of Husbandry, at Williams' Grove, Thursday, August 29th, 1878.

its action is less effective, though, perhaps, more lasting.

Chemists differ as to the means by which nitric acid is produced in the soil. Mr. J. B. Lawes, of England, undoubtedly one of the most scientific farmers of the age, asserts that after the completion of growth of certain crops the nitrogen combines with oxygen, and produces nitric acid.

In corroboration of this statement he cites that waters flowing from fields before the crop has matured, are free from nitric acid, and that the same waters after the crop has matured contain an appreciable quantity of nitric acid. Carefully conducted experiments, which we have made through a series of years, have led us to an entirely different conclusion. Electricity, we believe, is the cause of nitric acid being found in waters later in the season. A molecule of anhydrous nitric acid consists of two atoms of nitrogen and five atoms of oxygen. These are the two elements which, mixed, constitute the atmosphere; when combined, nitric acid. We have frequently found nitric acid in the first portion of a severe thunder shower, the electricity combining the necessary elements. These storms, coming after crops have almost matured their growth, we think, have much to do with the presence of nitric acid in waters percolating through the soil late in the growing season. The experiments of Boussingault, Cloez, Johnson, and Schloesing, all go to prove that hot weather, moisture, and the presence of soda, potash or lime, are the requisites in the process of nitrification.

Ploughing down an abundant growth of vegetable matter aids nitrification, and adds to the fertility of the soil.

Method of Applying Nitrogen.—From the volatile nature of ammonia, it should be applied to the soil very shortly before depositing the seed, at a considerable depth in the soil rather than near the surface, and if the soil be of a sandy, porous nature, rather in some organic form of nitrogen, than the nitrates or ammonia. Ammonia, however, is always profitable, if not as plant-food, by furnishing plant-food from the insoluble potash and phosphates existing in all soils, which it does by rendering them soluble.

The great virtue of ammonia, therefore, consists in its power of doing double duty—feeding and furnishing food.

Phosphoric Acid.—This compound exists more widely diffused than any other one that enters into the formation of plant-life. In the animal kingdom it is found in bones principally; in the vegetable kingdom, in the seeds of all plants, and in the mineral kingdom, as apatite, phosphorite, phosphatic guano (?) and coprolites. Widely as it is diffused, it exists almost always in a form that is not assimilable by the plant. The process by which the soil converts it into the soluble bi-phosphate is a slow one, and even after conversion, if not used by the plant, it will revert to the insoluble tri-basic condition. Herein consists the importance of applying those powerful chemical means by which we can render available these constant sources of phosphoric acid.

It is well that God has rendered this form of plant-food naturally so largely insoluble, otherwise the eternal hills, the foundation of the earth, would slowly but surely waste away; the bones of our body, by the hot blood coursing through our arteries and veins, and those other powerful solvents, would melt, dissolve away, and proud, erect man would become as frail as the slug we unintentionally crush beneath our feet.

Sources from Which Most Readily Obtained.—Superphosphate of lime, ammoniated phosphate, raw bone, dissolved, and Peruvian guano.

Lands rich in carbonate of lime or iron, cannot be profitably improved by the use of phosphates, although excellent crops may be raised by their application. A portion of phosphate is rendered insoluble by the production of sulphate of lime and an insoluble phosphate of iron. The only profitable application of phosphate upon soils of such a nature,

would be as nearly to the growing crop as can be done with safety, for the purpose of plant-food alone.

Raw bone, from its slow decomposition does not show immediate action, but that it will gradually and permanently improve all soils we have not the least doubt.

Peruvian guano, from its rich supply of nitrogen and phosphoric acid, we look upon as one of the most available forms of fertilizers. It not only furnishes an abundant supply of ammonia and phosphoric acid, but it renders available the potash in the soil, and also forms phosphate of ammonia and phosphate of soda.

We must not forget that phosphoric acid performs the double duty of food and food-furnisher. Through the agency of the growing crop it converts nitrogen into ammonia, and the latter unlocks the supply of potash and other insoluble minerals and converts them into plant-food.

The various forms of mineral or rock-phosphate are made up so largely of carbonate of lime, oxyd of iron or sand and silica, or all of these combined, and these substances being insoluble, therefore useless, we could not recommend their use without the phosphate be rendered soluble by sulphuric acid. The thorough admixture of the acids is such a difficult process that we would advise an experimental use of them for various crops until their real value be discovered.

Potash.—Next to phosphoric acid in importance stands potash. Virgin soils contain this substance in sufficient quantities, but our long-farmed lands are greatly deficient in it. The vegetable world furnishes it by the combustion or decay of vegetable matter. Where crops of grass have annually decayed, to be succeeded by others passing away in like manner, we find an abundance of potash in the soil. Such is the condition of, and by such means have been formed, the vast fertile prairies of the west.

But each successive crop removed from the soil robs it of a certain amount of potash, and if this be not restored by a proper system of manuring, the most fertile soil must become sterile and poverty-stricken. The cheapest and most reliable form in which this alkali can be used is as sulphate of potash, made from the muriate by means of sulphuric acid. Immense quantities are imported from the inexhaustible mines of Prussia, the richer being known as "Kainite," and the poorer quality as "Stassfust Dungsalt." The latter consists largely of magnesia, lime, chlorine and soda, in connection with potash, some of which are valuable fertilizers. No one need remain long in doubt as to the value of potash. After the ground for a certain crop has received all the manure or other fertilizer designed for it, stake off a certain portion of it, conforming as closely to the general average as possible, apply at the rate of two hundred pounds of sulphate of potash per acre, harrow thoroughly, and compare the crop by weight or measure, depending upon its nature, with an equal area selected from the best portion not thus treated, and the result will prove if the application of potash be necessary or profitable.

By way of parenthesis, we may add that this is the best form of "soil analysis," and that it may be extended with little trouble to all the various substances that add to the fertility of the soil.

Soda.—This alkali is not as abundant as potash in any soil designed for agricultural purposes in general, nor is it required by any cereal in as great quantity. The analysis of oats shows it to be pre-eminently in excess in that cereal, and we doubt not a special application for that crop would prove a profitable investment.

The sources of supply are both cheap and abundant; nitrate of soda (Chili saltpetre) and chloride of sodium (common salt). The former would furnish a rich supply of nitrogen; the latter, chlorhydric acid (convertible into chlorine), and a portion of the salt in connection with the ammonia would unlock

the stores of insoluble phosphate. Experience has convinced us that salt applied to heavily manured land will generally prevent the lodging of wheat, perhaps by the formation of silicate of soda.

(To be continued.)

THE WOOL PRODUCT OF THE WORLD.

From an interesting article on the wool trade of the Pacific coast, published in a recent number of the San Francisco *Journal of Commerce*, we learn that the number of sheep in the world is now estimated at from four hundred and eighty-four to six hundred millions, of which the United States has about 36,000,000, and Great Britain the same number. From 1801 to 1875 the wool clip of Great Britain and Ireland increased from 94,000,000 to 325,000,000 pounds. That of France has increased almost as rapidly, though the wool is finer, as a rule, and hence the superiority of the French cloths. Australia produces nearly as much wool as the parent country—Great Britain. The United States product increased from very little at the beginning of the century to about 200,000,000 pounds at the present time. Of this California has produced about one-fourth, and the Pacific coast as a whole almost one-third. If the ratio of growth shown in the past prevails in the future, the day is not far distant when the Pacific coast will produce at least one-half the wool produced in the United States, as not only California and Oregon, but also Washington, Idaho, Montana, Utah and New Mexico are well adapted to its production. The wool clip of Australia is about 284,000,000 pounds; that of Buenos Ayres and the river Plata, 222,500,000 pounds; other countries not previously given, 463,000,000 pounds. The total clip of the world last year was about 1,497,500,000 pounds, worth \$150,000,000. This when seoured would yield about 825,000,000 pounds of clean wool.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The Lancaster County Agricultural and Horticultural Society held its regular meeting on Monday afternoon, October 7th. President Cooper called the meeting to order with the following members present:

Calvin Cooper, President, Bird-in-Hand; Joseph F. Witmer, Secretary, Paradise; Daniel Simech, city; Levi W. Groff, West Earl; Henry M. Engle, Marietta; C. D. Hostetter, Eden; Johnson Miller, Warwick; S. Lem. Fry, Ephrata; J. Bollinger, Warwick; Dr. S. S. Rathvon, city; Henry Kirtz, Mount Joy; J. B. Garber, Columbia; C. H. Linville, Salisbury; John H. Landis, Millersville; William McComsey, city; John M. Stehman, Rohrerstown; M. D. Kendig, Manor; Casper Hiller, Conestoga; John Reish, Willow Street; Henry Erb, Manheim township; Henry Shiffner, Leacock; Levi A. Reist, Manheim; C. L. Hunsecker, Manheim; Washington L. Hershey, Rapho; Peter S. Reist, Lititz; I. D. Landis, city; Walter Kleiser, city; Clare Carpenter, city.

H. M. Engle, of Marietta: Dry weather has ripened the corn; it ent better in his district than was expected. Some of the wheat will be irregular in its growth because of the drought. A good deal of plowing must be done yet. Rainfall for August 2 14-16 inches; for September 1 1/4 inches. The first frost of the season was seen this morning along the river.

S. Lem. Fry, Ephrata: In conversation with farmers and others in the northern section he learned that the corn crop turned out better than was expected six weeks or two months ago. There will be more than half a crop where not half a crop was expected, and considerably better than half. One stream near Adamstown is nearly dried up. The mill near Reinhold's Station is not able to grind grain for the immediate neighborhood; so at Union Station. At Hahmstown wells are dry that have not been dry for sixty years. Some farmers go a mile to get their stock watered. The pasture is brown; he did not see a green field on his way to Lancaster. Grain is mostly sowed, and some is doing well, although farmers predict the hot sun will dry it up.

M. D. Kendig, Manor: His report was very similar to that of Mr. Fry. There is great suffering from the drought. He had reported half a crop of corn before, but would now report three-fourths of a crop. Grain looks yellow, and a good deal of it is not up yet. Rainfall for September, 1 8-10 inches.

J. C. Linville, Salisbury: Some wheat sown three weeks ago is up right nicely; that sown two weeks

ago comes up irregularly. The apple crop is not very good; apples ripen sooner than usual. Farmers are well on with thrashing; wheat has turned out well.

Henry Kurtz, Mount Joy: A good deal of grain must be sowed yet; he had not sown at all on account of the drought. What wheat he had observed appeared to be growing worse daily; it was growing up irregularly and yellow. He heard a report from the Susquehanna river that it is within three inches of being the lowest ever known. He knew a place in Cumberland county where it is a common thing to bring water five miles.

Casper Hiller, Conestoga: There is not much use in talking about rain. He had previously reported corn one-fourth crop, but felt like correcting that report. We can't cultivate corn too much, and if we cultivate properly we need not fear dry weather. When he commenced to husk the other day, he found that he had better corn than he had had for years, and in his neighborhood there would be three-fourths of a crop.

Calvin Cooper, Bird-in-Hand: He was also a believer in thorough cultivation. There are ten or twelve acres adjoining his farm, some of which was cultivated and is as high as the hedge. A storm stopped the cultivation of that lot, and the difference between the cultivated and the uncultivated is very noticeable.

C. F. Hostetter, Eden: In his district and even as far as Little Britain the corn is unusually good.

H. M. Engle, Marietta: This season ought to teach farmers what he has believed for years—that we should cultivate corn more thoroughly—until it is in tassel at least. Some are afraid of tearing up the roots, which might occur, but when you cultivate late you should not cultivate too deep. If corn grows wild and unearfed for until earing time and then meets a dry spell it will not turn out well; but if, as in the past season, it does not grow much until the dry season, it will feed further than corn grown in a wet season because it will be more nutritious.

Should Public Roads be Improved?

Henry Kurtz read an essay on this question. They should most unquestionably. We have many roads in this county that need improvement, and it might be done without much expense to the county by utilizing the tramps. Let each district erect a cheap boarding house, the tramps be fed there and made to work on the road. Where there is stone make a pike. Have hills leveled and valleys filled up. Many of our farmers would give the stone and haul it, if by doing so they would get roads; they would likewise give money and provisions to be rid of the tramps. Districts that do this would not be troubled by tramps, who would shun any place where there is work. The essayist pointed out a number of roads that might be improved, if the burghs between which they ran would share the expence.

J. C. Linville: Our roads are notoriously bad and we are all agreed that they should be better but, the great point is how to have them repaired without making the taxes too high. Some of our farmers when they discover a mud-hole, dump into it large stones, over which wagons jolt heavily and are considerably injured. It is very important in mending a road to break the stones into small pieces. Townships could not compel tramps to work without some legislation to that effect; utilizing them in the way suggested would be a good idea. There are a great many hills that should be graded, but he thought farmers pay tax enough now to have roads kept in a better condition.

Levi W. Groff: One half of the taxes paid could be saved in making roads if they were made properly. They should be filled up in the middle, so as to keep the water off. Water does more damage than does travel. The expense would be heavy at first, but the investment would pay in the end.

Jos. F. Witmer: A great mistake is made in having roads hollow in the middle and between the middle and the ditch at the side a rise, instead of having the road rise toward the middle. Water runs in the middle of the road until it comes to a break, where it turns off and certainly does considerable damage. As for banling stones into mud-holes that is worse than useless, unless they are macadamized. Mud-holes could be entirely avoided by having the road high in the middle.

J. C. Linville: A very common mistake is in having the road too level. Breaks should rise gradually and not go abruptly to a sharp ridge.

Jacob Bollinger: Mr. Kurtz has suggested a plan which if followed out would be a good one. That too many roads are going through places where they are not needed, and it is expensive to keep them up is well known. Taxpayers should look after these things. He knew that his township supervisor had about one-third of all the taxes for his own use. He was in favor of better roads, not caring how much they cost, but the taxes should go to their proper place.

J. C. Linville: Collecting of taxes should be abolished, and all county and State tax should be paid directly to the treasurer. It would be paid more promptly, and if there were any delinquents, then appoint a collector.

Are County Fairs beneficial to Farmers and Fruit Growers?

This question was opened by Henry Kurtz: He was satisfied that if Lancaster county could get up a good fair it would be beneficial to farmers and certainly to fruit growers. Peddlers swarm over the country selling fruit trees, showing what kind of fruit they bear by illustrations in a book. He had spent hundreds of dollars on these men, and his fruit was not now worth twenty-five cents. He had bought wonderful pears, but the fruit was not worth a fig. Here at the society he saw the fruit and could buy of those from which it came, running no risk of being swindled. Our farmers spend thousands of dollars annually on these worthless trees. At the fair they could see every variety of fruit grown in the county, and choose the kind of tree they will buy by the fruit they see there. These men came from New York with splendid illustrations, but their fruit when it comes is worthless. Not only is the fruit grower thus victimized, but also the farmer by the farming implement man, the cattle grower and all the rest of the traveling frauds.

Daniel Smeyeh: They are beneficial to the fruit grower, the nursery man, the farmer and all classes of people and he thought our county should hold a fair every season. It seemed to him that the county is afraid to show its products. Farmers profit by what they see of city products, and vice versa.

J. C. Linville: Farmers should be more sociable, and the best way to promote sociability is by coming together at fairs. But at these fairs, farmers generally make a poor display, while the mechanics of the town make a good one. Let us have a fair, and a good display from all quarters. Horse races and side shows are not essential. None of our fairs have been noted for their success, but there is more interest in such things now, and he thought the society could hold a grand fair. Other counties hold them every year, and it must certainly be profitable or they would not do it. We should have a good fair next year.

S. Lem. Fry: He agreed with Mr. Liuville. He did not approve of trials of speed; they should be done away with and the premiums paid to farmers. But some of our gentlemen farmers say we can't have racing without horse racing. And we can't have racing with \$300 or \$400 premiums. And can't have the premiums without pool selling. There is another class opposed to this and soon we can't get up a fair.

Calvin Cooper: He had always been loth to give any encouragement to fairs, but it was probably because they have been badly managed. We see other counties, not so rich as ours, have fairs, and why should not we? We have material enough to make one of the most successful exhibitions yet known. But we must have somebody to take the lead; whether it was for this society to take the lead he did not know. He saw the fair at York, at which he was one of the judges. They look forward to it as a holiday for months before the time; they have sociability, no drunkenness, a little horse racing, and the best of stock and produce. This made him think that if it was started in time we could have a splendid exhibition.

H. M. Engle: York and Berks have successful exhibitions, every year, and why should Lancaster, the boasted garden county, stand in the shade? It is time we should be up and doing. We can't get up a successful one the first season, but we can in time. Horse racing has been spoken of; we have a queer class of people; some are bitterly opposed to it and others are in favor of it. He believed every tub should stand on its own bottom; if horse racing is not profitable at any place but fairs it should be stopped, and if fairs cannot be made successful without horse racing they should go down. One objection to this society taking the lead in starting a fair is that it has no charter, and if we get into litigation we would all be at sea. Then we have no grounds, and to procure them would be expensive unless we could rent from the Park Association, and he did not see why that society should object to receive or others to pay a fair remuneration.

Wm. McCamsey: He had been away for some time and visited a number of fairs. He found everywhere that each county had its fair grounds, some of them very beautiful and complete with all the necessary buildings, and all paid for. And fairs were held there year after year with the most encouraging success. Everybody looked forward to the county fair with the greatest interest; thousands of people flock together and few if any who attended but received some benefit directly or indirectly. Why Lancaster county, so far superior to the others in an agricultural point of view as well as in wealth, should be so far behind all others he was unable to say. But he found in all the inevitable rings for trials of speed. Now whether those people are less moral than we he was unable to say. They certainly did not show it; he saw universal good order, propriety and temperance. But the success of these fairs is achieved through long years of experience, and in conversing with the managers of the fairs they admitted that it was an evil but seemed to think that good came from it. What is wanted is the patronage of the people. Races bring them to the fairs and

make them a success. In order to have races, we must have premiums, and to pay premiums it is necessary to have a large crowd. He found a live spirit existing among the farmers and stock growers. Every one made it an object to excel in some particular thing. This competition leads to progress and improvements here; county fairs must be and are beneficial, not only to those directly interested but to consumers. He knew many were opposed to horse-racing; he was not an advocate of it, at the same time he did not think we could get up a fair without it. He did believe if by means of them we could get up a successful fair the account would be more than balanced.

Casper Hiller: One difficulty in the way is the Park Association who hold the grounds. They call themselves the Agricultural Society, and so we have two societies antagonistic to each other. If we could become reconciled there would be no difficulty.

Calvin Cooper: He was glad to see so much interest excited; things look favorable now. True, the Park Association holds the grounds, but doubtless they would be glad to lease them for a merely nominal sum. He did not see why a successful fair could not be held.

Jos. F. Witmer agreed with Mr. Cooper. There would be no difficulty in renting the grounds, but thought we should try to get grounds under our own control. If trials of speed for horses without a record could be held, all right; but he objected to regular racing as at other fairs.

On motion, the further discussion of the question was indefinitely postponed.

New Business.

Casper Hiller said he had thought that if members could bring grasses and other specimens of farm produce to the rooms and form a sort of a museum it would be a pleasant task for the members, but he had brought several fine specimens which had been carried off, and this was not very encouraging; he did not care to bring anything, if it was not safe here.

Several of the members had heard somebody instructing the janitress that everything left in the room was her property, and thought this would account for the disappearance of his articles. They thought if instructions were given that nothing of that sort would be taken.

John G. Resh thought that as we had such a splendid wheat crop, each farmer should bring a specimen and it could be kept in jars.

Jos. F. Witmer suggested that samples of all kinds of farm produce be brought in, and Mr. Fry moved that his suggestion be adopted with the amendment that each farmer bring samples from the districts not represented in the society. Carried.

Report of the Fruit Committee.

The Committee on Fruit having examined all the exhibits, made the following report:

Daniel Smeyeh: Several varieties of exotic grapes; White Syrian, weighing nearly four pounds to the bunch; White Nice and Black Hamburg, both very fine. Native Grapes—Iona, beautiful and very good; Creveling, To Kalon, Diana, Rogers No. 28. Two seedling peaches—Both yellow fleshed; large, very good—high flavored for the season, and worthy of propagation—ripe first week in October. A large pear without name, has been kept until Spring, said to be excellent. Howell, Duchess, Beurre Clairgeau pears (extra fine).

Mr. Zimmerman sent in some of his seedling late peaches—quality very good; a light peach worthy of propagation.

Isabella grapes from Mr. Fisher.

John G. Resh: 4 varieties of apples—York Imperial, Dominie, Winesap, and Fallawater. Two varieties of wheat—Foltz and Canada White. Fine chestnuts; a sample of very good corn.

Hiller & Son: 26 varieties of apples—Griest's Winter, Newton, Pippin, Baldwin, Jonathan, Saylor or Ned, Hubbardson Nouesuch, King of Tompkins Co., Mother, Fancy Sweet, Belmont, Ben Davis, Lancaster Greening, York Imperial, Conklin's Favorite, Northern Spy, Norton's Melon, Krauser, English Russet, Rhode Island Greening, Dominie, Tewksbury Blush, Lady, Willow Twig, Winesap, and several for a name. Sample of corn grown in the driest season known.

S. Lem. Fry, of Ephrata: Twelve varieties of apples—Very fine, would compare favorably with Michigan and Western New York apples—Pound, Northern Spy, Smokehouse, Rambo, York Imperial, and several varieties for name. Sweet Rambo, twenty ounces.

Samuel R. Hess & Son, Ephrata, four varieties of apple—Baldwin, York, Imperial, Cumberland Seedling, one very fine, showy and promising for name, possibly twenty ounces.

CASPER HILLER,
M. D. KENDIG,
H. M. ENGLE,
LEVI S. REIST,
Committee.

Several of the members made remarks complimentary to Mr. Smeyeh, and on the fruit he has introduced.

Dr. S. S. Rathvon, of the committee appointed to inquire the cost of putting up shelves and tables for

the exhibition of exhibits, reported that a folding table and a shelf could be erected for about \$6. On motion, the report was accepted and the committee instructed to have these articles put up.

Mr. Engle's Proposition.

Henry M. Engle renewed a proposition that was made some time ago. Frequently the society is at a loss for a suitable question for debate, and then again questions are given to members which are never heard of again by reason of their neglect. He would be one of three or four to write essays on any subject for a small premium, \$3 for the best, \$2 for second and \$1 for the third. These essays are to be submitted to a committee who will decide as to their merits, and then they will be read before the society when matter of that sort is wanted.

S. Lem. Fry and J. C. Linville volunteered to enter the lists with Mr. Engle, and the essays are to be read next month. The subject chosen was "Corn Culture."

Calvin Cooper, the President, offered to furnish an essay on some general subject.

Wash. L. Hershey, of Rapho, and Jonas Stehman, of Mountville, were elected members of the society.

Adjourned.

TOBACCO GROWERS' ASSOCIATION.

The stated meeting of the Tobacco Growers' Association was held Monday afternoon, Sept. 16, in the Agricultural Society's room.

The following members were present: M. D. Kendig, President, Manor; Jacob M. Frantz, Manor; Sylvester Kennedy, Salisbury; Henry Shiffner, Upper Leacock; Christian L. Hunsecker, Manheim; J. M. Johnston, city; Clare Carpenter, city; Jacob L. Henry, Upper Leacock; Jacob H. Hershey, West Hempfield; Frank R. Diffenderfer, city; Michael Landis, city; Milton Royer, Ephrata; John Brady, Millersville; Dr. S. S. Rathvon, city; Israel L. Landis, city; John M. Stehman, East Hempfield.

In the absence of the regular Secretary, Jacob M. Frantz was appointed Secretary pro tem.

The reading of the minutes of last meeting was, on motion, dispensed with.

Crop Reports.

M. D. Kendig, of Manor, said nearly all is housed except in the southern part of the township. The crop is a very fair one, and so far is curing well. The crop in Manor is not only larger, but of a better quality than last year. The worms have damaged the crops that remained out late. There will be very little hurt by house burn, the weather being very favorable.

Henry Shiffner, of Upper Leacock, reported some tobacco still in the field, but not much. Early tobacco is doing very well so far as curing goes, much better in fact than that which was planted later. The late tobacco is drier and harder, and is not showing such good colors; it has a yellowish tendency which is not desirable. The average yield is a fair one, perhaps twelve hundred pounds to the acre. The acreage, as before stated, was about three-fourths as much as last year. There is a great deal of large tobacco and the leaf generally is fine.

Sylvester Kennedy, of Salisbury, said the crop is very nearly put away. The weather has been a little too warm to cure well. The yield has not been equal to that of last year. There have been good fields and some very inferior ones, the average falling below a good crop. Some growers have large and very fine leaves, but there is much that is very light and flimsy. It seems to be curing dark, and the outlook is very favorable. The worms have been damaging some of the tobacco that has been hung in the barns as much as a month. Perhaps the eggs were deposited since the tobacco has been hung up.

Jacob M. Frantz, of Wabank, said the season has been unusually favorable for curing tobacco. He has known of no cases of pole burn.

Milton Royer, of Ephrata, reported some still to cut. The weed is curing rapidly and well.

J. H. Hershey said the crop looks well in the sheds and seems to be doing fine. The average may reach fifteen hundred pounds per acre in West Hempfield.

John Brady reported the crop nearly all housed.—What is still out is doing well. The tobacco seems to be curing very fast. He saw some lately that is rotting on the poles; it was as fine as any he has seen, and was cut in September. It had to be taken out of the barn. He believes the tobacco barn was too nearly surrounded by other buildings and trees. He believes also the tobacco may not have been sufficiently willed before being hung up. Some of the Manor growers keep their barns closed in daytime and open at night. It cures darker, but it is in danger of spoiling. The general opinion of the members was that tobacco requires air in daytime.

Henry Kurtz, of Mount Joy, sent in a report of his own tobacco. He had out twenty-six acres. Some measures 46½ inches long by 36½ broad. One field of 23 acres is very good, the season considered. An acre and a quarter planted since harvest has leaves 23 by 33 inches. A smaller lot planted on July 23d contains leaves 28 by 14½ inches.

Renting a Room.

J. M. Johnston as one of the committee to procure

a permanent meeting place, said he had conferred with the Agricultural Society and was told this association that they could use their room by paying half the expenses and rent incurred.

Henry Shiffner thought as the attendance was so slim, we might as well give up our meetings. He was in favor of giving up the organization.

C. L. Hunsecker said this question of a meeting place has been agitated for some time. He was one of a committee appointed to act in this matter some time ago. He alluded to the proposed change that was spoken of, and gave those tobacco growers some hard hits who did not attend because they thought they knew all about tobacco growing.

Jacob M. Frantz thought the Agricultural Society should be satisfied to let them remain there by paying half the rent they pay.

Sylvester Kennedy believed we ought to pay half the rent and half the cost of fixing up the room, that is if we continue to keep up the Association. We ought to have some other resources to fall back on besides the contributions of the few members who meet here.

J. M. Johnston said the agricultural society have the keys of the room, and we must go to them to procure its use. It merely asks that if we want the same privileges they have, we shall pay half the cost. If the association is to continue, it is only fair that we pay half the expenses.

Shall We Disband.

The question of continuing the organization was taken up, and it was suggested that it should be acted on at the next meeting.

Jacob M. Frantz thought even though but a few men attended the meetings, they nevertheless did much good; they were widely read, and in that way had a great influence on the growers of the county. There will be no difficulty in getting plenty of money to pay all our necessary expenses. Let us not give up so easily; our future meetings will no doubt be better attended. The low prices created an indifference last year, from which we shall recover. He predicted a brighter future for the association.

C. L. Hunsecker said the influence is not to be measured by numbers. The few who do meet undoubtedly do much good, and ought to go ahead.

J. M. Frantz said rather than see the Association go down, he would pay half the expenses himself. He encouraged the members to go ahead, and not give up the ship.

On motion of J. M. Johnston the matter was postponed until next meeting, or until the Agricultural Society has perfected its lease with the City Councils. The old committee was continued.

Reading of Essays.

C. L. Hunsecker then read a brief history of tobacco.

The tobacco plant is a native of the American continent, and its introduction into Europe is believed to have been made by the settlers who returned in 1586 from the colony Sir Walter Raleigh had attempted to found in Virginia. Harriott, who accompanied this expedition, gives in his description of Virginia an account of the tobacco plant and the manner in which it was used by the natives; that the English, the time they were in Virginia, were accustomed to smoke it after the fashion of the Indians, and found many rare and wonderful examples of the virtue thereof. Having thus become known to Europe by the discovery of America, it soon became extensively used among all classes of the people. At the time of the discovery of America tobacco was extensively used among the Indians, the practice of smoking being common to all tribes; and by it they pretended to cure a great variety of diseases.

Among all the various products which form articles of consumption by the human family, there is none which has become so widespread and universal in its use as tobacco. It is grown in almost every part of the world, and is used by every race and nation over the globe. But, strange as it may appear, it met with opposition and persecution from the kings and queens and popes of the old world. A book was written by King James, a most superstitious prince, against its use, and many others of the same character were published. Pope Urban VIII. excommunicated all who smoked tobacco in churches. Elizabeth also prohibited the use of it in churches. In Transylvania, an ordinance was published in 1689, threatening those who should plant tobacco with the confiscation of their estates. The Grand Duke of Moscow and the King of Persia forbade its use under heavy penalties—the loss of the nose or even death. But all was of no avail, their subjects would snuff, chew, and smoke tobacco; and the government financiers of England, France and Austria, soon discovered that as it bore very heavy importation duty, a large revenue might be raised, and to-day it is one of the principal sources of revenue in every considerable government in the Old as well as in the New World. Twenty years ago, in 1858, the Richmond South gave the production of tobacco in the world:

Asia, pounds..... 399,900,000

Europe, pounds..... 281,844,500

America, pounds..... 248,280,500

Australia, pounds..... 714,000

Africa, pounds..... 24,300,000

Total..... 955,039,000

I have no statistics at hand to show the present production, but have not the least doubt that both the production and consumption of tobacco have doubled in this time.

The cultivation, manufacture and trade in tobacco have been monopolized in most of the States of Europe; and in some of the governments like England seven-tenths of the tobacco that is consumed comes directly from the United States. The regulations of the cultivation, manufacture and trade in tobacco under the monopoly system to stimulate industry and realize a large revenue to the State in Austria, France, etc., are a chapter in modern history well worthy of serious study.

Tobacco is extensively cultivated in various portions of the world, and I believe that the soils of certain countries are better adapted by nature, and the methods of culture practiced to produce plants of greater perfection, than in others. The tobacco of the United States, it is held, is more highly flavored than that of Europe; besides, its superiority may greatly depend upon the mode of treatment; but, perhaps, it is owing far more to differences of soil and climate in perfecting a fine, elastic leaf with good color. It appears that the crop of tobacco for the year 1876 in the United States amounted to 381,002,000 pounds, valued at \$28,000,000; of this amount, 13,200,000 pounds were raised in Pennsylvania, valued at \$1,188,000. In 1875, for the fiscal year ending June 30, the Government of the United States collected a revenue of \$37,303,400 on the tobacco trade. The largest quantity raised in any of the States is in Kentucky, which in 1876 amounted to 128,000,000 pounds, at a value of \$8,900,000.

As long ago as 1689 the production of tobacco in Pennsylvania was very large; it is stated fourteen cargoes of it were shipped to England. It was, however, soon found impossible to sustain the rivalry of Maryland and Virginia in the culture, and the farmers in Pennsylvania turned their attention more to the cultivation of the cereals and the grazing of cattle. About the year 1730 the average export of tobacco to England from Maryland and Virginia was about 60,000 hogsheads or 36,000,000 pounds yearly, of the value at £1.50 per pound of £375,000 sterling. The profits to England on the freightage between that country and the colonies, employing about 124,000 tons of shipping, was £90,000 sterling; and from the distribution of this import for the uses of her own people and of Europe a profit was derived of over double the original value.

The English revenue derived 2s. per hogshead from the import. The first price had been reduced so low that the profits of the planters were very small.

The Legislature of Maryland in 1732 made tobacco a legal tender at one penny per pound, as also in Virginia it was a legal tender. A little was still raised in Pennsylvania, Connecticut and other colonies at this period.

It is related that as early as 1650, the fields, gardens, streets and public squares of Jamestown in Virginia were planted with tobacco, which was used as a currency in that as well as many of the other Southern colonies. As an example of this, in 1669 by enactment in Virginia, heinous social crimes were punished by a fine of from 500 to 1,000 pounds of tobacco.

A distinguished scholar and writer has this to say of tobacco: "Though the use of tobacco be a frivolous one, it is at the same time an innocent gratification; and when we reflect upon the immense increase in the use of tobacco within the last fifty years, both in Europe and America, and that its consumption goes on increasing in every State of Europe, the subject of tobacco is one which deserves the consideration and attention of every government and country, both in respect to its cultivation, and to its use." In all the States of Europe tobacco is subjected to a heavy taxation, both direct and indirect, and a very considerable revenue is thus obtained from it by all of them; and there is no other subject of general consumption more fitted for indirect taxation than tobacco, nor any which brings in so large a revenue with so little perceptible inconvenience to the consumer.

The cultivation, manufacture and trade in tobacco in our country have produced a large demand for labor, and has been the means of a large revenue to the government as well as support to thousands of farm laborers, mechanics and merchants. And if it were manufactured to the extent it is in Europe it would afford employment at remunerative prices to many who are now idle. But the future may see this changed by more ample manufacturing facilities, and instead of sending the raw or unmanufactured tobacco to Europe, we may ship it in shape of manufactured snuff, cigars and chewing tobacco.

Some remarks were made upon the unreliability of some of the tobacco statistics of this county and State.

Frank R. Diffenderfer called attention to the report of Secretary of the State Board of Agriculture, Thomas J. Edge, who, in his printed reports, estimates the crop of Lancaster county for 1877 at 40,000,000 pounds—a most absurd statement; 16,000,000 pounds would be a far nearer estimate. Such estimates are worse than none at all.

Various plans were suggested to procure more accurate statistics of the product, but none was definitely adopted.

On motion, a vote of thanks was tendered to Mr. Hunsecker for his able and interesting lecture.

Mr. Kennedy suggested that part of the business of next meeting should be the discussion of the best means to procure the highest price for our product. This will accordingly be part of next meeting's business.

There being no further business the association, on motion, adjourned.

LINNÆAN SOCIETY.

The Linnean Society held a stated meeting on Saturday, September 28, with Vice President, Dr. T. R. Baker, in the chair. Six members present. The donations to the Museum consisted of a large jar of an assortment of fishes; sundry bottles containing a fine specimen of a tree frog, the *Hyla versicolor*, one, a small "sun-fish," *Pomolis catesbeii*, per S. S. Rathvon; the stomach of a "crab," from Amos Lee, city restaurant; bottle of larvae of the pine sawfly, a *Lophyphus*; per S. P. Eby, esq., bottle of tree crickets. These latter were detected in puncturing the young leaves of the tobacco plants; these holes increase with the growth of the leaf, and are a source of considerable damage to the tobacco crop—a new enemy. A fine, well-made nest of the hanging bird, "Baltimore Oriole," *Icterus Baltimore*. From Mr. Bletz, a portion of the minerals donated by Mrs. Kerfoot, one hundred and thirty specimens, among which are some rare minerals and fossils and Indian relics of the stone age, chiefly collected in Ireland by the late Dr. Geo. B. Kerfoot, a native of Dublin. Several fine large heads of wheat from the north of France, by Mrs. Gibbons, for inspection only. Several kinds of iron ore, collected at Pilot Knob and the Iron Mountain, by Dr. Baker, on his late visit to Missouri. To the historical department three envelopes containing thirty clippings, per S. S. Rathvon.

Donations to the Library.

The United States Coast Survey for 1875; THE LANCASTER FARMER, for September, 1878.

Papers Read.

No. 502 by J. Stauffer, with a correct colored drawing of the five-legged frog caught on Saturday, September 21st, by Master Wm. H. Snyder, of North Queen street, while fishing in the Conestoga near Lancaster. It was quite novelty to see it use the three posterior well-formed legs with equal facility in hopping and swimming. But, alas! it yielded up its life from some cause and is now preserved in alcohol, and it is hoped will be added to the collection, when the novelty is over; this is a specimen of the *Rana palustris*. The Marsh frog, or as it is also called the piekerl frog, having the extra leg over the normal leg on its left side which is provided with a larger webbed foot than the other two, and with six distinct toes, instead of the normal number five and the best paddle of the three. A similar frog was caught at Rochester, New York, and is in the collection of the Lyceum of Natural History of William College; but that has the extra leg centrally above and between the other two. Nothing is said of having six toes, however. Prof. Rathvon read a descriptive paper on the deposits No. 503, with remarks on some of the minerals. Under

Scientific Miscellany and Gossip,

the bee question and their habits came up. Do they slit the grape or not? Circumstantial evidence was brought that they did, but no positive proof. Mosquitos also were discussed. Mr. Rathvon stated that a large species infested the shrubby portions below Atlantic city. That, desiring to collect shells or insects, he was so fearfully assailed as to force him to retreat. He thought the species was called *Culex Damnosus*. Mr. S. remarked the name is no doubt Latin, but it sounds like "bad English." Mr. S. then gave a graphic description of the sly, cunning, persevering annoyance of the mosquito he had a few nights ago; how he watched, parried and skirmished on the right and left flank, laid in wait and tried all his generalship without avail to capture his blood-thirsty opponent. Talk about instinct, he declared that his reason was not a match for it—he had to give it up and own himself beat. Society adjourned to Saturday, Oct. 26, 1878.

AGRICULTURAL.

Storing Potatoes.

Potato-harvesting will now soon be in order, and as the crop will be large and operations will probably begin rather earlier than usual, we offer some views upon the best mode of storing, which may possibly be of advantage to some.

To store potatoes properly we have to guard against heating; for although the potato will not absolutely ferment by heat as so much vegetable matter will, a heap becomes warm enough to excite any germ fungus there may be in the tuber, and this exhalation may be sufficient to cause a decay, which can be communicated to roots in which no symptom of rot exists. Moisture is favorable to heating, and hence it

is best to have the potato thoroughly dry before storing, if any considerable quantity is to be put away in bulk. Thus, if they are spread on a barn-floor or other cool place out of the sun, before putting in the root cellar, they will be safe against rotting. When potatoes are perfectly healthy there is not so much necessity for this care in drying. Hundreds of bushels are often taken at once from the field to the cellar without any damage whatever resulting; and it is only in view of the possibility of rot that we think it advisable that we take the extra precaution in drying. It is well to note that a cool shed is best to dry them in, as the tubers will otherwise absorb more heat than when they come out of the ground; and this is what we try to avoid.

There is one disadvantage in drying potatoes in this way, which is always more or less connected with dry cellars, namely, the great loss from shrinkage which results. In an average dry cellar there is often as much as a loss of twenty per cent. from shrinkage. Thus, one hundred bushels stored away in a place like this in winter will give but eighty when taken out for sale in the spring. This is often as much, and sometimes more, than the advance in spring over fall prices, and is an argument often used to induce growers to sell their crop as soon as taken up, instead of keeping them for the spring rise. But this loss can be wholly avoided and the roots kept in excellent condition by carefully storing in the open ground. A dry place is to be selected, where the water can run easily away, and the potatoes laid up in long narrow ridges, say about four feet wide and as long as the quantity to be protected demands. After the whole has been collected together a thin layer of straw, only thick enough to keep the earth from falling in among the potatoes, is to be put along the sides and over the tubers, and a thin layer of soil, just enough to keep the straw in place, is thrown over. It is best not to throw more earth than this over at first, as the natural heat of the potatoes will accumulate, while it is the object to let it pass rapidly away. As soon as there is danger of frost, then the potatoes should be covered thickly with soil, as the frost is certain to penetrate. In this way potatoes are preserved at a temperature but little above the freezing point, and thus guarded against heating much, and at the same time there is little loss from evaporation; a great point gained when the bushel measure is brought out in spring.

The great objection to this old-fashioned and excellent plan is that we cannot get at them well in winter season; but we are only recommending it where they are required to be kept over till spring. Where they are needed before that time a cellar is almost indispensable. Another objection is the extra labor which open-air banking takes. Perhaps the saving of ten or twenty per cent. may be a fair set-off to this; but at any rate those who have got root cellars will generally run the risk in preference to the labor of the open ground. But we have referred to the excellence of the plan because some have no good root cellars, and others who have may yet fear rot and be glad to take the best precautions to guard against accident.

Only those, however, which are apparently sound, should be chosen for the out-door practice; for those which are certainly diseased will be better preserved by an occasional sorting over during the winter season.—*Germantown Telegraph.*

The Wagons.

But few people are aware that they do wagons and carriages more injury by greasing too plentifully than in almost any other way. A well made wheel will endure common wear from ten to twenty-five years, if care is taken to use the right kind and proper amount of grease; but if this matter is not attended to, they will be used up in five or six years. Lard should never be used on a wagon, for it will penetrate the hub and work its way out around the tenons of the spokes, and spoil the wheel. Tallow is the best lubricator for wood axle-trees, and castor-oil for iron. Just enough grease should be applied to the spindle of the wagon to give it a light coating; this is better than more, for the surplus put on will work out at the ends and be forced by the shoulder bands and put washers into the hub around the outside of the boxes. To oil an iron axle-tree, first wipe the spindle clean with a cloth wet with spirits of turpentine, and then apply a few drops of castor-oil near the shoulder and end. One teaspoonful is amply sufficient for the whole. Let the fifth wheel of the carriage alone; if it grates tighten the nut bolt, but keep grease off from it.—*Practical Farmer.*

Farm Items.

Kansas claims to be the banner State for grain this year, good judges estimating that it will send fully 35,000,000 bushels of wheat to market, or about fifty per cent. above the largest yield heretofore in any one State. California having had the honor so far, with a crop of 30,000,000 bushels.

The wheat crop of the State of California is the largest ever grown, and it is estimated that 200 British ships of large tonnage will be freighted for England before the close of the year, there being a large fleet already at San Francisco awaiting the crop.

HORTICULTURAL.

How to Make a Lawn.

There is nothing that will add so much to the general attractiveness of a town or country home as a properly kept plat of grass. It makes no matter how small in size it may be; if kept cut often enough, it becomes a constant source of pleasure to the owner. In laying out new suburban places, the grass plat around the house is usually made up by sodding. This is not by any means the cheapest or best way to get a stand of grass for garden decoration.

Sods for this purpose are, as a rule, cut from some worn-out pasture, neglected public "common," or may be the roadside—places where the finer qualities of grasses have, perhaps, long since been crowded out by the rank growth of the coarser sorts—grasses wholly unfit for lawn purposes. The surest way, although it may take a longer time, is to sow the seed of an approved selection of grasses that are known to make a good turf, and that will, if frequently cut, give that velvety surface for which English lawns are noted.

It should be clearly understood that these finer qualities of grasses will only thrive on soil in good heart. It will be time and money thrown away to sow these grasses on poor soil. The soil should be made deep, mellow and rich, by frequent stirrings and liberal applications of well rotted yard manure, bone-dust, or superphosphate of lime. These fertilizers should be thoroughly mixed in with the surface soil before the grass seed is sown. This can readily be done while smoothing and leveling the top of the ground, and then may be sown thickly the following list of grasses:

Kentucky Blue Grass (*Poa pratensis*), Red Top (*Agrostis vulgaris*), Sweet-Scented Vernal (*Anthoxanthum odoratum*), and Creeping Bent Grass (*Agrostis stolonifera*).

These should be mixed in about equal parts, and sowed broadcast and raked in with common wooden rakes. At the same time of sowing these, sow with them a small quantity of Red Cloverseed, and scatter some common oats over the ground; then roll the surface and remove any stones or other obstructions. The oats will germinate in a week or ten days, and if kept cut back will keep the surface green the early part of the first summer. The Red Clover will take its place in the fall, and will keep the lawn green and fresh-looking until the grass seed takes root and begins to tiller.

Putting Away Winter 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 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 close together as the size of the head will admit of. Cover 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, and cover this with cornstalks or straw. If ordinarily well done, the cabbage will keep as long as is desired—we have 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 cole-slaw in May.—*Germantown Telegraph.*

The Coffee Tree in California.

Heretofore few people would concede that the coffee tree could be grown in San Diego county, and scarcely any one would admit that it would attain any state of perfection in bearing fruit, claiming that it required a warmer climate. This, like many other incorrect impressions, has been entertained by those who have not experimented, and simply came to conclusions for want of proof to the contrary. The fact has been proved now, and the trees can be seen in bloom in the garden of Mr. R. R. Morrison, in this city, showing as thrifty a growth and requiring as little care as the orange, lemon, olive, or the fig which stands in the same garden. This is the first experiment and a success, and it would be well for our citizens to try with other classes of trees that are now considered only suited to the tropics, when, perhaps, several varieties will be found well suited to this climate and soil. Mr. Morrison has been experimenting for over three years on tropical trees, procuring the seed from central Mexico, and has other kinds flourishing and, to all appearances, thoroughly acclimated, one of which is the Anon or custard apple. Both these trees are evergreen and have beautiful foliage, the coffee tree leaves always appearing as though varnished, and being much finer than those of the India-rubber tree.—*San Diego (Cal.) Union.*

DOMESTIC ECONOMY.

Household Receipts.

AN EXCELLENT DESSERT.—An excellent dish for dessert, which is a favorite one in a family of our acquaintance, is made of tapioca and apples. The apples are prepared as for stewing and placed in a deep dish with a proper quantity of tapioca which has been slightly softened by soaking. Sugar is added to sweeten it and to prevent the fruit from becoming too soft, and the whole is then baked in the oven. Eaten with cream, either hot or cold, this is a most palatable dessert. A preparation of equally good quality may be made by using peaches instead of apples, and in winter canned fruit is quite as good for the purpose as the fresh.

GRAPE JELLY.—Place the grapes in a jar, and the jar in a kettle of water; let them boil until they are all crushed; strain through a stout cloth; if ripe grapes, add one pound of white sugar to every pound of juice; if green add one pound and a half of sugar; boil the juice just twenty minutes, and have the sugar heating in the oven; stir often to keep it from burning; when the juice has boiled the proper time add the hot sugar; when the sugar has dissolved let the syrup boil up once; remove at once from the fire; have your glasses rolled in hot water and pour in the scalding liquor; when cold lay brandied paper on top of jelly; tie or paste stout papers over the glass.

BEEF SOUP.—Procure a good shin of beef and crack it three or four times; put on to boil at nine o'clock; boil hard till eleven, then take out the meat and be sure to get all the bones out; then put four turnips, four carrots, half a small head of cabbage, cut all up fine in the chopping bowl; put in a large onion if the family like onions, and put the chopped vegetables in the soup pot. At half-past eleven, if dinner is to be served at twelve, put three or four potatoes, sliced very thin, and some milk dumplings into the soup; just before taking up season with salt and pepper, and put in some parsley or summer savory; I like broth. If you make beef soup in tomato season put in half a dozen; there is nothing nicer.

CHICKEN SOUP.—Wash two good fat fowls, and put on to boil according to the size and age of the fowls and the time you are to dine; if at twelve put some nicely washed rice, about a tablespoonful, into the pot at ten, make some drawn butter, take out the chickens, put them whole on a dish, pour the drawn butter, well seasoned, over them, and four hard-boiled eggs cut crosswise and laid over them; send to the table piping hot. Season the soup with pepper and salt only. Veal or mutton makes an excellent soup in this way.

VIENNA ROLLS.—Have ready in a bowl a tablespoonful of butter, made soft by warming a little and stirring with a spoon. Add to one quart of unsifted flour two heaping teaspoonfuls of baking powder, mix and sift thoroughly together, and place in the bowl with the butter. With sweet milk add form a dough of usual stiffness, stirring into the milk first a half teaspoonful of salt. Knead the dough and roll it half an inch thick, and cut with a large round cutter; fold each one over to form a half round, wetting a little between the folds to make them stick; place them on buttered pans, so as not to touch each other; wash over on top with milk to give them a gloss, and bake immediately in a hot oven about 20 minutes. It will do them no harm to stand half an hour before baking, if it is desired.

SOFT CUSTARD.—One pint of milk, a small pinch of salt, two large tablespoonsfuls of sugar and a handful of peach leaves put into it, a dessertspoonful of vanilla, bitter almond, or any flavoring that may be preferred; let all come to a boil; skim out the peach leaves and stir into the boiling milk two fresh eggs that have been previously well beaten. Care must be taken to stir this mixture rapidly all the time, so that it does not curdle; and it must be taken from the fire as soon as it begins to thicken. Very nice to eat with raspberry short-cake or pie, or blackberry pie.

PEA PANCAKES.—Cook a pint of peas, more than you would require for dinner; while hot put them in a wooden bowl, a lump of butter and a little pepper with them, and mash to a salve with a potato pestle or "masher;" in the morning make a batter of either wheat flour or cornmeal, with eggs and soda, as for fritters; stir in the pea jam until it is thoroughly incorporated with the batter, and cook like any other griddle cake. They make a beautiful and palatable breakfast dish.

CHICKEN SANDWICHES.—Stew a chicken until very tender, season with a little salt. Take out the bones and pack the meat firmly in a deep dish, mixing the white and dark nicely together. Pour the broth in which the chicken was stewed over it; there should be just enough to cover the meat. When it is cold, cut in smooth slices and place between slices of good bread or biscuit.

FROSTING WITH GELATINE.—Dissolve a large pinch of gelatine in six tablespoonsfuls of boiling water; strain, thicken with sugar and flavor with lemon. Enough for two cakes.

LIVE STOCK.

Acreage Required for a Cow.

How much land is required for the support of a cow? This question depends for an answer so much on the circumstances of the soil as not to admit of a very definite answer. In a dairy competition in Jefferson county, New York, in 1857, the first prize dairy, of sixteen cows, was kept on thirty acres of land; the second premium dairy of eighteen cows, on sixty acres; the third dairy of thirteen cows, on thirty acres; the fourth of twenty-nine cows, on fifty-five acres; the fifth of twenty-eight cows, on ninety acres. Mr. Schull, of Little Falls, New York, estimates that the land in pasture and hay requisite for the support of a cow is three acres; and this is the estimate of Mr. Carrington for moderately good dairy farms in England. In Belgium ten acres of land support two cows, one heifer and one yearling, or calf; but when the calves are sold off young, and cows in full milk are only kept, the proportion is two cows to seven and a half acres. Coleman estimates three acres of pasture as requisite for a cow in Berkshire county, Mass., while for some cows two acres of pasture are sufficient. Mr. Farrington, in the report of the American Dairymen's Association, thinks that, on an average, four acres are required per cow, for summer and winter keep; while Mr. X. A. Willard thinks that in Herkimer county, New York, one and a half to two acres of pasture per cow will answer, and in some exceptional cases one acre.

The Management of Horses.

They should be fed in proportion to their work. An idle team may be wintered upon good hay alone; when working lightly feed of grain at noon will be sufficient, with hay morning and night. With heavy work, ten quarts of ground corn and oats, and chaffed straw or cornfodder, will be good feeding, and in many cases for small horses less will do. Good grooming is necessary for health in winter. 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 in 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. Fresh air should enter the stables at the bottom and the foul air escape at the top. Make small sliding doors for ventilation and cover them with wire netting on laths, to exclude vermin.—*Agriculturist.*

Raising Colts.

There is a crude notion prevailing that hardships make young stock hardy. A colt that is weaned in the fall, as is commonly the case, should not be allowed to become poor in its first winter. It is true that it will often improve so rapidly in spring that its wretched condition during the winter will seem really to have been an advantage to it, but this is a grave mistake. If the same condition were imposed during the whole period of growth the effect would be very perceptible. Although the summer may in some degree remove the effect of winter, no animal so treated ever becomes what it might have been in size, symmetry of form and usefulness, by generous treatment. I believe that there is profit in breeding nice carriage and draft horses. As a general rule it costs no more to raise a good colt than a poor one, while the former will bring two or three times as much as the latter. I have seen colts that were kept in a stable dark as a cellar. A dark stable is a poor place to keep a colt.—*Ohio Farmer.*

The Guernsey Cattle,

Of course from the island of Guernsey, in the English channel—are looming up as something super-excellent. They partake largely of the good qualities of the Jersey and Alderney, and this is saying enough for them. The channel cattle have long enjoyed much popularity in portions of the United States, and well they deserve to. In beauty, symmetry, richness of milk and excellence of butter they are unsurpassed. There are many other breeds producing much larger amounts of milk and even butter, but the quality and color are far inferior. For home consumption they cannot be equaled.

WITHIN a few weeks failures to the amount of over a million of dollars have been recorded among the stock-breeders of the famous blue-grass country of Kentucky. The truth is the blue-grass products were of a fancy kind—blooded horses. Shorthorned cattle, and prime whisky—and the hard times decreased their value. There is always sale for steers at \$50 to \$60 each, or for substantial farm horses at twice that price, but there are few customers in this country now for yearling Shorthorns at \$20,000 each, or race horses at fancy values.

ADVICES from Bengal to England state that cattle are dying in such numbers there from epidemic disease that streams are choked with the carcasses.

POULTRY.

Hen Hints.

The following items of interest to poultry keepers are collected from the *Poultry World*:

Clear rye bran, alone, should never be fed to fowls, on account of its swelling and caking, in mass, in the crop and proving fatal to chicken-life, not infrequently. It will thus soften and increase in bulk very rapidly before digesting—causing rupture of the crop—if any great quantity has been eaten. A neighbor, we recollect, in a hurried way mixed a large pan full with water and placed the mess before a nice flock of three-quarters grown chickens, leaving them to enjoy the feed at their leisure. He drove away in his wagon, and after an absence of a few hours returned to find his birds scattered about, dead, in his yards. It is very good when mixed with wheat bran and oatmeal, or cornmeal. But by itself it should not be fed to fowl stock.

Fowls drink water freely, but they know just how much they need, and when they have access to the fluid clean, sweet and fresh they imbibe no more than is good for them. It is, therefore, unnecessary to mix your dough to thin and sloppy at the morning feeding. Have the meal well scalded, and feed the mixture to the stock stiff and dry comparatively. This feed should, generally, be composed of both corn and rye meal, with vegetables—say one-third each. In our own practice we have found this preferable, both for the birds and as an economical provision for the old or the growing stock. A little pepper occasionally in this dough, and always salt, will improve the mess.

Calves' and sheep's livers and kidneys, which can always be obtained in the market-houses for a few cents apiece, are valuable to feed fowls, for two reasons. They are devoid of bones, and they closely resemble insect diet. We advise the cooking of any sort of meat food always. These "harslets" (or those of swine) should be boiled, seasoned with salt and pepper, and fed, say twice a week, to fowls where they can be had handily. For laying hens, when confined in winter, this change of food from constant grain-feeding is excellent. For young stock, where the chickens are confined to small runs or close cages, this meat, chopped up and mixed three times a week with their soft food, will help the younglings wonderfully.

Care of Poultry.

The care that poultry is entitled to, to make it profitable, is not near so much as one would think. It is just like any other business—it needs daily attention, not only one day in the month, but each and every day.

If you expect a cow to be profitable you attend to feeding her regularly, give her good, comfortable quarters, to protect her from cold, storms, etc.

Now the poultry should have as favorable treatment as any other stock. Construct houses, not too large, as you will permit too many to crowd together. They should be about 8 feet wide and 16 feet long, to accommodate each a flock of fifty fowls, fronting to the south, with large windows, so placed that the fowls may enjoy as much sunlight as possible. Have it perfectly tight and dry, excepting means for ample ventilation, without a possibility of a direct draft reaching the fowls at night after going to roost. A fowl will take cold while asleep as easily as a person. Keep the roosting apartment clean; sprinkle a little air-slaked lime and dry ashes under the perch; have the house thoroughly whitewashed inside three or four times a year.

See that they have free access to plenty of pure, fresh water at all times; don't force them to drink the drainage from the barnyard; many cases of cholera have been caused by this. A few drops of sulphate of iron put in their drinking vessels occasionally will be a benefit. Sprinkle the perches with coal oil and scatter sulphur in their nests and dusting boxes.

Many fowls die from severe colds received by roosting in exposed places. Of course every fowl that dies, it is said, had the cholera, when probably half of them were affected in this way.—*Poultry Argus.*

We commend the above short article to the careful perusal of our farmer friends. It is short and to the point. We have often read articles filling two or three pages, containing not so much good, practical common sense advice as the above.—*Western Agriculturist.*

Charcoal for Fowls.

There is one thing which nature does not supply and which civilization renders quite necessary to fowls. It is charcoal. Charcoal made of wood does not answer the purpose; it has no taste for food, is not attractive to the fowl and is seldom eaten. But if anyone will put an ear of ripe corn into the fire until the grains are well charred, and then shell off the corn and throw it to the flock he will see an eagerness developed and a healthy constitution brought about which will make a decided improvement. All pale combs will become a bright red, that busy song which precedes laying will be heard, and the average yield of eggs will be greatly increased.—*Germantown Telegraph.*

DAIRY.**Dairy products.**

The importance of the dairy interest has long been recognized in the older States, and many large farms are conducted almost entirely with the object of producing mainly butter and cheese.

The Western States are of late awakening to the knowledge of the value of these products, and their farmers are now making much more of it than they formerly did. A few years ago, the Middle States were almost alone in this industry; not only did they supply themselves and export to Europe, but they actually supplied the western cities, St. Louis, for instance, with butter, &c.

But as we have said, this condition of things has changed, and now the West and Northwest send away an enormous amount of butter and cheese, amounting in 1876 to 12,789,000 pounds of butter, and 114,766,000 pounds of cheese, the value of which was \$16,000,000, and this trade is increasing every year,

To show the great strides our country has made in cheese making, we give the following figures: In the year 1800, we exported 913,843 pounds; in 1850, 13,000,000 pounds; in 1870, 57,000,000 pounds; and in 1876, 97,000,000, in round numbers.

An assortment of crops and varied interests have always paid best in the long run, and it is never wise to be seduced by the high price of this or that product, and leave all else for it. Small but steady gains is the safest rule.

But there is a practical side to this butter and cheese interest which does not appear to every one. There are profitable agricultural products in any part of the country, but, where transportation is high, as it usually is in the Western States, it is much better to turn grass and grain into butter and cheese as less costly to transport.

It is freight rates that take off a large portion of the farmer's profits. But railroads they must have; indeed, without them to transport, it would be practically useless to raise any more than enough for themselves, but their own interests will be served by sending the various products from their farms in the smallest space possible.

The system recommended is also more beneficial to the land, adding greatly to its fertility.

A thousand pounds of butter or cheese is about the product of ten thousand pounds of grain or grass. Fifteen car loads of corn are but equal in value to one of cheese, and thirty car loads to one of butter, so that in the matter of transportation costs, the difference can be seen at once.

In Europe, a good cow will produce from seventy to one hundred and eighty pounds of butter a year, varying according to the country, being the former figures in Holland, and the latter in England. As every farmer knows the grazing capacity of his farm, the amount of butter he annually produces, can be readily known.

"American Cheese" is now so much sought for in Europe, that it forms part of the weekly cargo taken out by the American Line Steamers from Philadelphia to Liverpool, and the active demand seems likely to continue.

It thus seems that the interest in this subject observed in the Northeastern and Western States is well timed, and will be likely to add materially to their prosperity.

Packing Butter.

Those who pack butter should be careful to choose vessels made of sound, sweet wood. The scalding and soaking before use should be very thoroughly attended to. The wood should be completely saturated with brine; then sprinkle a thin layer of salt on the bottom, and spread a cloth over it. Pack full, carefully pressing the butter in, beginning the pressure at the centre and extending outward at the sides, so as to expel all the air. Leave room at the top for a thin layer of salt. Cover with pure brine, put on the cover of the tub, or put in the head of the firkin, as the case may be, and set the package away in a cool, dry, dark place, free from all offensive odors. Examine, at intervals, to see that the brine has not soaked away or evaporated, and be sure and keep the butter covered with it. Butter properly made, and so kept, will remain sweet a long time.—*American Dairyman.*

ANOTHER bad season for the dairy farmer is reported from Scotland. The staple product of the dairy districts of Scotland is cheese, and that has fallen even lower than at any period since the Crimean war. From 45s. to 52s. has been the common price, and only lately has 56 per cwt. been noted. The first prize lot at the Dumfries meeting of the Highland Society has been sold at an exceptionally high rate, 6s. Butter has not sold so badly, while the large towns have, to use the language of a contemporary, "been literally deluged with milk."

FEEDERS intended for the dairy should not have meal until after their second calf, and not then until the calf is at least ten days old, and in small quantities at first.

ENTOMOLOGICAL.**The Hessian Fly in Wheat.**

The farmers of New York were seriously alarmed last autumn at the appearance of the fly in their wheat. A correspondent of one of our exchanges wrote: "Winter wheat here is turning yellow, and on examination, about the first of October, we found an insect about an eighth of an inch long near the root (Hessian fly, I presume). Now the insect is brown and looks like a seed of some kind. Will it do any more damage this year? Will it turn to a fly and do damage in the spring? Will wheat that was sowed late this fall and has none in it be troubled with them in spring? Please give its manner of operating from September first till next year, and oblige." The editor answered: "The insect described is the Hessian fly, now in what is called its waxseed condition. Much of the damaged wheat will die this fall, and more will break down when in the straw about earing time. Late sown wheat will escape. In the spring the wheat plant is too far grown to be injured. We would suggest that a top-dressing of two hundred pounds per acre of sulphate of soda (glauber salts), ground very fine, or common salt, be sown on the wheat in dry weather. The maggot is driven away by soot; the bitter taste of that substance is the active agent; the soda salts is bitter enough and may be as effective as the soot. If our wheat were affected we should try it." The subject was also before the Elmira Farmers' Club. It was remarked that appearances indicated serious loss in the next wheat crop, through the ravages of this pest, against which there seemed to be no certain means of prevention. President Hoffman said: "The Hessian fly deposits its eggs on the leaf soon after the wheat comes up, and later if the operations are not checked by frost. When the plants are strong, as they should be on good ground and in a growing season, such as this, the injury effected by the larvae is less, I suppose, than it would be to weak plants. I find in my wheat the injury is greater in plants that came up early than in later ones. I believe we cannot prevent the mischief this fall; and I think it is not of so much consequence as that which will be inflicted next spring. The habit of the fly is to lay the eggs in the fall, from which the present trouble has come. In the spring these larvae will develop into the perfect fly, and there will be a new crop of eggs to hatch and work greater mischief. How that can be prevented I do not know. It is certain that the wheat is endangered. In looking over my field a short time ago I found on pulling up stools that some stalks were untouched and others were already nearly destroyed. I pulled one stool with three tillers, one of which was dead; another had fourteen of the larvae imbedded in it, and the remaining one was uninjured. Another stool had two stalks, and I believe there were fifty of the pests in them, although I did not count. On this field, where wheat was sowed after wheat, I thought the plants infested worse were those which had come from the seed dropped from the last crop. The land was ploughed just after the harvest and cultivated well afterward, but it is probable that the scattering seed from the crop had not all grown until the final sowing, and that it was then in condition to appear earlier and to be attacked first by the fly. It is said that late sowing is better than early in seasons when the fly is troublesome, but in such a season as this even late sown wheat makes enough top to take damage. I found eggs deposited on the leaves while the larvae were at work below."

LITERARY AND PERSONAL.

R. W. MERCER'S Natural History. Store, 292½ Wade street, Cincinnati, Ohio.

NATURALIST'S Leisure Hour and Monthly Bulletin for September, 1878; 50 cents a year. A. E. Foote, 122½ Belmont avenue, Philadelphia, Pa.

HEMPLE'S Improved Patent Steel Quoins. J. A. Isaacs, general agent, 176 Chamber street, N. Y.

PEERLESS RAILWAY THRESHING MACHINES.—"Best ever made," manufactured by Minard Harder, Cobleskill, New York.

ROCHESTER COMMERCIAL NURSERIES, established in 1830; twenty years under the present proprietor. Wm. S. Little's semi-annual circular of wholesale prices for the autumn of 1878.

SEMI-ANNUAL wholesale trade list of Niagara Nurseries for the fall of 1878. E. Moody & Sons, proprietors, Lockport, New York. Established in 1839.

WEST JERSEY Nurseries, established in 1851. Descriptive circular and price list of small fruits, plants, &c., &c. Gibson & Bennett, nurserymen and fruit-growers, Woodbury, New Jersey; for fall of 1878.

THE ILLUSTRATED ALMANAC FOR 1879.—A royal octavo of 36 pages in substantial paper covers, with 14 superb illustrations, 12 of which are full page, containing all the usual almanac matter, together with choice literary selections. The material and execution is A. No. 1. Issued by the Case, Lockwood & Brainard Co., Hartford, Conn., and designed as a holiday gift advertising medium.

WHOLESALE price list of grapevines, evergreens, cherry stocks, tree seedlings, high grade apple seeds, magnolia, tulip poplar and other tree seeds in quantity, &c., for 1878 and 1879. J. Jenkins, Winona, Ohio.

MONTHLY Reports of the Kansas State Board of Agriculture for May, June, July and August, 1878. A royal octavo of 58 pages, with two full page maps and other illustrative diagrams. Full of statistical details. The development of this young State is wonderful and might be imitated by older communities with credit.

QUARTERLY REPORT of the Pennsylvania State Board of Agriculture for June, July and August, 1878. A royal octavo of 48 pages in paper covers; material and execution first quality, and of general, local and statistical matter on subjects relating to the agricultural, commercial and domestic interest of the great State of Pennsylvania, in which the entire country is concerned. The State Board appears to be the "livest" institution within our borders, and is worthy of the fostering care of our Legislators.

We call the special attention of our scientific readers—and all others who take any interest in objects of *natura*—to the card of Dr. A. E. Foote, in our advertising columns. His establishment is at No. 122½ Belmont avenue, Philadelphia. The Dr. is, perhaps, doing more to popularize science and impress its facts upon the minds of men, through the establishment of a great retail depot of minerals, shells, fossils, &c., than any other man in the country. His specimens are accurately labelled, and his prices very reasonable and worthy of patronage.

LIFE AND HEALTH, "Physical, mental, moral." Edited and published by Thos. F. Hicks, A. M. M. D. One volume (six numbers) for 30 cents. Wernersville, near Reading, Pa. This is an exceedingly well-executed 8 page royal 4to, and full of matter on subjects relating to its specialty. No. 1, Vol. 1, is before us, which indicates that it is a new enterprise. If a "vacancy" for it exists we opine this publication will amply fill it if the first number is an average of those which are to follow it. Of course physical health is the basis of a true human development, but this journal recognizes the fact that "man cannot live by bread alone, but by every word that proceedeth out of the mouth of God," and that there is a moral and spiritual nature that needs a physician, as well as a physical one.

HARPER'S MAGAZINE for November beautifully concludes a beautiful volume.

The number opens with a bright little paper describing a "Free Kindergarten" in New York city, with exquisite pictures by Miss Curtis, of real children involved in the enchantments of Froebel's wonderful system.

As if to contrast the children of barbarism with those of civilization, the same number contains a very interesting and attractively illustrated paper by Henry W. Elliott on "Wild Babies," from Alaska to the Gulf.

The quaint style of Abbey's illustration has had no better illustration than in "The Fire-Wizard," which Mrs. Helen S. Conant has happily rendered from an old German ballad. The typography of the poem is a part of the illustration itself.

To show the versatility of Abbey's pencil, ably supplemented by engraving of the highest order, we need only to turn from the German ballad to the three illustrations of "Melanie," an excellent story by Clara F. Morse.

William Gibson's poem, "The Valley of the Yomouri," is finely illustrated by Moran.

With the single exception of the paper on David Teniers—fifth in the series of "Old Flemish Masters"—the illustrated articles in this number are all American. Mr. Benjamini's description of the Sea Islands off our South Atlantic coast is full of interesting legend and romance, associated with this unique congeries of islands, and is accompanied by twenty-four beautiful illustrations.

John Muir, who has often enriched the pages of Harper with his admirable studies of the Sierras, contributes to this number an exceedingly interesting and well-illustrated paper on the New Sequoia Forests of California.

Edwin P. Whipple's paper, "Some Recollections of Rufus Choate," will not disappoint the large number of readers who have been looking forward to its publication. It is full of characteristic anecdotes, giving also a critical estimate of this eminent lawyer and statesman.

Black's "Macleod of Dare" and Hardy's "The Return of the Native"—the two best serials of the year—are continued; and there are two excellent, short stories besides "Melanie," already mentioned. These are, "Angelique's Novitiate," by Kate P. Osgood, and "The Thousand and Third Night," by G. D. Carrow.

Prof. Taylor Lewis's "The Power and Pathos of Euripides"—a posthumous paper—will prove of especial interest to all readers who admire the strong examples furnished by ancient classical literature.

The Editorial Departments are as interesting and entertaining as usual.

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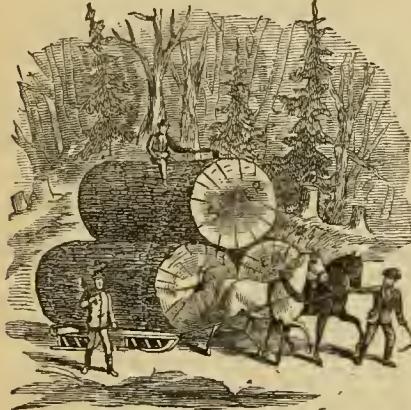
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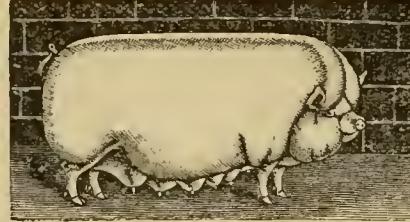
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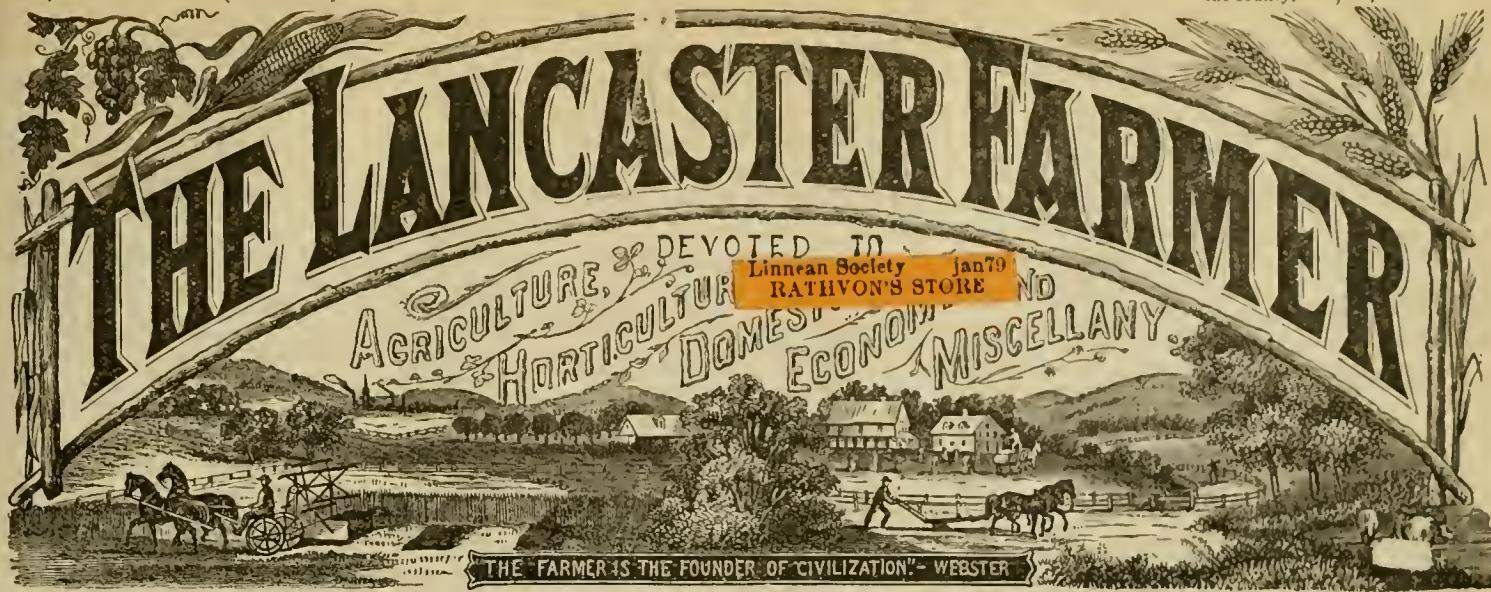
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Cincinnati Express*	11:30 p. m.	12:45 a. m.

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 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.

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 Laudville.

*The only trains which run daily.

+Runs daily, except Monday.

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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor.

LANCASTER, PA., NOVEMBER, 1878.

Vol. X. No. 11.

AN APPEAL.

It is with feelings of unqualified regret, mingled with much anxiety of mind, that the publisher of THE FARMER is compelled to again call the attention of its patrons to their unpaid subscriptions and other pecuniary obligations. We are largely indebted for necessary material and labor, and we have no other resource from which to obtain the means to meet the demands against us save from our subscribers and advertisers. The amount due us from each is but small indeed, and will fall lightly upon them, whilst in the aggregate it is large to us, and our failure to realize it must overwhelm us in financial disaster. For nearly two years we have been thrusting our hands into our pockets and dealing out all that came into them, in the payment of bills involved in our publication, and now we find them entirely exhausted and large balances against us still unpaid and due. We have been a very slave during the last twenty months in the service of THE FARMER, and if we obtained every penny due us we would hardly realize the wages of a common street scavenger above our unavoidable expenses.

When we assumed the responsibilities of publication we did so hopefully and with a determination to do our best; and we also supposed we should at least be able to indemnify the editor (who has toiled so long without remuneration,) for the paper, ink, stamps, envelopes, and "midnight oil" exhausted in his labors, but we have not done anything of the kind for the want of means.

Dear patrons, think of these things, and remember the absolute necessities of the

PUBLISHER.

GALLEY-WORMS vs. WIRE-WORMS.

The *Myriopods*—or at least that portion of them which are included in the division *Millepedes*—are sometimes erroneously called "Wire-worms." It is not judicious to have two very different animals by the same common name. It only creates confusion, and more absolutely necessitates the use of scientific names; a thing that is repulsive to many people in reading essays and descriptions in "popular science." *Wire-worms* are generally understood to be the *larvae* form of certain species of "Click-beetles," (ELATERIDÆ) also called "Skip-jacks" and "Hammerbugs," and by the Germans "Schuel-kaferen." They are long, cylindrical, tapering moderately at each end; from whitish to various shades of brown in color, the cuticle hard and polished, easily slipping through the fingers, or into the earth or debris wherever they may be found. They have short, sharp and stout jaws, and only six feet, two on each of the three anterior rings of the body, these rings never exceeding thirteen in number. This form, however, is not characteristic of the whole family, for many of them have flattened bodies, and have an extra foot, or one or two spines, at the hind end of the body. The larger number of them—perhaps four-fifths of them—are wood-borers, but they mostly confine their depredations to dead or decaying wood. The same species may be found in different kinds of decayed wood, immediately under the bark. They often attack young corn, wheat, rye and other cereal vegetation

in the spring and early summer; also turnips, mangel-wurtzel, potatoes and cabbages, as well as garden flowers. Mr. Curtis, a distinguished English entomologist, describes 70 species of beetles inhabiting England, which are the parents of "wire-worms." Their eggs are very minute, and it is not certainly known whether they deposit these eggs in the earth or in the base of the young plants they infest. When the young Wire-worm first issues from the egg it is almost invisible to the naked eye, but some attain finally to an inch or more in length; and what is still more discouraging, they live from three to five years in the larva or feeding state, so that those which have not been destroyed this year are likely to make their appearance again next year, feeding in the meantime on other vegetation or old wood, and hibernating during the winter. The "Meal-Worm" is sometimes confounded with, and called the *Wire-Worm*; but the former is larger, rounder, smoother, harder and of a darker color, and differs in other respects, especially in not having the anal foot, forceps or spines. When winters are very mild the *Wire-Worms* may destroy the wheat during the winter. On light lands they do the most mischief, from March to June; but strong loam and clay is most free from them. Although wet seasons may not destroy *Wire-Worms*, yet it will prevent the beetles from depositing their eggs. Soot and lime are said to kill the worms; and it is recommended to burn the rubbish on summer fallow, as it will kill the eggs and starve the worms. Refuse lime from gas works is particularly recommended as a remedy against these worms. They are also killed by applications of chloride of lime water, nitrate of soda or salt, on light sandy soils. Sliced potatoes, pieces of turnip, cabbage, beet-root, parsnip, carrot or apple stuck into the ground will attract them, and then they may be destroyed by hand-picking, which is after all the best remedy. But robins, thrushes, blackbirds, partridges, ducks, turkeys and barnyard fowls will pick them up in plowed fields. Moles, frogs, toads and lizards also feed on them; and lastly, they also become infested by a parasite "Ichnneumon Fly." Seeing that they are so omnivorous in their feeding habits, it would not be at all surprising to find them feeding on the tobacco plants. They are known to be partial to lettuce in kitchen gardens. Be it remembered, particularly, that when disturbed they will attempt to escape by crawling into the ground and secreting themselves. The larvae of *Agrilus*, *Elater*, *Athous* and *Agrypnus* are the most common *Wire-Worms* of the wheat, oats, barley and rye, but there are several species that belong to each of the foregoing genera. So much for the true *Wire-Worm*.

The *Millepedes*, or "Galley-Worms," belong to a different class of animals, and are not properly included in the order *Insecta*. They are never transformed into beetles or any other kind of insects, but remain Galley-Worms to the end of their days. They never attempt to make their escape when they are disturbed, but coil themselves up into a spiral or a ring, and lay over on their sides. Although their external integument is hard, yet it is more brittle, and not so tough as that of the true *Wire-Worm*; they have also more rings, but they are shorter, and each has four feet attached to it on the under side. But none of the species have a thousand feet, as the term *millepede* implies. Our largest species in Lancaster county (*Spirabolus marginatus*), is about four inches long, of a dark mahogany color, and has sixty rings, including the anterior and the anal ones—neither of which have feet—and counting four to each of the foot-bearing segments, it has *two hundred and thirty-two feet*. This is considerably below a

a thousand. But we have seen large California species in which the number of feet is much greater than that of our species. Dr. Wood says he saw a specimen of *Geophilus bipuncticeps* that had sixty-five pairs of feet on each side, which would be *two hundred and sixty feet*. They vary in the number of feet according to age. They do not start out in life with either the same number of segments or of feet that we find them having in their adult states. When they emerge from the egg they have but nine or ten segments, and the feet and the antennae are barely visible, and even on the twenty-sixth day thereafter there are only fifteen or sixteen rings and feet only on about the half of them. They are then entirely helpless, and how they are nourished is a question which is still only conjectural; and it requires some months before they are fully developed, the segments and feet appearing, and the number increasing, at intervals of several days or weeks.

The various species of "Galley-worms" that infest gardens, destroying radishes, lettuce, cabbages, beets, &c., when they are young; and also strawberries and other productions of the earth, are of a dark bluish-black color, from an inch to an inch and a half in length; and have about fifty segments and about two hundred feet ("more or less") and most of them belong to the old genus *Julus*, or to allied sub-genera. We have often found the larger species feeding on the different kinds of the softer fungoids, especially the "Mushrooms," (*Agaricus*), but we have more frequently found them under loose bark, in damp places, and from the great number of pellets found in connection with them we inferred that they must also feed on old and much decayed wood. Under no circumstances have we ever known one to attempt to make its escape, defend itself, or inflict a wound. They all, with one accord, when disturbed, coil themselves spirally, turn over on their sides, and remain motionless for a long time, but eventually straighten themselves out and move slowly away.

Between the *millepedes* and the *centipedes*, as we stated in a former paper on the subject, there is a connecting family (the POLYDESMIDÆ) containing the species which causes the disease known as the "Black-Root," or "Black-Rot." The species alluded to seems to be allied to *Polydesmus complanatus* of England and the continent of Europe—a species said to be more destructive there than any other belonging to the class MYRIAPODA, although they have several destructive species belonging to the genus *Julus*. The same errors in the common names of these animals that exist in our country also exist in Europe, and the corrections and suggestions of half a century have had very little effect in the distribution of knowledge on the subject. It would be almost as easy to substitute some other name for bread as to wean the people from applying the name of "Wire-Worm" to the *myriapods*, and the confusion is all the greater since they persist in calling it "THE Wire-Worm," as if there was only ONE species. If it is found that the species discovered by Mr. Schaeffer, of Cocalico, on his tobacco plants, confine themselves exclusively to that plant, then they might be appropriately named the "Tobacco Galley-Worm." The same remedies mentioned in this paper for the destruction of the true *Wire-Worm* would be equally effective in destroying the Galley-Worm. Mr. Curtis, in his book on "Farm Insects," is effectually in accord with our recommendation of scalding water, as detailed in our former article, (see FARMER, vol. X. p. 149), although he is not so specific. He says that "artificial heat will destroy them," and he also states that "they cannot live

without moisture." The largest of the specimens obtained from Mr. Schaeffer are half an inch in length, and are of a dark honey color, verging towards light brown; and have eighteen distinct segmental divisions of the body, with four feet attached to each segment on the underside, being eighty in number. The antennae are six-jointed; the last joint small, and that next to it large, making them slightly clavate. The sutures between the segments are deep and square; the marginal edges of the segments serrate, and their posterior margins slightly spined. The whole upper surface is tuberculated, each tubercle being surmounted by a short, whitish seta. They appear to be immature specimens of *Polydesmus serratus*, or varieties of that species, but may be a new and undescribed species. Specimens obtained next spring may be necessary to determine the species.

QUERIES AND ANSWERS.

MR. EDITOR—*Dear Sir:* In my August number I saw a gentle "dun" for money, and as I, for one, am indebted to you for THE FARMER from January last, I inclose the amount due you and hope others will do the same. I love to read THE LANCASTER FARMER, and I expect to take it as long as I can spare a dollar, for it is a good paper.—Respectfully yours, W. M. N., Dobbs' Ferry, N. Y., Sept. 17th, 1878.

P. S. Last spring I read an article in your paper on the subject of "Planting and Plowing," with reference to the moon. I would like to hear more from the same writer on the same subject. He says people may laugh, but really there is more in these things than "we in our philosophy dream of." I would like to know his experience in potato planting, with reference to the different phases of the moon.—N.

Will J. G., of Warwick, rise?

THE VEGETABLE WAX.

(*Rhus Succedanea.*)

The most important article for illuminating purposes in Japan is the candle made from the fruit of the *Rhus Succedanea*; a tree about the size and appearance of the common Sumac of this country. It is grown more or less extensively almost everywhere in Japan, and especially in the western provinces, from the south northwest to the 35th degree. Specimens of this tree have been imported.

The tree has a quick growth, and attains the diameter of a foot and a half, and a height of 25 feet. They begin to yield berries the third year, but in California may bear the next year after planting. The berry for introduction here is the size of a small pea, of a white color, hanging in clusters, and contain the wax, as a thick white coating of the seed. The full-grown tree averages 50 pounds of seeds annually, about one-half of which is wax. It is a hardy plant, growing on indifferent soil, and living for many years. In Japan they are planted by the roadside, on embankments, and out of the way places.

The wax is obtained by the berries being crushed, steamed, and then placed in hemp bags and pressed in a wedge press. It is also obtained by boiling the bruised seeds and skimming the wax from the top. The wax is a pamatin or glyceride; when first extracted it is of a yellowish white color, and somewhat softer than beeswax. It melts at 127°, and when formed into candles gives a fine clear light. In ordinary candle making the unbleached wax is used. When washed and bleached in the sun and air, it assumes a pure white color.

The vegetable wax of commerce is the imported article from Japan. From experiments made it can be readily grown in this country. The tree is highly ornamental, as well as for its production. As the foliage changes it has the peculiar bright and attractive hues so remarkable in the autumn landscapes of the Eastern States. The wax is in great demand, and commands a good price. It is valuable for candles, making the gloss for linen, for waxing thread, and other purposes for which the ordinary wax is used. Since it may be

grown so readily, its cultivation could undoubtedly be made a source of profit, and especially since the present process of extracting honey from wax will tend to lessen the supply of the ordinary article, and also leave ample room for this new industry.—Henry Loomis, San Francisco, Cal.

A GIGANTIC PUFF-BALL.

A large spherical fungus of the Puff-ball family (*Scleroderma*) is now in our possession at the corner of North Queen and Orange streets, which has been presented to the Linnaean Society by Martha Kamp, of No. 419 High street. This gigantic specimen was first noticed on Saturday, the 5th of October, growing on the ground in her garden, and when it was taken up on Friday, the 11th, it weighed 4 pounds, and measured 30½ inches in its transverse circumference, 28 inches in its vertical circumference, and 10 inches in diameter. It is of a cream color, is traced by several large fissures on the apex and on one side, the walls of which are a pure white. It is the largest specimen of this peculiar plant that has ever come under our observation, and its remarkable development in so short a space of time is a wonderful illustration of fungoid growth. Species analogous to it, in size and form, are grown in England, and are sliced and fried or broiled, like beefsteak, and are known among the common people as the "beefsteak fungus" or "beefsteak mushroom," and are highly relished. It is a pity that we know so little about the edible qualities of these plants in this country, for we can hardly realize that such a great amount of vegetable energy should be exhausted without some useful end. Some of these Puff-balls are so exceedingly minute that they can only be detected by a microscope, but they occur of nearly all sizes between a mere atom and the gigantic proportions enumerated above; which, if edible, would make a magnificent feast for a small family. It might pay some English or French cuisinier to locate amongst us, and teach us how to utilize our mammoth "Puff-balls."

The "Puff-ball" referred to above is the American variety of *Lycoperdon giganteus*, of which Mr. Stauffer records a specimen that grew in this county, which was fifteen inches in diameter. Pouchet records a foreign one, that grew up in one night which, according to an estimate made by Lindley, contained 47,000,000,000 cells, averaging 4,000,000,000 every hour of its growth, or 96,000,000 every minute. But these are all eclipsed by a tropical species described by Bulliard, which measured nine feet in circumference.

AUTUMN LEAVES AND FERNS.

This is the season when autumn leaves are in order, when the yellow foliage of the hickory, the red brown of the oak, and the crimson of the maples are gathered to give us their brightness in the coming dark days. It is rather late for ferns, though many people prefer to gather them after the early frosts have touched them with white and brown, thinking both that they keep better and are prettier then, and combining more effectively with leaves. We have written at length of their uses, which are almost infinite for purposes of decoration. For bouquets in baskets and vases, ferns, leaves and grasses mixed together are most effective. Window transparencies look well of delicate ferns with a few bright leaves. Ferns are best simply pressed and dried between sheets of blotting paper or newspaper. Varnishing or waxing gives them a stiff look, which is utterly at variance with their simple beauty. The London Queen recommends the use of linseed oil, rubbing the ferns lightly with it and then drying before using. This, it says, preserves their freshness in a remarkable degree. Leaves may be treated in the same way; but the most satisfactory plan we have ever tried was ironing them with a moderately warm iron, the iron rubbed—not too thickly—with the end of a spermaceti candle.

Varnished leaves look well for lambrequins

and any other uses high up on the walls—close in the eye the varnish gives them a stiff, unnatural look. A pretty mode of using autumn leaves is in lamp shades. Cut the shade the proper shape in stiff white paper, when the leaves, which have been previously dried and pressed, are arranged on it in a wreath, and fastened securely by gum. The whole is then covered with a very coarse net, and the edges bound with gilt or colored paper. The effect of the light shining through this shade is exceeding pretty; and it is one of the cheap decorations which all persons, possessed of a little taste and ordinarily skillful fingers, may make for themselves.

In pressing leaves be careful not to mash them. A string tied around a large book will usually give them pressure enough. Never put the leaves away damp nor in a damp place to dry—they are almost sure to mould and injure the color.

A pretty fernery, which will keep all winter, may be made by piling mosses and wood into an old platter. A partridge vine, with its bright berries, will add much to its beauty. A frame of bark tacked on around the outside of the platter makes it as pretty as far more expensive vase, and all winter, if kept moist, your homemade fernery will develop new beauties every day.—Philadelphia Times.

NOVEMBER.

November, the first month proclaiming the embers of the dying year, is upon us. It derives its name from the word Novem, nine. The last of the autumnal signs was Sagittarius, because when the sun passed it the trees were nearly divested of their foliage, which the ancients considered as indicative of the season for hunting, and hence they represented the constellation under the figure of an archer with bows and arrows. The Saxons named it Wint Monath (wind month). The closing day of November is St. Andrew's. St. Cecilia has also conferred a ghostly honor on this month, as well as upon music. Leigh Hunt says November, "with its loss of verdure, its frequent rains, the fall of leaf, and the visible approach of winter, is undoubtedly a gloomy month to the gloomy, but to others it brings but pensiveness—a feeling very far from being destitute of pleasure; and if the healthiest and most imaginative of us may feel their spirits pulled down by reflection connected with earth—its mortalities and its mistakes—we shall but strengthen ourselves the more to make strong and sweet music with the changeable but harmonious movements of nature."

But what is there sad in November? The crysanthemums and dahlias are out in their glory; the forest trees are as gay as a rainbow; the air is bright, crisp and invigorating; there are corn huskings in the barns of the farmers; apples are gathered in; fires are kindled, parties and balls are given, business is brisk in town and country. The leaves fall in October, it is true, but there is nothing sad or melancholy in that any more than there is in putting off an old dress to put on a new one. If the leaves fall it must not be forgotten that they enrich the soil and protect the roots of the trees that bore them. If they did not fall there would be no green buds and white blossoms in the spring. October and November are bright, jolly and enjoyable months, the most so of any in the year. "There is nothing so bright as a day in June," except a day in October. But the brightness, glories and gaieties of November will follow their predecessors into the dread and solemn past, covered by the pall of dark December. Coming after the summer wherein a destroying pestilence benumbed the energies of the people in one of the fairest portions of our land, and caused the ordinary pleasures and recreations of society to be neglected and the nation to be bathed in sorrow because of the carnival of death, a sadness marks its advent that all its brilliancy cannot efface. But its bracing atmosphere will stop the tread of the reaper and dry the tear of grief and sorrow and bring security to the house of mourning.—Patriot.

SHARPLESS SEEDLING STRAWBERRY.

This is an entire new variety, and is the largest and finest strawberry in cultivation; raised by Mr. J. K. Sharpless, of Catawissa, in 1872. It is now under cultivation and for sale by Ellwanger & Barry, Mount Hope Nurseries, Rochester, New York, at the following prices: Twelve plants for \$2.00; twenty for \$3.00; fifty for \$5.00; one hundred for \$8. Pot-grown plants may be obtained for \$3.00 per dozen, or \$12.00 per hundred, but cannot be sent by mail. From our illustration and the following description our readers may form almost as practical an idea of this magnificent fruit as if they had the berry actually before them.

Size.—Large to very large, an average specimen measuring one and a half inches in diameter, either way. A specimen exhibited at the Nurserymen's Convention, held in Rochester, N. Y., in June, 1878, weighed one and a half ounces and measured seven inches in circumference. **Form.**—Generally oblong, narrowing to the apex, irregular, often flattened. **Color.**—Clear light red, with a smooth, shining surface. **Flesh.**—Fine, sweet, with delicate aroma, first in quality. **Plant.**—Vigorous and luxuriant, hardy and prolific.

The parties having this berry under cultivation and for sale say: "This variety having fruited with us several seasons we have no hesitation in recommending it as the largest and best strawberry now in cultivation. The plant is vigorous, hardy and luxuriant, surpassing in this respect even the *Monarch of the West*;" and in corroboration of this an intelligent correspondent of the *Country Gentleman*, from Catawissa, Pa., the original home of the "Sharpless," vouches a most elaborate and emphatic endorsement; and the veteran editor himself remarks: "The Sharpless excited much attention at the Rochester Convention, on account of its enormous size, some of the largest berries weighing about an ounce and a half each." Some specimens of this berry have been known to measure

nine and a half inches in circumference, but of course it is not pretended that this size is anything like an average, nor yet a very common occurrence, nor yet is it essential that it should be, in order to give character to it, for independent of its size, it possesses a combination of qualities rarely found in any other variety of the strawberry. Finally, although we need not care much where a fruit originates, provided it can adapt itself to our soil and climate, yet it may be flattering to our State pride to know that this variety is due to Pennsylvania.

PLEASE send in your back subscriptions, as we are badly in need of money to pay the printer.

THE HESSIAN FLY.

In the first annual report of the Pennsylvania Board of Agriculture, Prof. S. S. Rathvon, of Lancaster county, has the following summary of the characteristics of the great pest of the wheat grower:

1. The preponderating weight of evidence seems to be, that the Hessian fly (*Cecidomyiae destructor*) was introduced into America from the Continent of Europe during the American Revolution, or about one hundred years ago.

2. It belongs to a family of "Gall Gnats," belonging to the order of *Diptera*, which includes all the various two-winged flies.

3. There are least two broods in the latitude of Pennsylvania; and further south there

7. The eggs thus deposited by the first brood develop the second or summer brood, which makes its appearance in August and September in the fly form, when it deposits eggs on any young wheat that may be above ground, or, in the absence of wheat, it migrates, or deposits on other cereal vegetation.

8. As this is really the only brood that it is necessary to circumvent—for with its destruction a subsequent brood would be impossible—therefore farmers should harvest as early as possible, leave a long stubble, turn it deeply down with a subsoiler, or burn it off with fire.

9. If they neglect or decline to do this, then they should not sow the fall crop before the 15th of October, and if the crop proves "backward" by fertilizers and cultivation in the following spring; or,

10. If they have not done this, and the crop is found to be badly infested, then turn it under with the plow, harrow it and roll it, and put in a crop of spring wheat the next season.

11. By the first of December the fly, or rather the maggot, the first, or winter brood, will have assumed the impervious "flaxseed" form, after which no external application could be of much avail, and in this form it is able to stand the rigors of the severest winter.

12. By the 1st of November, and still more so by the first of December—if the autumn has been favorable to the growth of the wheat—the Hessian fly, in whatever form it may be at that period, (excepting the possible fly-form,) will be located on the stalk sufficiently far above its original location to fall a prey to sheep or cattle that may be put to pasture in the wheat fields. Therefore, if the wheat is vigorous enough to bear this pasturing, and is still infested by the fly, in this manner enough of them may be destroyed to obviate the necessity of turning the crop down with the plow, and a reasonable yield may be the result.

13. If any liquid, dust or powder should be used to kill the young larva of the fly—whether those known now, or those that may be discovered hereafter—they should be applied before the insect assumes the

flaxseed form; for, as that condition seems to be expressly designed for the protection of the insect from contingencies and casualties, after that period external applications could have but little effect.

14. All precautions, circumventions, interventions, or external applications should be simultaneous and general in the insect-infested district, or the results can only be partial, temporary, and limited or local.

15. By cutting the grain close to the ground many of the summer brood are carried to the barn or stack, beyond the reach of remedy, and from which the fly would emerge before it is threshed, (and might even pass through a machine without injury,) and in this manner it has been circulated throughout the country.



may be three or more broods, owing to longer summers, earlier springs, later autumns and a more rapid development.

4. The second brood—and the main brood with which the farmer can contend—deposits its eggs on the blades of the young wheat during the months of August and September, and some retarded individuals may delay it even into the month of October.

5. This deposition of eggs by the second brood lays the foundation for the first brood, which will make its appearance in fly form at the end of April or the beginning of May, the following season.

6. The first brood deposits its eggs on the young wheat, rye, barley, or oats, during the month of May; its first preference being wheat.

ESSAY.*

MR. PRESIDENT: As material objects constitute the plane and continent upon which the various visible operations of the human mind are based; and as there can be no practical manifestation of mind unless it is ultimated in a visible and tangible form; it occurs to me, and it has often recurred to my mind during the past history of this society, that it might conduce to its welfare and create a centre of interest if the members would from time to time collect, carefully preserve, and place on deposit in its meeting room, creditable specimens of the vegetable and mineral productions of the farm. Of course I do not mean such specimens as are perishable, but the various species of garden and field seeds, the various kinds of nuts, seed pods and capsules; the useless and noxious, as well as the useful. And, where practicable, this might be extended to the foliage and wood of the different trees and shrubbery, to the grasses and the various kinds of plants. These would form a kind of museum that might at all times be consulted with interest and profit, especially by the generations that are to follow us on the theatre of life. There is no more effective teaching than object teaching. A fact fixed in the mind by having seen and handled the object it includes is far superior and a thousand times more impressive and permanent than any merely theoretical or speculative knowledge. But as the collection and concentration of these objects would involve labor—more time and labor than any one man could devote to it without compensation—I would suggest that each member, who has an object that he desires to deposit in the collection of the society, should properly prepare it, in order to secure its permanent preservation, and also attach his name and locality thereto; and if practicable, the name of the object or any other record he desires to make. All seeds should be ripe, thoroughly dried, and placed in glass bottles hermetically sealed. Plaunts should be pressed and dried, and placed in an Herbarium or Botanical portfolio provided for their reception. Each member performing these labors, as time and opportunity affords, would divide the labor among many, and although only a little were done at a time, these littles, in the aggregate, would finally culminate in much. Any of the members of the society who visited the Centennial Exposition must have noticed the manner in which the various kinds of seeds were prepared and preserved, and, although he may not be able to imitate them, yet he may be able to make an approximation thereto, if he tries.

There is another question relating to the interests of this society, however, which is, or ought to be, of more importance than a collection of seeds and other farm products, and that is its *legal* existence. A district of such vast agricultural and mineral resources as Lancaster county ought to sustain a permanent organization that is incorporated, and "a body politic in law." It is true, an act of incorporation alone would exercise very little sustaining influence if it was not aided by the co-operation of its members; but these two interests working together would give it more sufficiency and permanency, and add greatly to its importance as an organization among the people. The members will have a clearer sense of the responsibilities resting upon them; it would become more compact in its organic structure, and its powers and limitations would be more distinctly defined.

Agriculture is too important a factor in the constitution of human society, to be without an organic body to represent its interests among the people. The farmers of Lancaster county now occupy a more advanced position before the State and the nation than they did ten or twelve years ago, or at the time this society was first instituted. They have become better known to their co-laborers in the cause of agriculture elsewhere; and their social condition has made a very perceptible

progress. This society ought not now to relapse into apathy, or to occupy a non-progressive status. Even with its loose and disjointed structure, it has sustained itself manfully through a trying ordeal in the history of our country that may not occur again for many years, if we cultivate wisdom enough to profit by our past experiences. The darkest hour is said to be that which immediately precedes the breaking forth of day, and I think we have reason to hope, as we have so far advanced through our past adversities, that a brighter day is dawning. Whatever other interests may suffer, the farmer has the consolation of knowing that he is the feeder of the people, and that to "the last stretch that fainting life may sustain," there will still be a demand for the productions of the soil; and under the dispensations of Providence, he must ever stand as the divinely-appointed caterer to the physical necessities of his fellow-man. The farmer is, therefore, not only the founder of civilization, but his occupation and the fruits thereof constitute the very ground-work upon which the continuance of civilization is possible. Occupying this position, then, he can best co-operate with other essential interests through a live and efficient social organization.

A CHAPTER ON PENNSYLVANIA SNAKES.

A terrible affair occurred at Williamsburg, Blair county, on Wednesday, resulting in the horrible death of an accomplished young lady. Some days ago Dr. Paulhamus bought of a couple of tramps two specimens of the rare poisonous reptiles known as "blowing vipers," intending to send them to the Zoological Garden in Philadelphia. On entering the office with his daughter the next evening he lighted a lamp and soon after an owl flew in and knocked over the lamp, breaking the jar. Miss Paulhamus screamed and fainted, one of the vipers having fastened his fangs on her leg near the knee. A gentleman bravely choked the reptile and killed it. But the poison rapidly coursed through her system, her body swelling rapidly to nearly twice its natural size, and she soon died in spite of all efforts. The snakes were about four feet long.

The above statement, cut from a paper, was sent me with request to give my opinion on the subject. I will simply say that writers who are not familiar with proper names often make use of names that in different localities refer to different things. The *not* rare and *not* poisonous reptiles known as "Blowing Viper," is the *Heterodon platyrhinos*. There are six species of this genus described. Prof. S. F. Baird and Girard, say: "The species exhibit a very threatening appearance when alive, in flattening the head, hissing violently, etc., but are perfectly harmless."

Dr. Robinson sent me a fine specimen, some years ago, which became quite a pet among the boys that visited the Athenaeum library, of which I had charge. When approached it would not only flatten the head but the entire body, and blow loud enough to frighten any one not aware of the cowardly dodge. The moment it was picked up it was as docile as a dove, and no amount of teasing would induce it even to open its mouth and expose its minute teeth and inability to bite. It has no fangs and can do no harm. There is evidently a serious misnomer or a gotten-up story, without foundation, by one who knew not what he was writing about.

The "copperhead," *Agiistrodon contortrix*, is provided with poison fangs, as in *Crotalus*, the rattlesnakes, which are also provided with rattles on the caudal extremity. There are several species of the several genera of poisonous reptiles, but none of them is called "Blowing Viper"; this name applies to the, "hog-nose" class.

Some years ago I had a report of a poisonous reptile that made a loud hissing noise and also flattened itself, also called the blowing viper. I sent the matter to Prof. Baird, of the Smithsonian Institute; he concluded it must have been quite another genus if it had

poisoned fangs. I suspect the snake in question, if such an occurrence took place, was a copperhead or bastard rattlesnake.

The "Water Moccasin"—*Toxicophis piscivorus*—a southern species, has fangs. I never met with the species, nor heard of any caught north of Carolina. The *Elaps*, also a southern genus, have the upper jaw furnished on each side with a small, permanently erect fang. In short, we have no snakes that have poison fangs in Pennsylvania, except the copperhead and rattlesnake. Others may bite, but no worse than the hiss and bite of a goose—did we cowardly geese but know it.

Prof. E. D. Cope, some years ago, when with the Tucquan fishing party, captured a black snake over three feet long. To prove the inability of the reptile to bite he put his finger into the mouth of the snake. It brought its jaws down, but the delicate hooked teeth could not break the skin; the dents made were distinctly seen. Those who know this secret handle snakes of that class like pets, to the wonder of the terrified.—J. Starffer, in *New Era* of October 4th, 1878.

ARE COUNTY FAIRS BENEFICIAL TO FARMERS AND FRUIT-GROWERS.*

Mr. President and Members of the Society: At our last agricultural and horticultural meeting I was sorry that I had to leave when the question was opened, "Are County Fairs Beneficial to Farmers and Fruit-Growers." In looking over the proceedings of said meeting it was very satisfactory to me to see that so many members interest themselves in favor of holding county fairs. Over twenty years ago I was a member of what was then called "Lancaster County Agricultural and Mechanical Society." I was then and ever since in favor of holding county fairs, and the very point and cause of breaking down the Lancaster county society was the horse racing, and my opinion has always been that the county fairs can never be successfully established without said horse show.

It is and was always the case at all fairs that I know, when the day was announced when the most racing was to come off it was astonishing to see the great gathering on that day. My reference is not only to sports, but also to those that would spend one day in a year to go to the fair; plain and neat outside appearance would most in every instance hit the day of racing. It was often amusing to me when I met them, and I made the remark, "do we meet here, or is it here we meet;" nearly in every instance the answer was about this, "I thought I might as well come to-day."

I mentioned it several times to our President of said society, the late Jos. Konigmacher, that if there is no change made in our premiums and regulations, our fairs can never prosper. I encouraged the fairs every year by taking all kinds of stock there excepting horses. Only a few days ago I looked at a diploma that I received at the fair of 1858 for a calf that weighed 114 pounds before it sucked milk, 396 pounds on the day it was three months old. There was nothing on the fair ground to compare with it, and I was awarded a diploma for having it there five days. I am merely hinting on the above subject, and am always ready to yield for a better view. I would be in favor of dispensing with all discussions at present concerning this subject, and have a committee of a few appointed by our society to make speed with less work; to go personally to see the officers of successful fairs of York, Berks and Chester county agricultural societies, to get all their different premiums, arrangements in every respect concerning their fairs, and said committee to report to a larger committee of this society; and this latter committee to meet and agree on all premiums, and at what price the Park Ground could be rented, and recommend all necessary arrangements for a plan of starting up a successful Lancaster county fair, and report to our society, for its adoption, amendment or refusal.

*Read before the Lancaster County Agricultural and Horticultural Society, Nov. 4, 1878, by S. S. RATHVON.

THE ROCHESTER GRAPE.

Raised by Ellwanger & Barry, of the Mount Hope Nurseries, Rochester, N. Y. During our Centennial year (1876) this enterprising firm *fruited* over one hundred seedling grapes, which they had previously raised from seeds taken from their vines, on a wall where Delaware, Diana, Concord and Rebecca were planted and growing together. These they numbered and described up to sixty varieties; but as they fruited them, from year to year, they rejected one after another until they reduced the number down to *two*, which they have satisfactorily fruited for twelve years, and these two they concluded to offer for sale. These two they named the "Rochester" and the "Monroe," and our illustration in this number of THE FARMER represents the first named. They do not claim this to be the *best* of all grapes, but they confidently believe that its good quality, earliness and certainty of ripening, wherever any grape can be ripened, its hardiness in both wood and foliage, resisting equally the cold of winter and the heat of summer, will soon place them among our most valuable grapes. This grape has been very approvingly spoken of by some of our best grape-growers in our country, and there seems to be a great desire to obtain it on account of its hardy northern character, if for nothing else.

Our illustration and the following description of it will post our readers as to its character and appearance. Bunch large to very large, shouldered, frequently double shouldered, very compact. Berries medium to large size, round, dark purple or purplish lilac, peculiar, with thin white bloom. Flesh very sweet, vinous, rich and aromatic. Vine a remarkably vigorous grower; wood short-jointed and hardy; foliage large, thick, healthy; has never been known to mildew in the grounds where it originated. The habits of the vine are similar to the Diana, and it requires ample room and rather long pruning. Has never failed to ripen well in the worst of seasons since it first bore fruit. As we remarked on a former occasion, it is not at all to the interest of any permanent and first-class nurseryman to palm off upon the public a fruit for what it is not; and, therefore, other things being equal, our readers may reasonably expect this grape to be what it is represented. Consequently, if for the sake of obtaining a new variety adapted to our climate, they desire to go beyond our own borders for it, they can obtain from the above firm one year old plants for \$2.00 each, with the usual graduation of discount on larger orders. Climatically considered, a good New York grape ought to be good in Pennsylvania.

WHAT IS TO BE DONE?

1. Child two years old has an attack of croup at night. Doctor at a distance. What is to be done?

The child should be immediately undressed and put in a warm bath. Then give an emetic, composed of one part of antimony wine to two of ipecac. The dose is a teaspoonful. If the antimony is not at hand give warm water, mustard and water, or any other simple emetic; dry the child and wrap it carefully in a warm blanket.

2. Hired girl sprains her ankle violently.

First bathe in cold water, then put the white of an egg in a saucer, stir with a piece of alum, the size of a walnut, until it is a thick jelly; place a portion of it upon a piece of lint or tow large enough to cover the sprain, changing it as often as it feels warm or dry; the limb is to be kept in a horizontal position by placing it on a chair.

3. Bees swarm, and the man who hives them gets severely stung in the face.

The sting of a bee is hollow and barbed, and as it contains the poison the first thing to be done is to remove it. The parts stung should then be bathed in warm water and a little ammonia be rubbed on them.

6. Young lady sits in a draught and comes home with a bad sore throat.

Wrap flannel around the throat, keep out of draughts and sudden changes of atmosphere, and every half hour take a pinch of chloride of potash, place it on the tongue and allow it to dissolve in the mouth.

7. Nurse suffers from a whitlow on her finger.

Place the whitlow in water as hot as can be borne, then poultice with linseed meal, taking care to mix a little grease with the poultice, to prevent it from growing hard. Bathe and poultice morning and evening.

8. Child falls backward against a tub of boiling water and is much scalded.

Carefully undress the child, lay it on a bed, on its breast, as the back is scalded, be sure all draughts are excluded, then dust over the parts scalded bi-carbonate of soda, lay muslin over it, then make a tent, by placing two boxes with a board over them in the bed, to prevent the covering from pressing on the scald; cover up warmly.

9. Mower cuts driver's leg as he is thrown from seat.

Put a tight bandage around the limb, above the cut, slip a cork under it, in the direction of a line drawn from the inner part of the knee to a little outside of the groin. Draw the edges of the cut together with sticking plaster.

10. Child has a bad carache.

Dip a plug of cotton wool in olive oil, warm it and place it in the ear. Wrap up the head and keep out of draughts.

11. Youth goes to skate; falls through the ice; brought home insensible.

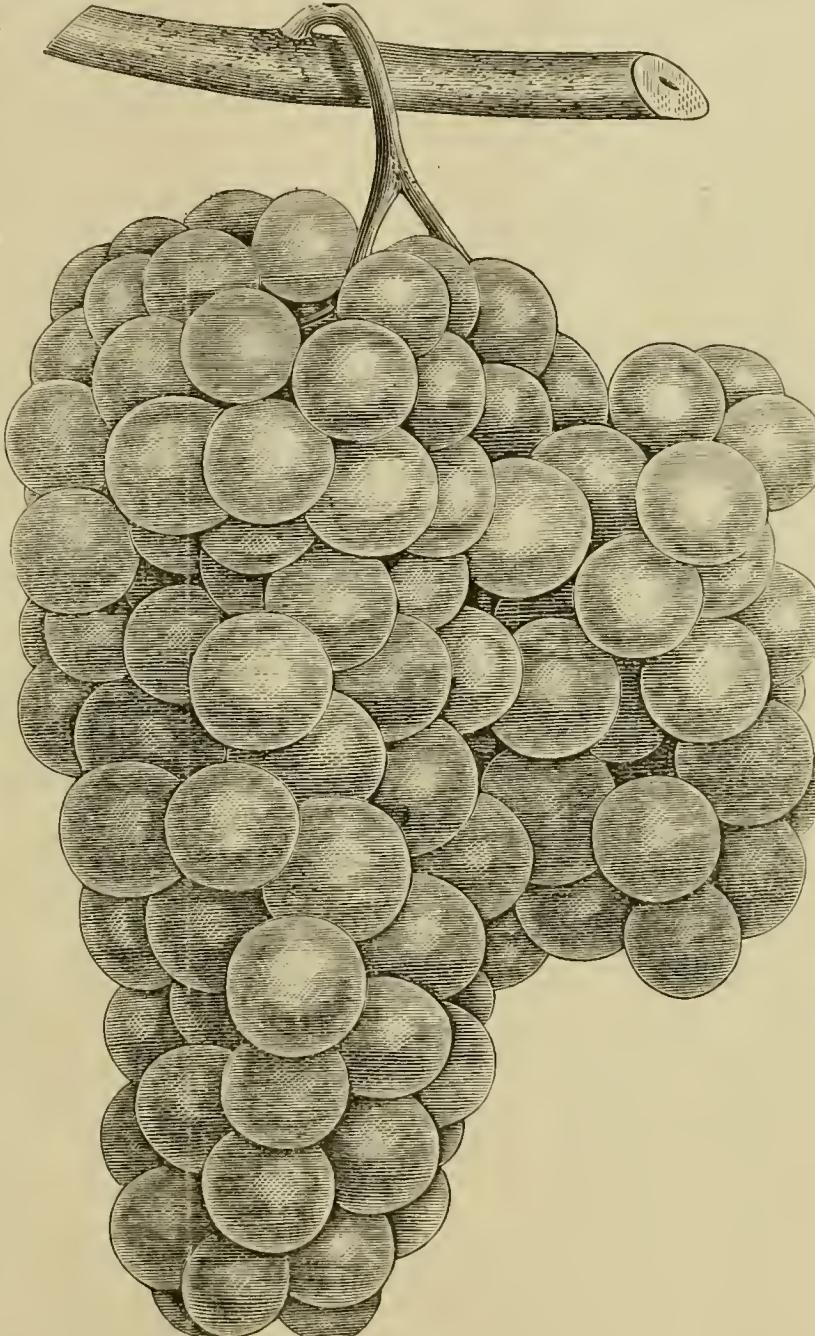
Strip the body and rub it dry; then rub it with a warm blanket, and place it in a warm bed in a warm room. Cleanse away froth and mucus from the nose and mouth. Apply warm bottles, bricks, etc., to the arm-pits, between the thighs and to the soles of the feet. Rub the surface of the body with the hand encased in a warm dry worsted sock. To restore breathing close the nostrils and breathe steadily into the mouth; inflate the lungs till the breast be raised a little, then set the nostrils free and press gently on the chest until signs of life appear. Then give a warm drink and put to bed. Do not give up hope for at least three hours after the accident.

12. Child gets sand in his eye.

Place your forefinger on the cheek-bone, having the child before you. Then draw up your finger and you will probably be able to remove it; but if you cannot get at the sand this way, repeat the operation

while you have a knitting needle laid against the eyelids; this will turn the lids inside out, and then the sand can be removed with a silk handkerchief. Bathe in cold water and exclude the light for a day.—*Rural New Yorker.*

By a new process it has been proved that the fibrous portion of the jute plant can be so divided and treated as to produce curtains, hangings, tablecloths and dress goods of rare excellence. Indeed, for some purposes the article, as applied to textiles, would appear to rival silk. The product of the jute plant, after having been submitted to the process invented by Julius Sachs, is called kalameit, and if the opinions lately announced regarding it are justified, it will form the basis of a great industry.



4. Some one's nose bleeds and cannot be stopped.

Take a plug of lint, moisten, dip in equal parts of powdered alum and gum arabic, and insert in the nose. Bathe the forehead in cold water.

5. Child eats a piece of bread on which arsenic has been placed for killing rats.

Give plenty of warm water, new milk in large quantities, gruel, and linseed tea; foment the bowels. Scrape iron rust off anything, mix with warm water, and give in large draughts frequently. Never give large draughts of fluid until those given before have been vomited, because the stomach will not contract properly if filled, and the object is to get rid of the poison as quickly as possible.

THE COMPARATIVE EXHAUSTIVE POWERS OF THE CEREALS.*

[CONCLUDED.]

Lime.—This, in a strictly scientific sense, is not a fertilizer. All soils, we believe, contain an abundant supply of it for any crop; but in the primitive signification of *manure*, to operate by the hands, from the Latin *manus*, it performs an important function in plant growth. The small amount required for a profitable crop of wheat, corn or oats should convince any intelligent hearer that there is no necessity of rendering land "lime-sick" by the application of one hundred or one hundred and fifty bushels per acre at a single dressing. We do not wish to be understood as opposing the use of lime or interfering with its sale, but if the money uselessly expended in the application of lime were placed at our disposal we could maintain a farm-school of such a character that as influence would be felt throughout our noble old commonwealth. Lime acts by its causticity alone—separating, manipulating, disintegrating and comminuting the particles of vegetable matter in the soil, so as to render them soluble by rain and snow, and convert this vegetable matter into plant-food. That this is the true province of lime, any one can establish beyond the peradventure of a doubt, by taking soil devoid of vegetable matter, liming one-half of it, and seeding both portions of it at the same time to the same variety of grain. Lime by being slaked, exposed to water, becomes converted to hydrated lime and loses much of its causticity upon being applied to the soil in a powdered condition.

The application of twenty bushels per acre upon the most luxuriant growth of vegetation is sufficient for any dressing.

All chemical combinations take place by what is known as the "law of definite proportion." Permit me to resort to a simple illustration: You order a boy to form heaps of two white beans and one black bean each, i. e. three beans in each heap; you furnish him with ten bushels of white beans and with only two hundred black beans—there is no mind on earth that can assist him in forming more than two hundred heaps by conforming to your order. In like manner lime, and all other substances enter into combination. If you have an excess of lime for the vegetable matter, it passes back into the carbonate of lime, the form in which it was before burning, and is as useless for manurial purposes as those vast rocks that jut through the soil and mar the beauty of your valley.

True, it acts mechanically by separating a stiff, tenacious clay, and rendering it more friable and porous.

Multitudes of experiments establish the fact that an excessive supply of lime counteracts the beneficial influence of soluble phosphate (bi-phosphate), by rendering it tribasic or insoluble phosphate. Lime is not all equally caustic. This property can be most easily discovered by testing the stone before burning.

Drop a few drops of either sulphuric, chlorhydric or nitric acid upon the cold stone, and if effervescence result, the stone is rich in lime; if the acid or stone must be warmed to produce effervescence, the stone is composed largely of magnesia.

We deem the following outline a profitable application of lime; haul the lime upon large piles in the field; cover with sods or earth to exclude rain; apply, after shaking, at the rate of twenty or twenty-five bushels per acre; plow as shallow as possible to cover the sod properly; by this means the sod will decompose more rapidly than if plowed under deeper; cultivate thoroughly, so as to incorporate decomposed vegetable matter and lime with the soil, and you have a fertile seed-bed.

Manure and lime should never be applied at the same time, as the lime liberates the ammonia. If both are to be applied during the

same season, spread and plough down the manure, allowing as long a time to intervene before applying the lime as possible, in order that the moist, porous earth may absorb and retain the ammonia; scatter the lime upon the surface, give a second ploughing or thorough cultivation, that the lime may be incorporated with the soil, and you have a fertile seed-bed by the second process.

The advantages of this system are: in a given number of years, say twenty-five, you will have used as much lime per acre as by the heavy dressing process, the lime will have acted upon four crops of sod or vegetable matter, instead of one, little or none of the lime will have passed into the rock condition, and the increased fertility and crops during the period will amply compensate for the additional expense of hauling and spreading.

Magnesia is found in all varieties of soil, and perhaps no direct application of this mild alkali need be made, yet we deem an application of lime rich in magnesia would be profitable for oats, from the vast amount found in that cereal. Bran, says Leibig, is rich in ammoniacal phosphate of magnesia.

Sulphuric Acid can be most cheaply applied in the form of superphosphate, or gypsum (plaster, sulphate of lime); the latter, which has gone into general disuse in this country, is too valuable to pass unnoticed. It furnishes sulphuric acid, is a great retainer of moisture, and converts the volatile carbonate of ammonia into the non-volatile and soluble sulphate of ammonia. No farmer can afford to discard this valuable auxiliary to his manure pile.

Chlorine is found merely as a trace in the cereals, and is most easily added to the soil in the form of common salt, to which we have already adverted.

Let me not be understood as teaching that the application of the given number of pounds of the various substances that constitute a crop of wheat, corn or oats will produce crops of equal value. We teach no such doctrine. The soil must contain many times the amount of food taken up by the growing crop.

When we consider that an acre of good soil, one foot in depth, weighs 4,000,000 pounds (2,000 tons), and that if we plough and fertilize six inches in depth, the plant-food is mixed with 1,000 tons of soil; that the roots and rootlets of any crop come in contact with but a comparative small portion of the soil, we discover the necessity of a liberal application of some fertilizing agency.

We wish the farmers could see the profit of ample fertilization. If but half the number of acres should receive the entire amount of manure how great a saving of labor to man and beast, in the way of hauling and ploughing, harrowing and planting, cultivating, harvesting and gathering would result therefrom. Thorough improvement of the entire farm would be reached in a short time; even if a greater portion had to lie fallow, or to grass each year, whilst improving the portion under cultivation.

We have considered the most important chemical substances that enter into the formation of the cereals. There remain the various forms of vegetable matter, as grass, straw, clover, and the products of the barnyard. It is evident that the greater the supply of vegetable matter added to the soil the greater becomes its power to return to the farmer vegetable matter in the various forms needed. If all forms of vegetable matter were returned in sufficient quantities we would have a perfect system of fertilization. The effects of steam-power and machinery in general upon labor we surrender to the consideration of the political economist and statistician; but their use has been highly prejudicial to the fertility of long cultivated soils. The transportation of countless millions of bushels of *entire* grain, rendered profitable by railway and steamship, has robbed our soil of its most important food, phosphoric acid. In olden times, when the wheat was all *floured* and the refuse fed to the farm stock, the phosphoric acid was not all transported to foreign lands. The phosphoric acid, as all intelligent farmers know, resides

almost entirely in the thin shell, known as the bran.

Again, reapers and mowers cut the crops so closely to the ground that the germs of growing clover and grasses are too much exposed to the heat of the sun during the longest and hottest days of summer. Following with the spring-toothed horse-rake every particle of hay and straw is gathered up, the leaving of which upon the soil as a mulch would be far more profitable. The packing of hay and straw into small bulk by means of hay-presses, rendering them portable commodities, has caused the sale of thousands of tons that otherwise would have been used on the farm and returned to the soil. The conversion of thousands of tons of straw into paper is another important factor—but why enlarge? All these various agencies of impoverishment should be comprehended by every thoughtful agriculturist, and the inquiry should be, can we render machinery so useful as to counterbalance all these evils?

It remains yet for us to show the means by which vegetation can be most economically employed to keep up and increase the fertility of the soil; for such means we have placed at our disposal.

The conversion of clover and the various grasses into plant food is the simplest, and undoubtedly the cheapest form of applying vegetable matter. A ton of grass ploughed down and thoroughly decomposed will furnish four times the amount of potash, one-half time the amount of phosphoric acid, and more than a sufficient amount of all the other minerals needed for a ton of corn or wheat.

The straw of the cereals thoroughly decomposed and applied to the land will produce nearly enough of magnesia, quarter enough phosphoric acid, and more than enough of the other minerals to reproduce a crop of equal value.

Grass ploughed down will furnish twice as much potash, half enough phosphoric acid, and a sufficient quantity of the other minerals to produce a crop of field peas, equal in weight with the stalks to the amount of grass ploughed down; and a crop of peas yielding thirty-six bushels per acre, if ploughed down with the stalks, will be sufficient manure for a profitable crop of wheat.

A crop of turnips if eaten upon the field by sheep, will furnish sufficient fertility for a profitable crop of any of the cereals. Three hundred pounds of high-grade superphosphate per acre should produce a profitable crop of turnips.

We must resort to one or all of these methods of fertilizing. We will shortly pass through the severest ordeal to which farmers of the Atlantic States have ever been subjected. The vast number of farmers now moving to the fertile new lands of the west will flood our seaboard cities with such quantities of the most profitable grains as will place us entirely without the pale of competition. Each new railroad constructed in these fertile sections will add to their advantages, and such a state will continue until numerous cities and countless towns spring in their midst, that they have consumers nearer home. Be not deluded with the thought that drought and locusts may shorten their crops, and in a few years these new fields will be abandoned. There are immense sections, many times the area of the grain sections of the east, as free from these evils as ours.

Neither be deluded with that other silly remedy so often proposed—fruits and vegetables. Already the markets of our large cities are often over-stocked with the products of the truck-patch, and not one farmer in a thousand ever sends a crate of berries to market. What would be the result if every farmer should turn orchardist? Apples, peaches and pears would soon reach the destination of berries in a season of over-production—the waters of the wharf.

Nevertheless every farmer should raise an abundance of all kinds of fruits for family use, and, if a market be convenient, such an excess as may prove profitable.

*An address delivered by Prof. S. B. Heiges, of York, Pa., at the Tri-State Pic-Nic of the Patrons of Husbandry, at Williams' Grove, Thursday, August 29th, 1878.

Nor can dairying in any of its forms take the place of grain culture.

Some of its forms must eventually exhaust the soil. Any of its forms would soon result in over-production if engaged in by a majority of farmers. Milk is a perishable commodity, and could only find a home market up to a certain quantity; butter and cheese must be disposed of within a certain time, either in a home or foreign market, and would soon be over-produced if engaged in by farmers in general.

Grains can be held, if desired, by the farmer more safely than almost any other general farm product. Shall we abandon their cultivation? No, we must compete with our western brethren, by more thorough cultivation, by the production of greater crops per acre, by the production of the best quality of beef and mutton, which, if they do not meet with a profitable market at home, will find a ready sale in the over-populated portions of Europe.

The improvement of our soil demands the production of flesh of some kind for market. Whatever animal we may select, the fact is evident that he subsists largely upon the cruder products of the farm until the period of fattening, and that he is a valuable manure-maker during the entire period. An ox of fifteen hundred pounds weight removes from the farm no more mineral matter and nitrogen than fifty bushels of corn, worth on the average about one-third as much, and the ox has been all the time improving the soil, whilst the corn has done nothing in that direction.

These are incontrovertible facts, which we all should know, but if we cannot learn them let us provide this rich legacy for our sons and daughters by demanding that a portion of the nine millions of dollars annually expended upon our common schools be appropriated to the establishment of a few schools in our midst in which a fair knowledge of physics, physiology, botany, entomology, chemistry, agriculture and horticulture be taught. The intricacies of our calling demand such knowledge; the welfare of the nation depends largely upon it—why delay its dissemination?

In conclusion, if I have said or done aught to-day to enlarge your views of the dignity and responsibility of your calling; to engender in your minds and hearts the resolve and hope that your sons and daughters may be thoroughly fitted to take your places by a liberal education for that purpose, I am repaid, amply repaid, thrice amply repaid for my labors in your midst.

FOR THE LANCASTER FARMER.

CORNSTALK MOLASSES.

The articles on sorghum and cornstalk sugar, in your October number, reminded me of an incident in my early life, which, in justice to early if not first discoverers of available saccharine matter in cornstalks, I beg leave to recount.

During the war of 1812-15, when under twelve years of age, I was sent on an errand to a family residing on the west bank of the Chickies creek, about where it is now crossed by the Marietta and Columbia turnpike. Boy-like I loitered in the woods, which then skirted the river from the present borough-line of Marietta to and beyond the creek, so that another mealtime arrived before I reached the house, and the family urged me (I nothing loth!) to eat with them before returning home. At that time the war had made sugar and molasses scarce and dear, and therefore sparingly used by the poorer classes. But this family not only had molasses on the table, but urged me to use it freely if I liked it; adding that it was their own manufacture, out of cornstalks, by aid of a straw-cutter, cider press and apple-butter kettle. As "we children" frequently chewed cornstalks for sweetmeats I had recognized the peculiar flavor, but thought the syrup very good, notwithstanding. It was about as thick as the West India molasses in common use, of a more reddish color, but very clear and beautiful.

I am inclined to believe, however, that

cornstalks will hardly supersede sorghum and imphée—especially if the amber sorghum, now cultivated in Minnesota, should prove as productive of syrup elsewhere as it is in that State. This, however, is not to be expected. Soil and climate, each has wonderful influence on the plant in its sugar product, as has been demonstrated by a few trials, and was often found to be the case in common sorghum culture. And I presume that soil and climate will also affect the sugar product of cornstalks. It is therefore to be regretted that the chemist of the Department of Agriculture did not embrace in his report of experiments the locations and soils and the amount of product—that is, the weight of stalks, o sorghum and of corn to the acre. This, and a little more care in stating the results, would have enabled common readers to understand more clearly the comparative values of each material experimented on. The following table may aid in this desirable understanding, as calculated from the statement on page 149 of your October number:

MATERIALS,	Weight in pounds...	Pounds of juice...	Pounds of stalks to 1 lb. juice...	Pounds of stalks to 1 lb. juice...	Pounds of juice to 1 lb. juice...
Cornstalks...	11,237	2,773	10.54	24.68	4.05
Sorghum...	13,958	4,963	10.58	35.56	2.81

The syrup is said to contain 75 per cent. of its weight in sugar, but the kind or kinds (cane or grape sugar) are not stated. If even the amber sorghum has 5.6 per cent. of glucose, (October FARMER, page 147.) the cornstalk may be expected to contain a larger amount.

It is hoped that other experiments will be made with stalks grown in other soils and sections, and with equal weights of stalks; and that experimenters will carefully give the weight of stalks to the acre, and the various processes for the production of sugar, as well as of the amounts produced. It is only by repeated experiments, embracing all the variations of soil, climate and processes—perhaps even embracing modes of cultivation—that this problem can be solved. And even then, to render it practical, the cost of material and of manufacture per pound, must be clearly ascertained. "Will it pay?"—A. B. Grosh, Washington, D. C.

FOR THE LANCASTER FARMER. RANDOM THOUGHTS—No. 6.

Tree Agents

I have been about again and we hear many complaints. I do not know why it should be so, but in most cases there is more or less dissatisfaction, among which the following are most conspicuous :

1. The agents generally act for parties in New York or other distant places, whose charges are much higher than at our local nurseries. This the buyer does not know until after he has subscribed, and then thinks he has been overreached. I know of a neighbor who paid \$1.00 for a peach tree, new variety, that he could have bought at a nursery not more than three miles distant at 35 cents; grapevines at 75 and 50 cents each that he could have had at 25 cents; he intends to buy at home hereafter. Those at a distance can not sell as cheap as the local nurserymen, as they have to pay heavy freight on trees and have to pay their agents a large percentage for selling, besides other expenses to which the local men are not subjected.

2. Though many of the agents act for good nurseries, yet there are many who profess to sell for certain generally well-known firms but do not. This latter class of agents, more properly called "tree peddlers," sell trees and then buy them here and there, wherever they can get them cheapest, without regard to whether the raisers of the trees are responsible parties or not. A year or two ago a favorably known nursery firm published an article in the *American Agriculturist*, stating that their agents received lists of what trees to sell and

that their customers were sure to get what was sold, but in clearing out part of the nursery there would oftentimes be many trees left on it not up to the standard, or of which the names had been lost, or which had not taken when budded, but threw up a stem from the stock, and of course were seedlings—such were sold to "peddlers," who took them up themselves and labeled them according to what they had sold. The victims of these peddlers of course did not find out how badly they were cheated until after years.

3. These agents have a large list of varieties, and unless a man perfectly understands what kind to buy, he may and possibly will, select many varieties that are not at all suited to his locality. The owner of a local nursery, if he understands his business as he should, will have mostly only such kinds as are suitable to the neighborhood, and will be able to give the purchaser advice about the varieties most suitable for the customers' wants. Very few agents would be able to do this, though they might be conscientious, as most of them are but little versed in horticulture.

I believe that our nurserymen are making a mistake by not advertising more. Putting a list of prices into such papers as THE FARMER and the weeklies for which our county is noted, would no doubt be the means of largely increasing their business. If would-be purchasers do not know you have an article to sell they will hardly ask you. It is for the seller to make known the wares he has to sell.

Change of Seed

has often been recommended as being profitable by the increase in yield which is likely to result. That this often has been the case cannot be denied, and yet the improvement by it have been due to other causes, such as bringing a variety more suited to the locality than those that had been raised before; in some cases, perhaps many of them, the result would be just as contrary, because the varieties were not suited to the locality to which they were brought. It is well known that some varieties of wheat will not do very well in a sandy soil, but give excellent results on those of a heavier texture; other varieties will do well on sandy but not on heavy soils. It is important, then, that the farmer should consider the character of the soils in any contemplated change of seed, as there may be as many chances of the result being unfavorable as there are of its being favorable. It is for this reason that many really improved varieties of wheat, &c., do not meet expectation because they may be varieties whose improvement is visible only when grown in suitable soil.

But there is another side of the subject which is not often considered.

If you get seed from the same parallel of latitude, i. e., either directly east or west of you, there is no difference in the time of ripening, with perhaps a few exceptional cases.

If, on the other hand, you get seed from some place south of you it will take longer for your crop to mature; if you get from the north the crop will mature earlier than those in your own locality. In Vick's Magazine, for November, it is stated that at Vincennes, France, barley needs 109 days in ripening, but that seed imported from Alten, Norway, produced a crop that ripened in thirty-seven days less. Wheat in Norway ripens in 105 days, and the period of ripening gradually lengthens as we move southward, until in Algiers, where it takes about 142 days.

As this law probably holds good it would not be good policy for a Lancaster county farmer to get his seed corn from Alabama or Mississippi, as there would be a likelihood that it would not be matured by the time of frost; in New York and other States, where frost comes oftentimes so early as to injure their corn, the farmers should get their seed corn from Canada or other point north of them, and thus might get their crops to mature a week or ten days earlier.

I do not know if we would derive any benefit by seeds north of us, except in wheat and

oats; by getting such seed we might hasten the maturity and thus escape the hot weather. In Minnesota this year the wheat was much damaged, so as not to be half a crop, by some days of hot weather; if they would have had seed from further north, that would have been five or six days earlier, the result would have been seen in a much larger crop. It was the same with oats in this section; had it been raised from northern seed it would have been ten or twelve days nearer maturity when the rust appeared, and, of course, this much nearer out of danger, perhaps escaped it entirely.

This early maturity is, however, gradually lost, so that in a few years the crop will need just as long a time in ripening as that formerly raised. This would, of course, necessitate new importations every few years.

In such crops as are raised from sprouts or grafts it is very doubtful whether any change in time of maturity occurs. Thus, an apple that in Vermont may be claimed as a winter variety, may be a fall variety as far south as Georgia. It is not that the apple will grow in a shorter time, but the winter season does not arrive so soon and so the apple becomes mature before the winter time.

In potatoes the case is exactly the same. A variety that would be classed late in Maine, would be early with us, and the early potatoes would be very early with us. This is probably the reason why the new first-class early potatoes have all come to us from States lying north of us. I do not know or remember of one first-class early potato that was originated south of us.

So much stress has been laid on the superior quality of northern seeds, by some market gardeners, that one seed firm claims to be nearer the North Pole than any other in America. With market gardeners it is sometimes a question of two or three days as to whether they will make a nice thing of it or lose money, cases having been known where a lot of cabbage three days later than another would not bring over one-half the money.

Prices of Fertilizers.

For the last few years everything has been going down in price, whether manufactured goods or the products of the farm; fertilizers themselves, when of the same quality, have not followed this universal decline, and there seems no reason why they should not. When gold was \$14 a certain brand of Peruvian guano was held at \$55.50 per ton in currency, equal to about \$48.67 gold; now the same brand is quoted at \$50.50 currency, or over \$56.00 gold. This, in effect, raises the price of the article nearly \$7.50 per ton. It is a matter hard to understand why the fertilizers should keep up their prices while gold is coming down and dragging everything else along.

If we look at it in another way we find that in the early part of the summer of 1876 we could buy a ton of the above brand for about forty bushels of wheat or eighty bushels of corn; now we must give about sixty bushels of wheat or about one hundred and ten of corn.

I have always been in favor of fertilizers when used intelligently, but the time is coming, or has already arrived, when they can no longer be used on our common crops. It soon will be a question with dealers as to whether they prefer their stocks to lie on hand or to reduce their prices to a point that will again enable the farmer to use them with profit.—*A. B. K.*

FOR THE LANCASTER FARMER.

ASCLEPIAS TUBEROSA.

(Butterfly-Weed.)

The order Asclepiadaceæ (Milk-weed family) presents a very curious and intricate floral structure. In "Dr. Gray's Manual" fourteen species are described. The above is readily distinguished from all the others by its alternate, scattered upper leaves, and milky juice little or none; leafy to the summit, one to two feet high, usually deep orange-yellow, showy flowers, the umbels short peduncled. Found in dry hills and fields; not rare; prefers sandy

soils, pine woods, &c. It is also known by the name of *pleurisy root*. The root is large, fleshy and branching, and often somewhat fusiform. It is only by comparison with the other species that it can be called tuberous. The stems are numerous, growing in bunches from the root. Leaves on the erect, hairy stems are scattered, sessile; the lower ones pedunculated, rather oblong and obtuse at base. The numerous bright orange color of the flowers calls attention to it when met with during the flowering season, in July and September. The flower is peculiar, five-parted, reflexed, and the segments oblong. The necessary or crown of the stamens are five, forming caps or cups with an oblique mouth, having a small, incurved, acute horn proceeding from the base of the cavity of each, and meeting at the centre of the flower. The pollen forms ten distinct, yellowish, transparent bodies, of a flat and spatulate form, ending in curved filaments, which unite them by pairs to a minute, dark tubercle at the top. Each pair is suspended in the cells of two adjoining anthers, so that if a needle be inserted between the membranous edges of two anthers and forced out at the top it carries with it a

of pulmonary inflammation, after depletion has been carried to the requisite extent. Dr. Parker, of Virginia, as cited by Dr. Thacher, having been in the habit of employing this root for twenty-five years, considers it as possessing a peculiar and almost specific quality of acting upon the organs of respiration, promoting suppressed expectoration, and relieving the breathing of pleuritic patients in the most advanced stages of the disease. Dr. Chapman, Professor of Medicine, Philadelphia, has tested its merits, and speaks with confidence of its powers.

Administered in substance or decoction. A teacupful of the strong decoction, or from 20 to 30 grains of the powder, may be given in pulmonary complaints several times a day, repeated in some cases of inflammatory diaisis until it subsides, or so long as it agrees with the stomach and bowels. Much more might be said in its behalf, but I am not writing a medical work, simply a brief notice.—*J. Stauffer, Lancaster.*

RISE AND PROGRESS OF BEE CULTURE.*

All the great inventions and discoveries which have developed the resources of the world to a greater extent within the past century than in all previous time since the creation, have had their origin, more or less remote, in the ages past. The various applications of steam, electricity, the mechanical powers, and the wondrous developments of natural science which have so changed the face of all nature, and the currents of thought within the past few years, are but the accumulations and scientific combinations of ideas and inventions, scattered all along the line of the ages, by the past generations in their onward march from ignorance, superstition and bigotry to intelligence, knowledge and true science. Of all kinds of research in the development of National industries, none are more fruitful, inviting, and instructive to the Antiquarian than the history of the culture of the honey bee; for in all his researches, he will find himself in the company of the wisest and best minds of all ages. Poets, Naturalists, Philosophers and doctors of divinity are all largely represented in its history. Honey was regarded by the Ancients as a present from the gods, and with it their libations were made around the tombs of those dear to them. With honey they preserved their corpses. With honey their gods were appeased by pouring it upon their altars and the heads of the victims. Honey was the only sweet known until within comparatively modern times. The Holy Scriptures abound in figures of the highest joys and the most exquisite sweetness, drawn from the bee and its delicious product. Aristotle pronounced the honey bee a magazine of the virtues. Virgil, the most elegant of the Latin poets, call it a ray of the divinity, and chose it as the subject for the best of his Georgies. Shakespeare, Milton, and, in fact, all the prominent writers, have bestowed on the bee at least a passing notice. De Montfort, who, in 1646, wrote a work on bees, estimates the number of authors who had written on this subject previous to his time, at between five and six hundred, the larger part of which are lost, but traces of most of them have come down to us through works published in the seventeenth century. These works, one of which was written by De Montfort, seems to unite the ideas of the Ancients with those of his own time. And the most romantic and foolish reveries stand side by side with sensible views, and in many instances the two are so badly mixed, that to give in full the various views which have prevailed, at different times in the past history of bee-culture, would bring a result similar to what Milton says of the writings of the Fathers. A huge drag net, brought down the stream of time, filled mostly with sticks and straws, pebbles and shells, sea-weed and mud, with a pearl in the oyster here and there. We



pair of pollen masses. It has long been known that insects visiting these plants disengage these transparent yellowish bodies, and carry them away with them. See account in THE LANCASTER FARMER for September, page 131, of Mr. Wm. J. Pyle, and the unfortunate bees of his hive, having their legs ornamented with these pollen appendages, were ejected from the hive and treated without mercy or favor by the rest of the community. A specimen of the plant sent per Mr. Pyle proved to be the *Asclepias incarnata*, "Swamp Milkweed;" flowers flesh-colored and leaves smooth. We would naturally infer that it was a kind of parasitic fungus that infested the legs of the bees, but why so obnoxious to the other bees, is an open question.

The root of the "A. tuberosa" is the only part recognized medicinally, and is eminently entitled to the attention of physicians as an expectorant and diaphoretic. It produces effects of this kind with great gentleness, and without the heating tendency which accompanies many vegetable sudorifics. It has been long employed by practitioners in the Southern States in pulmonary complaints, particularly in catarrh, pneumonia and pleurisy, and has acquired much confidence for the relief of these maladies. It appears to be an expectorant peculiarly suited to the advanced stages

*Read before the American Bee Keepers Association, Oct. 5th, 1878, by A. J. King, Ed., of Bee Keeper's Magazine.

shall confine ourself to the merest outline of this history and endeavor to select as many of the pearls as we can in passing.

Of the antiquity of the bee, we cannot speak positively, but the geological evidences of flowering plants, demanding insects for their fertilization, together with the remains of insect-feeding reptiles, as well as herbivorous animals, places the bee, at least presumably, ages anterior to the creation of man. The positive proof of its early domestication are ample. The ancient Egyptian sculpture and tablets abound with hieroglyphics, wherein the bee is the symbol of royalty, their economy being represented with a monarch at its head. In most instances these representations are *true*, and betray a lack of close observation, as the bee is pictured with two wings and four legs; however, on one tablet of the twelfth dynasty, the bee is figured correctly, having four wings and six legs. Shuckard, in his "British Bees," gives us indications of a still higher antiquity from the Sanskrit, wherein *Ma* signifies honey: *Mudhu*, honey-drinker, and *mad-humkara*, honey maker. He also traces the same in the Chinese dialects. The earliest Semitic and Aryan records, the Book of Job, the Vedas, as well as the Poems of Homer, are conclusive proof of the early domestication of the honey bee, all of which are interesting to the student of apiculture. Of the origin of bees, the ancients indulged the most extravagant fancies, some contending that they originated from the putrid carcases of animals.

Probably from witnessing the transformation of insects as millers from moth worms, butterflies from caterpillars, etc., they give receipts to produce swarms of bees, the details of which are too disgusting to relate. Others, of finer and more poetical conceptions, imagined that bees were bred from the purest juices of the summer flowers. Virgil expresses something of this opinion in the following from the fourth book of his Georgics: "Chiefly you will marvel at this custom, peculiar to the bees, that they neither indulge in conjugal embrace nor softly dissolve their bodies in the joys of love, nor bring forth young with a mother's throes; but they themselves cull their progeny with their mouths, from leaves and fragrant herbs. They themselves raise up a new king, and little subjects, and build palaces of waxen realms." With all these false notions of bees, the ancients still possessed much valuable knowledge. To Aristotle and Virgil we are indebted for the first description of Italian bees, which, until recently, had been regarded as a myth. Virgil remarks as follows regarding the two varieties: "For the one looks hideously ugly, as when a parched traveler comes from a very dusty road and spits the dirt out of his dry mouth. The others shine and sparkle with brightness, glittering with gold. This is the better breed. From these, at stated seasons of the sky, you may press the luscious honey, yet not so luscious as pure, and fit to correct the hard relish of the grape." Again he says: "There are two sorts, the one glorious with resplendent spots of gold, and distinguished both by his make and conspicuous with glittering scales. The other is horribly deformed with sloth, and ingloriously drags a large belly."

Aristotle lived three hundred years prior to the Christian era. He wrote largely on every department of natural history. His pupil, Alexander the Great, placed at his disposal large sums of money, and employed, during his campaign in Asia, more than a thousand persons in collecting specimens for his use from all parts of the animal kingdom. From his pen and those of his pupils we are indebted for much information of value in bee culture. Columella, about the commencement of the Christian era, wrote a large work on "Husbandry," in which he gives directions for the artificial swarming of bees, supplying queens to destitute colonies, transferring hatching brood to weak stocks, and many other useful operations of which the great multitude of bee-keepers are ignorant to this day. Varro and Pliny also wrote in a manner which pre-

supposes quite a knowledge of the brood-nest, all of which leads to the belief that in those early classic days a very advanced knowledge of bee culture prevailed. What is known as the "dark ages" now came on, and for the space of nearly fourteen hundred years no progress was made in any department of natural history, but on the contrary much was lost.

At the close of this dark era of mental darkness the celebrated John Ray appeared. He collected and arranged all which survived of the previous productions on entomology. Ray was succeeded by Linnaeus, the inventor of the binomial system of classification which is still used by all investigators of natural science. At the close of the 17th century Swammerdam, Maraldi and Rammer wrote extensively on bees and hives, and Shirach, Reims and others still later.

These writers discovered many of the facts connected with the secret working of the hive, which contributed largely in raising the veil of ignorance which still enshrouded this industry and paved the way for the prince of apiculturists—the great Huber, who appeared about the close of the 18th century, and with whose history every apiculturist, worthy the name, is more or less acquainted. He it was, who combining in one of the unicomb observation frames of this day, removed their glass sides and gave to the world the first movable frame bee-hive in existence, and by the aid of which he made those beautiful experiments which placed the science of bee-keeping on the enduring basis of truth. Experiments which established one by one nearly all the wondrous facts connected with the natural history of the honey bee, by the adoption of which bee-keeping has gradually assumed national importance in all civilized countries. It is a fact that the blind Huber, through the eyes of his faithful servant, Francis Burnens, saw more and did more for rational bee-culture than any one man before or since his time. The correct theory once established, prominent naturalists adopted it. Authors and inventors sprang up on every hand, and movable frame hives of different patterns were soon in use in various parts of Europe. Munn, of England; Berlepsch, of Germany; and De Bovois, of France, being the most prominent, and all of whom have written extensively on the subject of bees and hives. It is estimated that from Shirach up to about 1847, one hundred and twenty-four books were written on bee-keeping. Apiaries sprang up of larger dimensions than ever before, some nobleman owning as high as eight thousand stocks. The discovery of the refining of sugar, made by the Venetians about the middle of the 16th century, was at this time in full blast in Germany, and served to distract attention from the production of honey, and sufficiently accounts for its decline about this time.

The engraving and description of the Munn movable frame hive may be found in the "Cottage Gardener's Chronicle," London, 1843, page 317, also in the author's pamphlet in 1844. The De Bovois' movable frame hive, which was almost identical with King's American bee-hive, is fully described in the author's large book on apiculture, published in France, in 1847. The Berlepsch hive invented in 1840, was greatly improved in 1845, making it almost identical with the Langstroth. He further improved it and published an illustrated description in the *Bienen Zeitung*, for May, 1852. But bee culture in Europe was by no means carried on principally by those using movable frames. On the contrary the great majority used either the straw hive, wooden gum or square box, with bars crossing the top, to which the combs were attached, and then either the storifying, or nadir and collateral system were resorted to for surplus honey.

At one time in France bee-keeping was deemed of so much importance that in some places laws were enacted rendering it imperative on every cottager to keep at least three hives of bees, or in lieu thereof to pay a certain fine into the treasury. In England large rewards

were given for the finest display of honey and beeswax of one's own raising, and obtained without sacrificing the lives of the bees. Prominent men wrote books on the subject, designed entirely for the benefit of the cottagers, and the same unselfish course is still pursued in Europe.

A brief mention of some of the most useful inventions and discoveries must close our notice of the progress of bee culture in Europe. Dzierzon discovered the parthenogenesis of the queen bee, and Siebold, Lenkart, Berlepsch and other eminent German naturalists demonstrated it. Dzierzon also discovered flour to be a substitute for pollen. Mehring made the first artificial honey comb foundation. Major Von Hruschka invented the honey extractor. The inventors of bellows smokers adapted to the apiary have been used in all parts of Europe for the past one hundred years or more. Some had straight and some bent nozzles, and some of the nozzles were hinged to the bellows and were turned at right angles for draft when not in use, and also to receive the materials for the smoke. These might have been appropriately called breech loaders.

Reaumer first describes artificial fertilization of queens in confinement. His experiment called the "Amours of the Queen Bee," made under a glass vessel with the drones is exceedingly funny, and sounds very modern, but is too lengthy for insertion in this notice.

Bees came with the Pilgrim Fathers to America, and were carried by the early pioneers to all parts, until now they are to be found in every portion of the Western Continent; but owing to the many toils and cares incident to the development of a new country, together with their lack of knowledge of the subject, little attention was paid to bees until within the past thirty or forty years.

The first record of a movable frame hive in America may be found in the *Cultivator* for June, 1840, by Solon Robinson, now of Jacksonville, Florida. The second invention may be found in the *Scientific American* for March 6th, 1847. The inventor, Mr. Shaw, of Hinckley, Ohio, I believe is still living. Movable frames were also used by Marcus Robinson, at Jamaica Plains, Massachusetts, in 1848, and varied in no respect from the Langstroth frame and hive. This on the affidavit of Solon Robinson. The same style of frame was used about the same time at Danvers, Massachusetts, as per the affidavit of Mr. Putnam, of Galesburg, Illinois. These affidavits are on record in the office of the Hon. A. F. Perry, corner of Main and Third streets, Cincinnati, Ohio.

Harbison, Townley, Flander, Metcalf and some others claim to have known of movable frame hives between 1845 and 1850. A few books were written on bees about this time, but possessed little merit either in theory or practice.

About 1852 the Rev. L. L. Langstroth patented the hive which still bears his name and which many prominent bee-keepers still use with but slight modifications. This gentleman took hold of the matter in earnest. He sold large portions of the territory covered by his patent to influential and wealthy men who, in connection with himself, introduced the hive far and wide and thus demonstrated that a patent is not necessarily an evil, as many seem to suppose, for it proved in his hands a powerful means of advancing the true science of bee-culture. This he soon followed up with his book, "The Hive and the Honey Bee," which is perhaps the most complete and scholarly production of its kind ever written in any age or country, and shows its author to have been perfectly familiar with the best literature on this subject in the Old World, and a perfect master of both the science and practice of bee-keeping. To Mr. Langstroth—although not the first—more than to any other man, are we indebted for the introduction of new races of bees to mix with our own and thus prevent the evil of in and in breeding.

The "Mysteries of Bee-keeping Explained"

appeared simultaneously with Mr. L's book. The author, the late lamented M. Quinby, showed in this work a familiarity with the economy of the bee truly astonishing to one writing at that time. It was eminently practical, and did much valuable work for the advancement of rational bee-culture. He also invented the best form of bellows smoker then in use and this has been further improved by the addition of the direct draft principle invented by Mr. T. F. Bingham, which leaves nothing more to be desired in this line.

Mr. Quinby wrote largely for the Agricultural press of the country. He freely gave all his ideas and inventions to the public for the promotion of the cause he loved, and labored faithfully to raise bee-keeping to the dignity of a distinct profession. The quiet, noble, self-sacrificing spirit manifested by this *truly* great man, will be talked of and cherished and felt so long as the keeping of bees shall engage the attention of men. The writings of Mrs. Tupper, the Harbisons, Metcalf, N. H. and H. A. King, Prof. Cook, and others, have done a vast work in bringing about the present advanced stage of bee-keeping in this country. While A. I. Root, T. G. Newman and your humble servant, realizing that "constant dropping wears out a stone," are constantly pelting away at the superstitions and prejudices of the people, and hope ere long, to end the battle in complete triumph. The most convincing arguments, however, are those which appeal to the *palate*, and the *pocket*, and these are being effectually used by Harbison, Hetherington, Doolittle, Betsinger, Clark, C. J. Quinby, and many others, in the shape of tons of honey as beautiful and pure as the nectar which Jupiter sips. And this is being distributed all over the world by Thurber, Quinby, E. & O. Ward, Thorn & Co., of this city, Muth, of Cincinnati, Vincent of N. O., and by the large dealers in other cities. We learn from statistics that there are now in the United States about 1,000 different bee hives covered by patent, and a still larger number unpatented. Nearly all the inventions of European origin have been greatly improved by our Yankee ingenuity, and men everywhere are waking up to the importance of this industry as never before. The aggregate yield of honey is largely on the increase; besides, the quality and quantity, and the methods used in America are far superior to any other country, and these facts, taken together, are creating a fear in the minds of some of our most thoughtful Apiarists that the prices received for honey may fall below the cost of production; so we will present a few facts which we think may tend to allay these apprehensions. Great Britain consumes annually about 9,000,000 lbs. of sugar for brewing purposes. Other foreign countries, as well as our own country, a proportionally large amount. It is a fact that Extracted honey contains a much larger percentage of the elements needed as a substitute for malt than sugar does, and is cheaper at 90 cents a gallon, than sugar is at the lowest prices it has yet reached. A desirable change by substitution is now going on and may be greatly hastened by well directed efforts on the part of honey dealers. 2d. Not more than 2-5ths of our people have yet learned to eat honey, not because it is not generally acceptable, but it has never been brought to their notice as a staple article which may be had at the same price as the best quality of syrup, and that it is far more healthful.

3d. A large percentage of the syrups in general use in our families are badly adulterated, and positively unfit for the human stomach, and particularly the stomachs of children. This fact is fast being recognized by the most intelligent of our population, and only needs a little judicious pressing through the papers to displace it, and in its room put extracted honey.

4th. Laws against the adulteration of honey, affixing such penalties of fine and imprisonment as shall afford complete protection to the producer, the honey dealer and the consumer. Steps should be at once taken to effect this

desirable result, before some other unprincipled honey dealer shall cause Great Britain to give us the second slap in the face through their leading papers, by branding us as a set of swindlers, and warning the English people against the use of American honey.

A petition setting forth this matter in its true light should be presented to Congress at its next session. All the members of this National Convention, including all dealers in honey, should be asked to sign this petition, and a refusal from any cause whatever should be regarded as favorable to honey adulteration, and producers should be warned against selling such persons their honey. Such a petition, praying for so laudable an object, and backed by so many honorable names, could hardly fail in obtaining the desired law, when extracted honey would at once advance to its true position in all our markets. Bee-keepers everywhere should be united in bringing about these needed reforms, and imitating the politicians, should "keep it before the people" till the end is attained. The journals devoted to bee-keeping should be bold and outspoken on this subject, regardless of all present emoluments for a contrary course, and for one, I here and now pledge the *Bee-Keeper's Magazine* to this policy without the least equivocation or mental reservation, and I expect to see friend Newman, of the *A. B. J.*, join hands, and then, by a rising vote, test the sense of this association, and thus make a significant stride in the true progress of bee-keeping in this country.

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The Lancaster County Agricultural Society held its regular monthly meeting in their rooms in the City Hall, on Monday afternoon, Nov. 4th, 1878.

The following members were present: Calvin Cooper, President; Joseph F. Witmer, Paradise; Henry M. Engle, Marietta; Jacob B. Garber, Columbia; Henry Kurtz, Mount Joy; M. D. Kendig, Manor; J. M. Johnston, city; Casper Hiller, Conestoga; Levi W. Groff, West Earl; Levi S. Reist, Manheim; Daniel Smeych, city; Frank R. Differderfer, city; Jacob G. Zerr, President of the Berks County Agricultural Society; Dr. S. S. Rathvon, city; Johnson Miller, Warwick; C. L. Hunsecker, Manheim; Ephraim S. Hoover, Manheim; Peter S. Reist, Lititz; Franklin Sutton, Manheim; John S. Buckwalter, East Lampeter; Simon A. Hershey, Salunga; Mr. Landis, Eden.

The meeting was called to order by the President, Calvin Cooper.

The reading of the minutes of last meeting was, on motion, dispensed with.

Report of Committees.

Casper Hiller said he was one of a committee to report on artificial fertilizers, and was desirous of knowing who the other members are, so that they can get together and prepare for business.

The members, as reported by the Secretary, are Johnson Miller, J. C. Liuville, Casper Hiller and W. H. Brosius.

Crop Reports.

Henry Kurtz reported wheat as looking well. Some seed was kept back until last week. Some wheat that looked yellow, now seems to be doing very well. Corn is nearly all away. It turns out tolerably well. There will be a middling crop. Tobacco is ready to strip.

Henry M. Engle does not think wheat shows very well. Some fields are pretty good, but many are not prepared to stand a hard winter. Corn is better than expected; is hard and nearly all husked. Late potatoes are very poor. Young grass is very fine. The rain fall for October was 3.46 inches.

M. D. Kendig, of Manor, reported wheat as thin. That planted on tobacco ground looks best. The ground seemed to be more moist. It has come out very much since the late rain. Corn is about three-fourths of a crop. Young grass is coming out well. Rain fall for October 3 3-10 inches.

J. G. Zerr, of Berks county, said he came here on a visit merely, but he would say what he saw on the way. He was surprised at what he saw. The wheat along the road he traveled looks very well, as fine in fact as in former years. In Berks county the wheat is very poor. Some sown six weeks ago seems to be just coming out. There is some still to be sown. If the weather continues favorable it may still come up.

Calvin Cooper, of Bird-in-Hand, said on rough ground there is but little wheat. It is set very thin. Where the ground was in tobacco, corn or potatoes

it looks better. It came up better and looks better.

Johnson Miller, of Warwick, said there was not much to report at this season of the year. Of the wheat sown this fall part is not yet above ground. There has not been such a season for farmers to get out their wheat for a long time; no rain of any account for nearly four months. It was a very hard matter to plow, and many acres were not put out at all that were intended to be sown. Early plowed ground looks well. The corn crop is a small one, but much better than was expected. It will average 40 bushels to the acre. Pasture is all gone. Farmers now feeding in the stable. The tobacco is still hanging. It is curing finely. Farmers are hauling manure and plowing for another crop of corn. It is a matter of seasons, which is the better, fall or spring. The price of grain is discouraging to farmers, and they must manage their affairs economically in consequence. At present prices we must raise larger crops with less labor, and to do this we must improve our land and attend to our business.

Levi W. Groff never noticed so much difference as this year between grounds planted last year with wheat and that planted in tobacco. Wheat sown on the latter is far ahead of that sown on the former. Corn is the poorest for years; not over half a crop.

Casper Hiller said corn is three-quarters of a crop; better than was expected. He reported planting a late crop of potatoes which gave a very small yield, but the tubers were uncommonly fine. It was remarkable for that fact only.

Reading of Essays.

The President, Calvin Cooper, gave a talk on what he regarded as bad farming. We must keep up our farms. Barnyard manure is the best reliance we have. We ought to husband all the excrement from our stock. For this reason we should keep cattle in small enclosures. He drew a diagram of a farm of fifty acres on the blackboard. He thought a farm of that size the most desirable, and a square shape the best. He in that way economized in the matter of fences. The land was divided into five fields, beside the orchard, garden, barnyard and yard for the house. The fencing would cost, with interest and repairs, in ten years \$990.70. Five years later the cost would be \$297 more. In fifteen years, \$1,469.80, including first cost. The entire cost in twenty years will be \$2,094.58. In thirty years, \$3,753.36. In forty years the total cost, including repairs, interest and all, will be \$7,110, on which the interest would be \$426.00. This was for interior fences only.

The sum is enough to support a reasonable man during his declining years. We must avoid this expense. The time seems to have arrived when something must be done to get rid of this evil. He was at a loss to know what plan to adopt except penning up the stock. He advocated the abandonment of interior fences.

H. M. Engle agreed with Mr. Cooper. Fences are an expensive luxury. The fact is beyond dispute and must be admitted. He hoped that as many are adopting the soiling system we will in time be relieved of the cost of maintaining this luxury. Then there is the advantage of soiling cattle. One acre of grass by the latter system will go as far as three by the ordinary manner of pasturing. Much additional manure would be made. Our farms would improve more rapidly. The space now wasted by fences would also be saved. It is high time that we do as they do in the west. As the case now stands we can not compete by the ordinary method of farming with them. We will see this more clearly every day and will have to face it.

Casper Hiller had no fault to find with the theory just advanced. It can be carried out, no doubt, but it must be done by better farmers than we are. When grass was fed all would go well, but when the clover crop was over what would we feed them? It requires a different kind of farming from that now pursued.

H. M. Engle said that it was like all other things; it looks a little difficult, but this is an idea only. Let us sow rye to begin soiling with. By this plan you will have yellow butter long before your neighbors. Then sow peas and oats; then you can begin with clover. When that is away, early sown corn will be ready, and if this latter is sown at proper intervals it will be in season until fall. Hungarian grass and millet may also be sown to keep up a succession of fodder. Your lands will grow richer and your crops heavier all this while. We must come to the soiling system after a while.

Levi W. Groff had much satisfaction in finding so much interest shown in this question, but he believed the old farmers would have to drop off before the plan is generally introduced.

C. L. Hunsecker thought our methods of farming are good, but still we can improve on them. He believes it possible to dispense with interior fences, although he hardly expected to see it done during the present generation.

The names of several men were given who have removed their interior fences and are soiling their cattle.

Mr. Zerr had no doubt the system of soiling will come into practice before many years. He believes in it; it gives us the use of much ground now taken

up by fences. The latter are nothing but a sinking fund that makes no return. Rye, grass, oats and corn can be sown in proper succession, so as to give you all the feed for your cattle you need. Roots, cabbage and the like can also be made to contribute to soiling cattle. The latter being kept quiet will give more milk and butter. You can also increase your manure pile by gathering leaves. He knew of a number of persons who are taking out their interior fences; he had done so partially himself. The increase in manure alone will pay for the trouble in soiling cattle.

Henry Kurtz did not agree with the high estimate of the cost of fences. He has put up fencing that has stood ten years and has not yet cost a penny in the way of repairs. The expense of soiling is more than is commonly believed. Cows don't like rye; they prefer grass. He has tried growing corn for feed, but it is not always successful; it was not this year. Some fences can be dispensed with but not all. When cattle happen to get loose and get into your grain fields, the damage is not a little. We must economize on our farms. Make more manure. Keep less cattle in summer and more in winter. We raise more corn and wheat to the acre than they do in the west, but their lands are so much cheaper that in the end it counts up. But still we can on the whole make more money than they.

Mr. Cooper remarked that the latter speaker criticised the cost of his fences, but his estimate was really forty cents per panel more than the speaker's.

Mr. Kurtz said there was fencing on his farm that was there thirty-four years ago, and is still good.

Dr. S. S. Rathvon read the following essay. (See page 164).

H. M. Engle commended the hints and suggestions of the essay, and expressed the hope that members would act on them as time and opportunity offered.

Henry Kurtz thought we were of some importance as a society. People are often asking about us and always read our proceedings in the papers. If we put our shoulders to the wheel we could do much more than we do. He favored the views of the essayist.

Mr. Zerr thought it would be encouraging to persons to become members if there was a collection of cereals and other products on exhibition.

On motion, the thanks of the society were extended to Dr. Rathvon for his essay.

H. M. Engle hoped the hints thrown out by Dr. R.'s paper would not be forgotten, but acted on. It will cost but little, and all can contribute. Farmers are not geologists, as a rule, but some can also make contributions of that kind.

Casper Hiller suggested that Dr. Rathvon begin the collection by placing on exhibition some of our most destructive insects, such as the curculio, Hessian fly and the like. Many persons do not know these destroyers when they see them.

Levi W. Groff was pleased with the idea thrown out. Such a collection exists at the office of the *Village Record*, and is now a curiosity.

New Business.

A bill for the erection of a table and shelves was presented and ordered paid.

Levi W. Groff read a short paper on county fairs. He was a member of an organization of this kind twenty years ago. It broke up in consequence of introducing horse racing. He opposed this kind of attractions. He took stock to all our county fairs, horses only excepted. He suggested the appointment of a committee to visit fairs in the neighboring counties and report to this society as to the best methods of holding such fairs.

Action on Mr. Groff's suggestion was deferred until next meeting.

Dr. Rathvon, in reply to a question, said grain of all kinds can be protected from insect ravages by subjecting them to a high degree of heat prior to putting them in air-tight jars or bottles.

A resolution was some time ago passed offering premiums on papers relating to the cultivation of wheat and small fruits. It was proposed a committee of three be appointed to examine such essays and make the awards; and also that a premium be awarded for essays on any of the cereals.

The chairman appointed the following as the Examining Committee: W. McComsey, F. R. Difenderfer and Peter S. Reist.

Report of the Fruit Committee.

By Daniel Smeych: A magnificent specimen of Beurre Clargeau pear, being about five inches long.

Levi S. Reist: Apples—Baldwin, York Imperial, Hubbardston Nonpareil, Roxbury Russet, Northern Spy, Winter Spice, Cambridge, Smith Cider, Griswold's Winter, R. I. Greening, Golden Pippin, Krauser, Pound, Sheepnose, King of Tompkins County, Smokehouse, Wine or Redstreak. A very superior lot of apples.

A monstrous Pippin, monstrous in name and size, by Peter Rohrer.

An apple, Egg Top by name, from a street stand; an apple of beauty and of good quality. The proper name of the above-named pippin apple is *Gloria Mundi*.

Business for Next Meeting.

The following questions were offered for general

discussion at the meeting: "Should the growing of tobacco be encouraged; if so, to what extent?" "Will it pay to keep thoroughbred males in raising stock on the farm?" Referred to Jos. F. Witmer.

There being no further business before the society, it adjourned, on motion, until the first Monday in December.

TOBACCO GROWERS' ASSOCIATION.

The regular monthly meeting of the Lancaster County Tobacco Growers' Association was held Monday afternoon, October 21, 1878, in the room of the Agricultural Society.

The following members were present: Sylvester Kennedy, Salisbury; Henry Shiffner, Bird-in-Hand; M. D. Kendig, Manor; J. M. Johnston, city; A. P. McIlvain, Paradise; Israel L. Landis, city; Webster L. Hershey, East Hempfield; Frank R. Difenderfer, city; Clare Carpenter, city; Prof. S. S. Rathvon, city.

The meeting was called to order by the President, M. D. Kendig.

On motion, the reading of the minutes of last meeting was dispensed with.

Shall we Disband?

Peter S. Reist made a motion that hereafter the meetings of this association be held quarterly.

I. L. Landis, in debating this motion, was doubtful whether the proposed plan would help matters much. The farmers seem indifferent. He would rather see the thing go down at once than drag along as it now does.

Sylvester Kennedy thought we might as well let the thing go down at once. The longer it runs on the worse it seems to get.

Mr. Reist did not think it was owing to lukewarmness that there was not a better attendance. He knows the reports are widely read, and that is the reason so few come here personally. There were plenty of growers here nine months ago when their last crop was placed on the market. He thought they would do so again in a short time.

J. L. Landis thought there were plenty of farmers who were ready to profit by what is done here, but are unwilling to pay anything towards sustaining the association. But as the thing is now dragging we have no encouragement whatever.

Mr. Reist's motion being put, was carried, and the meetings will hereafter be held quarterly.

How Can we Get the Best Prices for Our Tobacco?

Henry Shiffner thought there was not enough identity of interests between growers and buyers. The latter are often called thieves and robbers, whose only interest is to swindle the farmers. Where such a feeling exists a sale will seldom be effected. If farmers knew the value of the tobacco better, they would sell it sooner. They almost invariably put too high an estimate on their product, and when buyers refuse to give it they get angry.

Sylvester Kennedy's experience has taught him that buyers are not always inclined to do the fair thing. He gave instances where he believed he had been hardly dealt with. He thought there was a certain understanding among buyers last year not to pay over a certain price for tobacco. The remedy is in the hands of the growers. Let them pack and hold it. This plan is pursued largely in Chester county, and the farmers find their account in it. He recommended a concert of action among growers to secure a fair price for their crop.

Israel L. Landis has had a large acquaintance with tobacco buyers, and has never heard of a "ring" among them. If we have the right kind of tobacco, one that in color and quality is desirable, we are just as sure to get the full value for it as we are for our wheat or corn. Buyers will buy as cheaply as they can, just as all other kinds of dealers do.

Levi S. Reist remarked that wheat is now selling at 90, 95 and 100 cents per bushel, but to get the latter price the grain must be fine and plump and of the best quality. Tobacco is a commodity that is thrown on the market, just as wheat is, and growers must sell their goods at its proper value; if it is inferior, an inferior price must be expected. Some men get big prices every year, but it is in consequence of their superior knowledge in growing and handling the weed. Cheating is not always on the part of buyers, as he very well knew. The special mission of this association is to grow good tobacco, so that we can always get good prices for it, and if farmers attended these meetings more there would be less cause for complaint.

A. P. McIlvain did not believe in trying to combine either to buy or sell at other than the usual prices. There are many reasons why it is not practicable to advance money on tobacco to needy growers. It may decline in price, burn, or meet with other mishaps, entailing loss on the lender.

Place of Meeting.

J. M. Johnston, from the Committee to rent a room for the meetings of the association, reported that the society could meet in this room by paying half the expenses incurred by the Agricultural Society. He asked for instructions.

A. P. McIlvain made a motion to continue the committee until next meeting, which was adopted.

An Explanation.

Frank R. Difenderfer said that at the last meeting of this association, when the question of collecting accurate statistics of the tobacco crop of this county was up, he remarked that the Secretary of the State Board of Agriculture had in his last report estimated the crop of this county at 40,000,000 pounds. He should have said, and meant to say, the Secretary estimated the crop of the entire State at that. The latter had written to him about it and he understood had also written to our President. After all, it was not a matter of very great importance. We grow fully four-fifths of the entire State product, and the difference is one of a few millions of pounds at most. But while Secretary Edge has been so anxious to be set right on this question, he has entirely ignored his own error of 20,000,000 pounds or more. It would be of interest to know how he happened to fall into such a glaring mistake, and it would not have been out of place, while calling attention to Mr. D.'s mistake, to have alluded to his own, and corrected that. He would, therefore, repeat what he said then, that such reports, official though they pretend to be, are a good deal worse than none at all, and it is to be hoped Secretary Edge's estimates of our other crops are more deserving of credit than those relating to tobacco.

W. L. Hershey offered to prepare a paper on the culture of tobacco at the next meeting.

There being no further business before the association, a motion was made and carried to adjourn. The next meeting will be held on the third Monday in January, 1879, when, it is to be hoped, farmers will show a little more interest in this crop than they have been doing of late.

BEE-KEEPERS' ASSOCIATION.

The Bee-Keepers' Association met at the Black Horse Hotel, on Monday afternoon, Nov. 11th, 1878.

There were present: Peter S. Reist, President, Lititz; I. G. Martin, Earl; J. F. Hershey, Mt. Joy; John Huber, Pequea; D. H. Lintner, city; Elias Hershey, Paradise; U. K. Meisky, Manor; Jacob Christ, Millersville; John Musselman, Mill Creek; S. K. Royer, city.

The President read from the proceedings of the North American Bee-Keeper's Association in favor of local societies, and some extracts from the addresses of members relative to the origin and extent of bee culture.

The Bee Keepers' Profits.

A number of members gave their experience in honey production and the financial results of their operations. J. F. Hershey, who started last spring with 62 swarms, offered the following exhibit:

CR.	
By sale of 725 lbs. box honey at 20c.....	\$145 00
" 80 lbs. extracted honey at 15c.....	12 00
" 1 swarm.....	12 00
" 146 Italian Queens.....	233 00
" 17 nucleus swarms, queen in, on hand...	51 00
	<u>\$153 60</u>

DR.	
To stuff for honey box.....	\$10 00
To postage for queens and letters.....	3 00
To sugar fed to bees.....	40 00
	<u>\$53 00</u>

Profit of the season's work.....\$100 00

This is considered only an ordinary profit, owing to an unfavorable spring and a large amount of honey for winter use.

Elias Hershey's fifteen hives had increased to twenty-six and made 400 pounds of honey.

D. H. Lintner's eight hives had increased to sixteen, and made 125 pounds of honey.

U. K. Meisky's sixteen hives had increased to twenty-three, and made 300 pounds of honey.

Jacob Christ wintered five hives last winter; three of these gave one hundred pounds of honey, but two of them were good for nothing.

Peter S. Reist, in the spring, sold all but twenty-five hives, and had seventeen natural swarms, which increased to forty-two, from which he realized 600 pounds of box honey.

S. K. Boyer, from one Italian and one black swarm, got about thirty pounds of honey. The Italian swarm produced almost twice as much honey as did the black.

From nineteen colonies, in the spring, under charge of I. G. Martin, there were now 38, and a honey yield of 912 pounds was reported, 224 of extracted honey and 686 of comb honey.

In all the above cases the season was reported to have been unfavorable for honey, and the bees are now in good condition.

Wintering Bees.

I. G. Martin gave his method of wintering bees on the summer stand: Remove all the frames but six, and, if the colony is not very strong, take them all out but five, or even four, and then put in a tight-fitting division board, so that the bees are very much crowded, then they can keep warm much better. Make a large box that will give about three inches

space between it and the hive all around, and six inches higher than the hive. The hive is then set in the box, and a passage is kept open between the two by placing two strips of board, three inches long and one-half inch thick, on the bottom of the box—one on each side of the entrance. A piece of board, three inches wide, is then laid across the two strips, so that the bees can pass out and in when the weather will permit. The cover is then taken off the hive and two sticks, one-half inch thick, are laid across the frames and a piece of cloth is spread on the frames, covering the whole top of the hive. Then all the space around and over the hive is filled with dry wheat chaff; then a tight cover should be put on to keep it dry. Chaff is preferable, because the work can be done as soon as the honey season is past; it can be done at odd hours, when it will not interfere with other business; the packing prevents the escape of any scent of honey from the packed hives to attract bees from other colonies; the bees have an opportunity to fly at any time during the winter when the weather will permit; there is no carrying of heavy hives filled with honey to and from the bee-house; during the cold weather of May these packed hives will be much warmer than those outside. The bees will spread over more surface of comb, a larger amount of brood will be found there, and the colony will increase in size much faster and sooner than it could be made to do on the summer stand without protection; after the bees are prepared for winter they need no more care till the following April. A box can be made of good pine lumber, with a good bottom and tight board roof, at a cost of about sixteen cents, and if they are put in the dry through the summer they will last for years.

S. K. Boyer thought that if bees are properly cared for and then hung up in a shed, no cold could injure them. He bored ten holes in the top of each hive, and when he took off the surplus honey, placed a small cotton cushion over these holes, placing in turn an extra box over that. Every particle of sweat escapes and is absorbed by the cushion, and there is no danger of the bees freezing.

J. F. Hershey said he had never succeeded in wintering on a summer stand; he has a house into which he moves his bees in winter.

D. H. Lintner winters on the summer stand. This fall he opened the lower part of the hive, took out the frames and drummed the bees together, only leaving enough in the body of the hive to cover the comb, then he carefully covered them.

U. K. Meisky tried every plan of wintering bees, and lost in all of them, but thought the summer stand plan was the best.

Peter S. Reist found that wintering them on the summer stand was the best, even if nothing is done to them. He would recommend that the whole box, or at least the frames, be covered.

Do Bees Sting Fruit.

In the discussion of this much mooted question J. F. Hershey gave his demonstration of the negative. He had taken a bunch of grapes from the vine, dipped them in honey, and laid the bunch inside of an Italian hive. When he opened the hive he found that the honey had all been cleaned off the fruit, but not a grape was broken. He then cut a few of the grapes open, replaced the bunch and shut the hive. When he again examined the fruit he found that the grapes cut by him were eaten, but the others were untouched; not a grape had been broken by the bees. Mr. H. showed some grapes which had been in the midst of a swarm of bees for forty-one days. Some of them were glued together with wax, but not one was broken. He had seen bees run over whole bunches of sound grapes and never stop until they came to a broken skin.

Messrs. Boyer, Martin, Lintner, Meisky and Difenderfer had made similar experiments and observations, all with the same result. That settles it. Bees do not sting healthy fruit.

Freezing Bees.

Messrs. Boyer, Hershey and Lintner agreed in the view that bees do not freeze. They may starve, and this is mistaken for freezing, but they are blooded, often lie dormant as if frozen, but revive when warmed and do not freeze to death.

Foundation for Comb.

Mr. Hershey read a paper taking strong ground for the utility and profit of a comb foundation. It saves one-fifth labor. With a foundation 12 inches square 2,000 bees can go to work at once, but if they begin with an empty frame, only five or six can begin to work, and very gradually a few more and much time is lost.

I. G. Witmer agreed with this view, and other members expressed themselves altogether in favor of using a comb foundation.

The association adjourned to meet on the second Monday in February, 1879.

LINNEAN SOCIETY.

A stated meeting of the society was held on Saturday, October 26, Vice President Rev. J. H. Dubbs in the chair. Six members present.

Donations to the Museum.

A rare and remarkable fish caught in the Susquehanna river, below Safe Harbor, by Mr. Sheets, fisherman, was handed to Dr. S. S. Rathvon, by whom it was submitted to the chairman on Ichthyology, Mr. J. Stauffer. This odd compound of reptile, ganoid and trout, was new, but its relation to the western mudfish, the *Amia occidentalis*, was at once seen upon close inspection. This specimen is believed to be the *Amia calva*, from the waters of Carolina. DeKay says: "From various but imperfect reports, I have reason to believe that the *Amia calva* is also found in Pennsylvania." Mr. Stauffer says from all he can learn this fact was not before established, as is it now beyond a doubt. It is said there are ten species in North America. *Amia* is the only genus of the family *Amiidae*, expressly made to receive this singular class of fish. Dr. Kirkland states that a species is frequently taken in Lake Erie, where it is known as the "dog fish" and the "lake lawyer." It is distinguished by its ferocious looks and voracious habits. The flesh is rank, rough and not eatable. It is as a soft rayed fish, mouth much like a trout, but Dr. Vogt, in 1845, found its internal structure to agree with the primitive order of fishes, the Ganoids; only it has no bony scales, but the air bladder is cellular, like the lungs of reptiles, and has a pair of tubular nostrils (cirri-like) on the upper part of the mouth and a buckler (so called) between the branches of the lower jaw, like a pocket. Why called *Buckler* is uncertain; the word "Buccal," means appertaining to the mouth. This is certainly an interesting as well as an "odd fish." An enormous puff-ball, from Martha Kamp, of No. 419 High street, Lancaster city, weighing four pounds, and measuring thirty and one-half inches, and twenty-eight inches in circumference; a variety of the *Lycoperdon giganteum*. Bottle A. 1, a Red Bat, *Esperilio norboracensis*, by Linnaeus Rathvon; Bot. B. 2, sundry insects, Bot. c. 3, parasitic crustaceans. (*Isopodian*) the *Livoneca oralis*, of Hager, *Cymothoë oralis* of Say. This was found fastened by its sharp claws to the gills of a rock fish—per L. Rathvon. Bot. d. 4, of edible snails, and larva of Lepidopterous, apparently those of the Abraxes or currant moth, collected by Mrs. Gibbons, in France, with a variety of other insects. Bot. E, 5, "Camel Cricket," (*Mantis Carolina*), a wheel bug. *Reduvius novinarius*, wood borer, spiders, &c., from A. Heinrich, D. D. Rohrer, S. P. Eby and C. R. Bear, severally in the order named. Bot. 7, G. Larva, pupa, cocoon and image of the willow sawfly, *Selandria salicis*. Mrs. Gibbons also presented a chalk-cliff fluit, picked up from a public road in France, Macadamized with it; also, large pods and seeds of a poppy employed for extracting oil for various uses. From New Providence we received two specimens of rich ochaceous oxide of iron. The balance of minerals, fossils, etc., of Mrs. Dr. Korfoot. Bot. H. 8. Specimen of edible and pleasant flavored pepper. The yellow fruited *Capsicum*, per C. A. Heinrich. He also had for inspection the skeletonized fibrous portions of a *Oenocarpus* vegetable, used in Japan for a wash-rag. It may do for horses, but rather coarse for a delicate person to use. A brilliant red card with Chinese characters—translated, "His Imperial Chinese Majesty's Envoy Extraordinary and Minister Plenipotentiary—Chen Lan Pin," one of two given to Rear Admiral Wm. Reynolds. Also, a Chinese writing by one of the Prophets on both sides of a smooth bark, presented to Mrs. Heinrich. These are interesting to look at. To the

Historical Collections.

A massive key of the old Lancaster jail, about 130 years old, from Samuel Evans, esq., obtained from the Peart family, near Columbia. Mrs. Zell mentioned that there was a bunch, among which were even larger keys, that her father had bought among old iron, which she would look up, and has since found them. Squire Evans also donated a pair of monstrous iron clad wooden-soled brogans, left in exchange for lighter ones by a Russian peasant, with the Peart family fifty years ago.

J. Stauffer also donated a map of the borough of Lancaster, on parchment, giving the lots and numbers enclosed in different colors, to distinguish those of the Hamilton estate (Adamstown included) lots of Mr. Samuel Betzel, those of Henry and John Moser and Isaac Whitehorne. Compiled from the original surveys. This map is very old—ink very pale.

Donations to the Library.

Circular, "Bureau of Education," No. 1, 1878. THE LANCASTER FARMER, for October, 1878, and sundry book notices and circulars.

Papers Read.

J. Stauffer read a paper, No. 504, on the *Amia*, illustrated by a correct drawing of the fish. Dr. S. S. Rathvon read a descriptive list of articles deposited, No. 505. Mrs. Zell had a few plants to be named. Scientific gossip on the fish, scolopendron, etc., was indulged in. Under new business a bill for alcohol and fish for thirty cents ordered to be paid; Mr. Heinrich declined charging for the jar. A vote of thanks was had for the same. After a pleasant session the only regrets expressed was the meagre

attendance at these meetings, and the want of more active co-operation in the building up of this society to give it a wider field of usefulness. Thanks are due to those who deposit matters of scientific or historical interest; many things become lost through the negligence and indifference of persons having relias in their possession.

On motion, adjourned to Saturday, November 30.

FULTON FARMERS' CLUB.

The October meeting was held at the residence of Josiah Brown, Fulton towshipp, October 5th. Members all present. The visitors in attendance by invitation were Levi Kirk, Alfred Wood, Joel Carter, Issae Bradley, Samuel Brown, of Morgan county, Ohio, and Lewis Brown.

Montillion Brown exhibited two apples from trees that were bought for the Golden Russet. One of them was a red apple, splashed with brown, and covered with small white dots. The other, striped apple, resembling the Northern Spy. No one present was able to identify them. He also exhibited a Fallwater apple and double potatoes.

Wm. King exhibited an apple for name. Not named.

Franklin Tollinger, corn raised from seed from Kansas, and planted on the 24th of June. One of the ears was yellow; the rest of them red. All the ears solid color. The corn was well ripened; grains very soft and mellow.

Rebecca D. King exhibited an ear of corn that had been pulled green and dried on the cob.

Josiah Brown, very large sweet potatoes, one of which measured fourteen and a half inches in length.

Questions Asked and Answered.

Day Wood asked the opinion of the club whether wheat was likely to advance in price or not. Very few of those present looked for much advance, but most of them thought it best to hold it while under a dollar per bushel.

Montillion Brown: Is it the experience of members of this club that manures that produce large fodder will also make large ears?

Day Wood had noticed the corn on a piece of ground where manure from the hog pen had been applied. Some of the very large stalks had no ears on them, and on the remainder the ears were small in proportion to the size of the stalk.

C. S. Gatchell: Highly manured ground will produce large fodder, but the ears will not be in proportion. Bone makes large ears.

E. II. Haines: Stable manure that is in a great measure composed of straw will produce an excess of straw. Bone increases the yield of grain more than straw. The experience and observation of other members confirmed this opinion.

Isaac Bradley recommended mixing fertilizers, or rather spreading each kind over all the ground where the crop was to be put in, thus making it all alike; would top dress with lime; most other fertilizers would plow down.

Rachel B. Gatebell: Is there any advantage in souring milk at this season of the year.

Melissa Gregg, Mary A. Tollinger, Deborah Jackson, Rebecca D. King and Grace A. King were all of the opinion that there was very little if any advantage in it at any time, if the milk was set in a warm place.

E. H. Haines puts souring in his milk during cold weather. Dairymen do it because they have found by experience that the cream will separate from the milk better when soured. He had not yet found one that could give any reason why it should be so.

R. B. Gatchell: Freezing milk has the same effect.

Dinner was now announced, and the morning session came to a close.

Afternoon Session.

After doing justice to the many good things set before them, the club were taken over the farm by Lewis Brown, brother of the host, who was at the time in poor health.

When again convened in the house, the observations made on the manner of conducting the farm were such as might be expected to be made after looking at one of the best farms in the lower end of the county, stocked with fine short horns, and carefully cultivated. As one of the members observed, it was an extra farm and in extra order.

The host made the following report of his farm: 12 acres of wheat, 30 bushels per acre; corn last year, 70 bushels per acre; clover seed, 24½ bushels off nearly fourteen acres.

Literary Exercises.

Sadie Brown, daughter of the host, read "The Aspect of the Times and its Lesson," by Longfellow.

Anna E. Wood read, from the *Practical Farmer*, a humorous article entitled "The Proceedings of the Bungtown Farmers' Club," in which some good ideas were thrown out.

C. S. Gatchell read "The Thoughts we Think," from the same paper; Sadie Brown, "The Old Store House," an original essay written by one of the members, giving some interesting reminiscences of the times twenty-five years ago, when he first came into the neighborhood, and commenced the merce-

tile business. There are but three or four of the families who patronized his store at that time that remain unbroken.

She also read a communication from "The Old Man," a mysterious correspondent, who sometimes writes to the club under the above nom de plume, giving the foibles of society some very hard blows in his own peculiar way.

He had not intended to write to the club any more, but they would keep discussing questions which excited the Old Woman and made it decidedly warm for him.

She had heard they were about to discuss the question whether the signs were reliable, when she knew that if you planted pumpkins in the wrong sign they would turn out squashes, and that if you took a calf off a cow in the right sign she would not bawl. She had tried it once, but still the cow would bawl. But she found that her udder was sore, and that was enough to make any cow bawl. When animals were killed in certain signs the meat would shrink, etc.

For his part he knew of one sign that did not fail. When he saw the old woman with the border of her cap turned back, fire in her eye and a broomstick in her hand, it was a sign that she was coming.

Discussion.

The question—"Have the phases of the Moon any influence over the weather, or the signs of the Zodiac any influence over vegetable or animal life?" was next taken up, when it was found that the man in the almanac had no followers in the club; at least no one was willing to acknowledge his faith in "signs."

The question—"Would it pay farmers to clear out the underbrush in woodlands for the benefit of the timber?" was adopted for consideration at next meeting.

Adjourned to meet at the residence of Joseph R. Blackburn at the regular time next month.

AGRICULTURAL.

Fall Plowing.

Constant reiteration of the many advantages of fall plowing seems desirable to induce farmers in general to adopt it in their practice. The most important part of all cultivation is performed by nature, and if the farmer will but plow his fields in the fall she will work all winter, pulverizing, sweetening, and preparing the soil for future crops. With her mechanical and chemical forces she will do more in forming a proper seed bed for the spring planting than half a dozen plowings would effect in spring time. Will not every farmer do his humble part in assisting nature to develop the productiveness of field and garden?

Subjected as we are to the baneful effects of droughts every year, for periods of longer or shorter duration, and frequently following immediately upon a wet spring, it is desirable to get the crops in at the earliest possible moment in the spring, and to cover the ground with vegetation before the sun's rays become so powerful in aid of drought. Hence the necessity of fall plowing in advancing the condition and preparation of the soil, so that harrowing and planting may proceed at an early date. At no time is it more convenient for man and beast to break up sod-land than in the autumn; and, on the other hand, no season of the year is so fraught with pressing duties as spring time.

In plowing we should aim at quality rather than quantity, since the prime object is the amelioration of the soil for the succeeding crops—plowing as deep as the soil will allow without bringing up over an inch or so of the subsoil at a single operation; holding small furrows, and laying them up at considerable angle, so that the rain will not remain long at the surface. By such means we insure the soil all the benefits which the changes of weather can produce. The atmosphere will penetrate, because the moisture can easily escape. The soil must become pulverized and will be ready to work in the spring much sooner than land that is untouched; while the latter, also, lying flatter, and with no surface drainage, will quite likely be saturated more or less with water, and will turn up raw and stubborn at the very time that the autumn-plowed land is ready to receive a crop.

Inverting the surface of the ground smothers the surface weeds and exposes the earth under the root weeds to the action of the frost, by turning up the furrow-slice to the air. It is self-evident that the more closely the inverted surface can be placed and the more exposed the under part of the furrow slice can be exhibited to the influence of the frost, the better is the chance of smothering the surface weeds and of killing the roots of the root weeds. The highest advantages of plowing may be obtained by placing the narrow furrow-slice at an angle of 45° with the horizon, and yet earless, shiftless plowing in heavy lands frequently lays a loosened furrow right on its back over the surface of a rib of land perhaps left untouched by the plow. Worms, grubs and insects in the sod are quite likely to be destroyed by the exposure of the thin sod to the action of the

frost and cold. Numerous other advantages attendant upon fall plowing will suggest themselves to the farmer who is determined to thoroughly investigate its merits and its practice.—*American Cultivator*.

Depth to Sow Wheat.

The sooner the kernel sprouts and gets above the ground the better and stronger the plant and the thicker it will stand. To illustrate: in my younger days I made experiments with the depths of planting wheat; I planted the kernels of a whole head in this manner, in one of our garden beds (ground spaded twelve inches deep). 1st, kernel on the surface; 2d, one-fourth inch deep; 3d, one-half inch deep, and so on (a quarter of an inch deeper each time) until the kernels were planted. The results—the one on the surface lay nearly two weeks before it sprouted and made roots; the 2d, one-fourth inch deep, and up to three-fourths, came up the 4th and fifth days, while the next were later; the last one up was fourteen days in reaching the surface, and was three and one-half inches deep; none came up after that time; on examining I found that the three next kernels were sprouted, but rotted before they got the sprout to the surface; the kernels, planted from five to seven inches deep rotted without a sign of sprouting. We had the kernels planted six inches apart in two rows. At the end of six weeks the plants stood thus: The first had three straws, quite strong; the one-fourth, 21 straws; the half-inch, 17 straws, and so on; three and one-half inch, a very weak single straw; it never got strong; although it grew a small or short head, the few kernels it contained were plump and good; the one inch had eleven straws at six weeks, but only perfected seven good heads, while the one-fourth inch perfected twenty-one good heads. The one on the surface made three good heads, the same as the one planted two inches deep.

Export of Breadstuffs.

Europe at peace is a good customer for our breadstuffs. Since the Berlin settlement was made, the advance in American wheat for export has been very marked. Within two weeks the winter grades have gone up about ten cents a bushel, and the movement of grain to the Continent is now almost unprecedentedly great. The demand arises from the short crops in Europe, and is of that kind which may happen any year on the Continent, whether the nations are at war or not. The unfavorable weather, more than the withdrawal of any number of Russians from the field during the late conflict, is the cause of the scanty supply abroad. No long ago American speculators were reckoning on the contingency of a general European war as the only thing that would make a foreign market for our enormous wheat crops. They are now surprised to see the same desirable event coming about without such a convolution preceding it. The present foreign demand for American breadstuffs shows the futility of calculations in such matters. It is a lesson to speculators not to put too much dependence on what they hear, and never to pin their faith on the expectations of war, than which nothing is more uncertain. After all, it is Europe at peace that buys the most of our various products, and is best able to pay for them. For a steady and profitable customer, command us to a nation that is not always fighting.—*New York Journal of Commerce*.

Autumn Top-Dressing.

We notice in several agricultural journals strong recommendations to top-dress grass lands in the autumn. Now, while we have no doubt of the efficacy of this suggestion, in a general sense, and have often advocated it, we think there are some grass lands which would be better if this application were made early in the spring. In fields where the ground has a tendency to heave, throwing up the grass and exposing the roots to the direct action of the frost, autumn top-dressing which will protect the ground is much to be preferred, and the application can be made either with the aftermath, straw or manure, as the soil may seem to require. If the ground is not liable to heave, a coat of manure as early in the spring as it can be applied will insure a large crop of grass. There need be no fear of the manure interfering with the mowing of the crop or the making of the hay, inasmuch as we have found that it is soon beaten down by the rains, and is quite out of reach of the operations of harvesting by the time that period arrives.—*Germantown Telegraph*.

The Business of Farming.

There is no business panning out better these hard times than farming. There is one good thing about farming, a man can always raise enough to eat, if he is of any account. He can raise his potatoes, cabbages, onions, turnips, beets, etc. He can grow the strawberries, gooseberries, raspberries, grapes and apples, and other fruits to satisfy the wants of his family. He can have poultry and eggs the year round. He can produce his own pork, and make bacon and lard to last a year. He can have veal and mutton and beef.—*Rural World*.

HORTICULTURAL.

Covering the Vines and Plants.

The adylic cannot be too often given to all who cultivate vines and plants, as to their protection through the winter and early spring. We have found, after a good many years of experience, that there is no mode of guarding all vines and plants not entirely hardy against our occasionally severe winters, as laying them down and covering them with soil. Of course we mean those which can be so treated. The covering should not be more than two to four inches, according to the nature of the thing laid down. If too much earth is used, the buds, from the heat of the ground in March, may burst too early, and may be damaged by a late frost when taken up, which should rarely be done before the first frost of April. All young grapevines should be laid down, though it will prove of great benefit, in our judgment, to all grapevines young and old, hardy and otherwise, to prune them and lay them down and cover them with a few inches of soil. All raspberry canes also should be pruned and laid down; so should roses that are liable to damage from the frost. Strawing-up roses and other deciduous flowers and shrubbery, as it is usually done—that is binding them as tightly almost as a pole—is far more injurious to them than no protection at all. When strawing-up is resorted to, it should be applied *only on the side exposed to the sun*.

All flower borders should have a good covering of stable manure—horse manure being very good for this purpose. In the spring the long stuff should be raked off, and the rest forked in. It will not only protect the roots against all injury during the winter, but the plants will appear in the spring greatly invigorated, and the flowers will be much more abundant and prove of much higher colors and greater beauty. Even leaves, straw, debris of any kind; or, if there be nothing else, a slight covering of soil, will be of good service.

We trust that no one who values the things about the premises here referred to, will neglect this brief advice—and November is the time to attend to it.—*Germantown Telegraph*.

Our Great Apple Crop.

This year's apple crop is now gathered and it is one of the richest the country has ever had. In some regions apples are so plenty that they are fed to pigs, cows and horses, and the cider mills are everywhere pressing out more cider than they can readily dispose of.

This very palatable and healthful drink may be bought in the country at one dollar and one dollar and a half a barrel, and it ought to be on draught in the cities at a price which would tempt the poorest customers. There is no need of anybody's drinking sham cider this year. The real juice of the apple is plenty enough for any demand there is likely to be for it.

A splendid apple crop can fortunately now be disposed of to much better advantage than formerly. An extensive European demand for our apples has grown up within recent years, and this autumn we are exporting more of them than ever before, though the prices are very low, running 75 cents to \$1.62 a barrel, according to quality, so great is the supply.

Vast quantities of apples are regularly shipped to Europe by steamer. The manifest of one vessel from this port last week showed that she carried 4,671 barrels, and all the outgoing European steamers are weighted with them. A Boston steamer took 5,000 barrels last Wednesday, the largest shipment of apples ever made from that port. Three steamship lines from Boston have engaged to carry more than 40,000 barrels, and the export from New York will reach an enormous and unprecedented total.

If the fruit is carefully picked and selected and well packed, it reaches Europe in good condition and brings a fair profit to the sender. Apples ought to be plenty and cheap in England this autumn.—*N. Y. Sun*.

Largest Orchard in the World.

The largest orchard in the world is doubtless that owned and worked very successfully by Mr. Robert McKinstry, of Hudson, Columbia county, N. Y. Mr. McKinstry's orchard is procuring for him a world-wide reputation, and he has many visitors. Like all fruit-growers and others of kin to that profession, he is kindly and liberally disposed, and has no secrets to reserve from others who are interested in his labors. The orchard is situated on the east bank of the Hudson river, on high rolling table land, and occupies 300 acres, and contains more than 24,000 apple trees, 1,700 pears, 4,000 cherries, 500 peaches, 200 plums, 200 crabs, 1,600 vines, 6,000 currants and 200 chestnuts. The varieties grown are: Rhode Island Greening, 6,000; Baldwins, 6,000; King of Tompkins Co., 4,000; Astrachans, 800; Northern Spy, 500; Wagener, 500; Gravenstein, 400; Cranberry Pippins, 200; Ben. Davis, 200; Dutchess of Oldenburg, 200; with Jonathans, Hubbarstone, Cayugas, Vanderbeeks, Bellflowers, Pearmain, Peck's Pleasants, twenty-ounce Pippins, Russets and others in less number.

Curious Fact About Potato Seed.

We have been informed that several farmers in the vicinity of Gwynedd station have this year lost their entire potato crop because of the use of imperfect seed for planting. Quite a large quantity of seed potatoes were procured in the city and distributed through the neighborhood, and were duly planted in the usual manner. To the surprise of those concerned the potatoes never came up, and it was not discovered what was the matter until it was too late to replace them. Then it was found that the dealer or shipper of the potatoes, which probably came from the East or from Jersey, had sprinkled salt over them to prevent their sprouting while in his hands. This may be no injury to potatoes intended for the table, but in this case at least the germinating power seems to have been only too well destroyed. The lesson of it is that those farmers who buy potatoes for seed along the city wharves should be careful to see that they have not been salted. Salt is a good thing in the right place, but that place is not a potato bin.—*Doylestown Intelligencer.*

Saving Cabbages Till Spring.

We know of no better way to preserve cabbages through the winter than that which we have recommended for a number of years. It is to plant or set them up in rows as they grow—that is with the roots down—fill in with soil pretty freely, then make a covering by planting two posts where there is a fence to rest on, or four where there is not, allowing for a pitch to carry off the water; lay bean-poles opposite the way of the pitch and cover with cornfodder or straw or boards. In using through the winter avoid as much as possible the sun side and close up again. We have kept our cabbages for about twenty years this way in a perfect state through the winter and into the spring, and could even up to the first of May if desirable. We see other methods recommended, and they may answer just as well, but as to our own we speak from a long experience.—*Germantown Tel.*

Preserving Grapes.

In keeping grapes the first requisite is to have well-grown and well-ripened specimens. If too green they will shrink, or in a moist apartment they will rot. If over ripe they will decay sooner. Next they should be placed in a cool apartment, nearly or quite down to freezing. The rich juice of well-ripened grapes will keep them from harm if several degrees below the freezing point. They should next be packed in some dry, soft substance. Dry cotton batting will answer, but baked sawdust from some soft wood that will not impart a bad taste to them, will answer better. Maple leaves, placed in alternating layers with the bunches, have done well. It is very important that the grapes be put up when not covered with any moisture, but well dried, and with all defective berries removed.—*American Cultivator.*

Quinces.

The quince tree does not require more room than the average dwarf pear. The orange variety is the best. It can be grown anywhere where the soil is rich and not too wet. Along a wall or fence is a good location. The trees should stand about eight feet apart and be set rather deep. See that there are no worms in the stem at the ground, a little below and above the surface, at planting. These pests will attack every tree, and should be ferreted out in spring and fall; but they will probably get the upper hand and finish the tree in from six to nine years. This must be expected and provided against by having another batch of trees coming on and ready to take the place of those now bearing. This is better than attempting to keep alive old, sickly trees, whose usefulness is over.—*Germantown Telegraph.*

Feeding Apples.

Apples are very healthful and agreeable food for stock of all kinds, and rather than sell them for a few cents a bushel we would feed them. They may be kept by pitting them, as is done with potatoes, and covering with straw and earth. If put in small pits, one may be opened and used at a time. We should rather feed them separately than boil them with roots or corn, as then they will help the appetite for other food. A peck a day would be a moderate quantity to feed one cow or pig. When feeding pumpkins and potatoes boiled, we would give some corn whole and dry. Some dry feed makes more solid pork than when all the food is cooked.—*American Agriculturist.*

The Peach Borer.

Four years ago I heard that winter onions or shallots set around the trees would prevent borers from working on peach trees. I tried the experiment on fifty trees just set, and on examining them to-day I find many trees not thus protected are full of worms, but I have never found a worm on one with onions growing around it. I set eight to twelve around each tree.—*Prairie Farmer.*

DOMESTIC ECONOMY.**Storing Turnips.**

The turnip, of perhaps all roots, is the most impatient of heat. It starts to grow on the slightest provocation. In a cellar of not over 40 degrees, one may find it growing freely, after an incarceration of but a few weeks. It is growth which is the great enemy of preservation, and it is heat which excites growth. There is a natural heat in roots when put in a heap—a little heat from one root and a little more from another soon makes a pretty high degree; but in the open field this is carried off. It accumulates. The roots sprout, and thus give off more heat, and it all soon becomes a regular turnip stew. The turnip indeed does not mind a little frost. If they were put in small lots in stalls, where the frost could get at them, and covered with straw to prevent rapid thawing, they would keep better than if covered with earth, which rather serves, as we have seen, to collect the heat and *boil the roots*.

As to how best to keep turnips, that will, of course, depend on each person's conveniences. But if each one keeps in view the fact that heat is more likely to injure them than cold—and a very low degree of heat at that—he will readily find out when he looks about what is the best way for him to preserve them.—*Germantown Telegraph.*

The Best is Always Demanded.

Not only do rich consumers demand the best article, but all who have the means to buy and the sense to discriminate, demand the same thing. They will turn up their noses at the inferior article, and take the superior one every time.

Honey, as well as flour, beef, cheese, apples or grain will bring the highest price and readiest sale, when it is of the first quality, and put up in attractive style. Poor honey, as well as poor butter, is a drug in the market. And yet many cling to their old notions and put up their honey in clumsy and unattractive packages, and then grumble because they cannot sell it at the highest price paid for a first-class and attractive article, forgetting that it is the gilt-edged article that brings remunerative prices and a brisk demand.

The market now demands light honey in single-comb boxes, and in another year no other will find sale without the aid of a steam engine or some such power to push it off. The enterprising, the wide-awake bee-keeper will use prize boxes—leaving the 6, 12 and 24 pound boxes for old fossils to use, and to whine over them because they don't sell them at any price. It makes no difference where it comes from—the best and most attractive goods are always in demand.—*American Bee Journal.*

Hams.

For preserving hams or beef take six gallons of water, nine pounds of salt, three pounds of sugar, one gallon molasses, three ounces saltpeter and one ounce of saleratus. Mix these ingredients and heat to a boiling point, skinning off all the impurities. When cold pour it on the meat. Do not rate the amount of materials according to the amount of meat, but mix in the proportions given, and use enough of the mixture to cover the meat. This method cures the hams and leaves them tender and juicy. They never get hard. Leave the hams in the pickle from four to six weeks, according to their size. It takes longer to cure large hams than it does small ones. Always move the hams after they have been in the pickle three days. Take them out and pack them over. This is necessary, for when they are closely packed together some parts of the hams do not have a chance to be penetrated by the pickle. Keep beef in the same way, except boil over the pickle before warm weather in the spring.—*Farmers' Home Journal.*

Frying Raw Potatoes.

We thought we knew how to fry raw potatoes, but found we were mistaken when a lady friend, who came to stop with us for a few days, convinced us she had a better way. And such a little difference there was in the cooking of them, too—to make them so much nicer. The secret was in keeping them covered as they cooked.

The potatoes were washed, pared and sliced thin, put to fry in a spider previously heated and buttered, the same as I was in the habit of doing; salted to taste, too, and to think that just keeping them covered should make so much difference and improvement—in the way of cooking them. They would come to the table so crispy and erusted, with scarcely a slice broken, owing to the care of handling, when being turned over. Oh! they are nice, and taste just as mother's did at home.

SCOTCH SHORTBREAD.—Rub together into a stiff, short paste two pounds flour, one pound butter and six ounces loaf sugar; make it into square cakes, about a half inch thick, pinch them all along the edge at the top; over the whole surface of the cakes sprinkle some white comfits; put the cakes on tins so as to touch each other on their edges, and bake in a slow oven.

Household Receipts.

APPLE FLOAT.—One pint of good, stewed apples, which are free from lumps, whites of three eggs, well beaten, four tablespoonfuls of powdered sugar. Beat the apple, eggs and sugar together until stiff enough to stand alone. Make a soft, boiled custard; flavor with vanilla; pour into a deep dish, and pile the float on top.

COLD-WATER CAKE.—Three and a half cups of flour, two of raisins, chopped fine; two of sugar, a cup of butter, a cup of cold water, the yolks of six eggs, well beaten; half a teaspoonful each of cloves, cinnamon and soda, and a little nutmeg.

CARD GINGERBREAD.—One-half cup buttermilk, one cup melted butter, two cups molasses, two eggs, one tablespoonful of ginger and one teaspoonful of soda; mix as soft as can roll, and roll an inch thick; this will make four cards.

TO RENOVATE GILT FRAMES.—Take sufficient flour of sulphur to give a golden tinge to about a pint and a half of water, and in this boil four or five bruised onions; strain off the liquid, and with it, when cold, wash with a soft brush any gilding which requires restoring.

CHEESE OMELET.—Butter the sides of a deep dish, cover the bottom with thin slices of cheese, place upon this very thin slices of bread, well buttered, a little red pepper and mustard, another layer of cheese, and, just before putting in the oven, beat the yolk of an egg in a cup of cream and pour into the dish. Bake for half an hour, or until it is nicely browned.

GAME BIRDS.—Fine game birds are always heavy for their size; the flesh of the breast is firm and plump, and the skin clear; and if a few feathers be plucked from the inside of the leg and around the vent, the flesh of freshly-killed birds will be fat and fresh-colored; if it is dark and discolored, the game has been hung a long time. The wings of good ducks, geese, pheasants and woodcock are tender to the touch; the tips of the long wing-feathers of partridges are pointed in young birds and round in old ones. Quail, snipe, and small birds should have full, tender breasts.

CORN OYSTERS.—Fifteen ears sugar corn, grated. Salt and pepper to taste. One cup of grated bread, four eggs, yolks beaten light, whites to a stiff froth just before baking. Grease the griddle well with butter. Bake like griddle cakes the size of oysters. Scrape the juice out of the cob; do not grate too closely. Late in the season add a little cream.

A NICE WAY TO COOK YOUNG CHICKENS.—Take young chickens, dress them as usual, take them apart at each joint, wash them and place them in a dripping pan, and just cover them with sweet thin cream, season with salt, pepper and a little butter, put them in the oven to cook. When the cream is almost cooked away the chickens are done. They are splendid cooked in this way.

BEEF OMLET.—Three pounds of beef chopped fine; three eggs beaten together; six crackers rolled fine; one tablespoonful of salt, one teaspoonful of pepper, one tablespoonful of melted butter; sage to the taste; mix well and make like a loaf of bread; put little water and bits of butter into the pan; invert another pan over it; baste the omlet occasionally; bake an hour and a quarter, and when cold slice very thin.

SCALLOPED MUTTON.—Cut cold boiled or roast mutton into bits, removing all skin and gristle. If you have no gravy, make it by stewing the scraps and bones in a little water, then season with pepper, salt and tomato catsup, and strain it over the meat. Boil some potatoes, and mash them while hot until they are free from lumps, then beat with a fork until white and light; add a lump of butter, some milk, and lastly a beaten egg. Mix well, then place the meat and gravy in a pudding-dish; spread the mashed potato—which should be quite soft—smoothly on top, brush it evenly with a beaten egg and bake it in a quick oven until it is a beautiful golden brown. This makes an excellent breakfast dish and can be prepared—ready for baking—the night before. Special care should be taken to have plenty of gravy, as it is absorbed in cooking, and the dish will not be so palatable if too dry.

TAPIOCA JELLY.—Soak a cup of tapioca over night in a pint of water. In the morning set it on the back part of the stove and add a cupful of warm water; let it simmer slowly, stirring it often to prevent burning. Cook until it looks clear, and if too thick add a little boiling water. Flavor with sugar and lemon juice, and turn into wet moulds to cool. Serve with sweet cream flavored with vanilla and sugar to taste, and a little grated nutmeg.

RICE BLANC MANGE.—Mix four tablespoonfuls of rice flour in a little cold milk, add a pinch of salt. Stir this into a quart of boiling milk, and boil and stir for ten minutes. When partly cool add the whites of two or three eggs beaten to a froth and cook again until almost boiling, then turn into a wet mould. Serve with cream sweetened and flavored. Farina, or arrow-root, may be cooked in the same manner, omitting the eggs and the second boiling.

LIVE STOCK.**Horses With and Without Shoes.**

The European papers are discussing the question of shoes or no shoes for horses, with the argument apparently in favor of those who advocate bare feet. The fact is cited that wild horses, necessarily unshod, always have fine feet, as also do the horses of most savage and barbarous peoples, even in the rocky and mountainous countries. Against the assertion that the hard, macadamized and paved roads of cities and towns demand a metallic shoe, is opposed the fact that in Porto Rico, at least up to 1840, no shoes whatever were used, yet the streets are paved and macadamized. The races of St. John even, where horses go a mile in less than four minutes, are run on the stone paved streets of the town of San Juan; and a writer in the *Live Stock Journal*, (Eng.) who spent many years in that island, says that he almost never saw a sore-footed horse there. But the celebrated veterinarian, Mr. Fleming, comes out strongly in the *Veterinary Journal* against bare feet, claiming that their moist climate and hard roads demand a metallic protection to the hoof, as proved by experience. At any rate the new-old idea is attracting attention, and some horse owners have adopted it in practice. After removing the shoes the horse is driven only a short distance daily on a hard road, increasing gradually to from four to six miles in the course of a week. Water is not avoided, but grease is, as then nature is imitated the closest. Until the nail has disappeared, i.e., grown out, the hoof will look rough and crack off more easily than afterwards. The results of the trials reported seem favorable to the shoeless practice. At first the hoof chips off badly, but soon becomes hard, and the horse seems to like it as much as the uehln likes his barefootedness. But the experience of generations of shod horses, and the facts and arguments in favor of no shoes suggests a middle ground, viz.: For paved or stony streets and roads a metallic shoe, and no shoes for even hard roads, for country roads free from stones, and for field work, especially on prairie and other farms where there are no stones, or very few. We are not familiar with any instance in America where the use of horses without shoes has been thoroughly tried, but considering the great saving and possible benefits that might ensue, we suggest that the question is worthy of careful consideration, as it is certain that at no time is the horse's foot in so healthy a condition as when unshod. A near approach to nature, which allows of the foot resting squarely on the ground, yet at the same time protects the hoof from injury, is the Charlier system of shoeing, which now finds considerable favor in Europe. The method is fully described in the excellent work on "Horse-shoeing," by Mr. Fleming, who says: "Leave the hoof in a natural condition, so far as frog, sole and wall are concerned, and imbed a narrow rim of iron, no thicker than the wall, around the lower circumference of the foot—that exposed to wear like the heel of a man's boot, and we obtain an idea of the method."

The crust or wall is beveled off with the rasp, and by means of a knife, with a movable guide, a groove is made to receive the shoe. The groove is a little shallower than the thickness of the sole, and somewhat narrower than the thickness of the wall, "not extending beyond the white line separating the sole from the wall." The shoe is a narrow but deep band of iron, narrower at top than at the bottom, and so forged that its front surface follows the slope of the hoof. Its upper inner edge is rounded by the file, and a little of the horn is removed from the angle of the groove in the hoof, which prevents undue pressure of the shoe against the soft horn at that place. In strong hoofs the shoe is almost buried in the groove; but with flat soles and low heels it is not safe to imbed it so deeply. Four to six light nails are used; with light driving horses four are sufficient, placed wide apart at the toe, and close to the heel. It cannot be used on all feet, and to make the groove and shoe fit well requires some care; but when once understood by the farrier the shoeing is said to be very simple. The advantages are: Leaving the foot in its natural condition as to frog and sole, "the small number and size of nails required, lightness of the shoe, and security to the horse in progression," as it places the foot fairly upon the ground. It is used on horses at all kinds of work, and it is said that the combination of horn and metal stand an astonishing amount of wear for so light a rim of iron. These shoes are usually applied to only the forefeet, as the hind feet are thought to be not so well adapted to them.—*American Agriculturist*.

Judging Draft Horses.

We deem this a good time to enter a protest against the prevailing custom of judging draft horses in the show ring, namely, with a reference to weight, as one would judge a drove of fat oxen prepared for the butcher's block. In the latter case, the quantity and quality of the meat are the primary considerations; but we fail to see why such a test should be applied to the former. We don't eat horse flesh in this country, consequently mere weight of carcass is of no

value except as it gives greater ability to draw a heavy load; and if this weight be made up simply of an accumulation of adipose tissue (fat) it is a positive inconvincing rather than a help, and should be judged accordingly.

There can be no question that size is an important feature in a draft horse; but to be of value the desired weight must be made up of other tissues than fat. Bone and muscle must form an important part in making up this weight; and even here we can not depend upon the tape-line or the scales to make an award. The quality of each is a vital consideration. If the indications are that the bony tissue is of a soft, spongy, porous nature; if the joints are gummy and defective, or the muscles flabby and ill placed; the hoofs flat and brittle or too much contracted; or if the disposition be sluggish and dull, like that of an ox, no amount of mere weight should be permitted to atone for such serious defects.

A good draft horse must possess strong vital organs, which fact is usually indicated by the form and relative size of the trunk. His joints and legs must be strong and perfect, free from curbs and spavins, the skin lying close and firm to hard and elastic cords, with an absence of "beef" upon those parts; the feet should be large, neither flat nor mule-shaped, the horn hard and elastic but not brittle. The bottom of the foot should be examined to see that it possesses the desired concave appearance, and that the frog does its work perfectly because it is in the feet that our heavy draft horses are most notoriously defective. As we have said in a former number of the journal, the principal requisite of a good draft horse is, good size, made up without a superabundance of fat; but to this must be added docility, soundness and endurance. Given all the valuable qualities above described in perfection, and then the more of action and style he possesses the better. He may be nearly perfect in all respects, and yet too small to be classed as a first-class draft horse. On the other hand he may weigh a ton, but if the weight be made up mainly of fat, or if he be ill-tempered, unsound, or lacking in endurance, his value is materially lessened. He may possess all the points enumerated and yet be so deficient in energy, and so heavy and sluggish in his movements, as to come far short of a perfect draft horse.

When called upon to act as a judge in this class, the intelligent horseman will give due prominence to all these points, and will not be deceived by mere measurement or weight; the true test being the comparative adaptation of the animal to perform the work which pertains to the class in which it is shown.—*Live Stock Journal*.

A Study of Sheep.

Mr. J. F. Andrews, of New Jersey, wants to know whether it would pay best to feed hay to sheep or sell it for \$15 a ton after hauling it five miles; also how many Southdowns a ton would winter. A ton of suitable hay, clover, or fine meadow, will keep four Southdowns through a winter of five and a half months. These four sheep ought to have four lambs, with the chances of six or more, and they ought to shear 24 pounds of wool at the least calculation. The wool this year is worth in the best market 30 cents. This will make \$7.20 for the wool. The lambs in New Jersey ought to bring \$5 each, but to put them at \$3.50 the price obtained 176 miles from New York for a large flock inclusive, and we have, at the lowest estimate in number, \$14 for the lambs. This gives a total of \$24.20 income for sheep. The manure from a ton of hay fed on the farm to sheep is worth \$5, and if the sheep are bedded with plenty of leaves or straw, the manure they will make can be increased to a larger value, but the ton of hay will make alone \$5 worth of manure. Sheep manure is exceedingly rich, and there ought to be plenty of dry bedding under sheep to catch and absorb the urine, which is the strongest in chemical properties of that of any farm animals. At these figures, keeping sheep is better than hauling hay five miles for \$15 a ton; \$23.20 is more than \$15, and enough more to pay for all the trouble. More sheep will lessen the ratio of trouble, and not diminish the proportion of income on the basis we made.—*New York Tribune*.

Dishorning Cattle.

In reference to articles on this subject, in the columns of the London *Ag. Gazette*, a writer says that the quietness in demeanor of dishorned cattle arises from fear of injury to the weakened defenses of the head. The gonge or the saw are the usual implements employed in this process—the former for youngsters, and the latter for adult cattle. The root of the horn is a most sensitive part, and any violent interference with it is a cause of intense pain, as is evident on witnessing the accidental wrenching off of a horn. If the operation of dishorning is carelessly or unskillfully performed, the blood oozes and drips for several days, and not unfrequently the wound becomes fly-blown, and, unless attended to, the animal is lost.

The man who saws off or gouges out animal's horn deserves a somewhat similar experimental application to his own scalp.

POULTRY.**Making Poultry Pay.**

A writer in the *Rural New Yorker* gives the subjoined suggestions on the subject of making poultry pay, especially as bearing upon their winter treatment:

For hens to lay in winter, it is necessary that they should be supplied with all the requirements of food, egg-shell matter, cleanliness and care, to keep them in a high state of health and condition. Good feeding is all that is required by nature for egg-producing. This substance is better supplied by giving them sound, sweet food liberally, than by an artificial condiment or preparation sold for the purpose. The high price of such preparations, however good they may be, puts them beyond reach of the farmer to get a profitable return for the outlay. A trifle invested in a few simple things, such as pepper, pulverized charcoal, sulphur, and cayenne, answers all the purposes of keeping the birds in health. Even these should be used sparingly once or twice a week. When a fowl is found to be ailing it must be separated from the others and treated with proper medicines, for in most cases the spread of disease is easily prevented, if taken in time. After removing the diseased ones, a little sulphur and cayenne mixed in their soft food, a teaspoonful of sulphur and half as much of cayenne to four quarts of food given for two or three days, will generally arrest an ordinary trouble. The sulphur should be stopped, but the cayenne may be continued to be given as the birds recover.

Indeed, it may be given to advantage once or twice a week all through the winter. Iron is a great tonic for allling fowls, when first noticed to be out of condition. It is generally used in a simple preparation known as "Douglas' Mixture."

The food should consist more of other grains than of corn. Although all kinds of poultry seem to prefer corn to other grain yet corn has been proved by a great many poultry men to be inferior as an egg producer to wheat, barley, etc., and occasionally to buckwheat and oats. Corn may be given sparingly with advantage, but corn alone makes hens too fat and lazy. So fed they lack animation and vigor, especially the Asiatic breeds, which are more prone than other strains to this fatness that seems to border on disease. Their intestines become encased in one mass of fat, and to stint fowls to any given quantity of food, especially when confined, is quite impracticable. Soft food given once a day in winter is very beneficial, particularly during spells of severe weather. It promotes laying. It should consist of ground grain, as corn, buckwheat, barley, wheat or oatmeal, varied at times, with some vegetable and animal food. I make up mine by boiling a lot of potatoes or turnips, pouring the hot water (in which they were boiled) upon some meal in another vessel, with ground beef scraps added twice a week and a little cayenne. Make this into a stiff paste. Mash the vegetables and add meal enough to make this also into a stiff mass. Mix them together and feed when just warm. Most breeders recommend this to be done for their morning meal, but this will often keep the stock waiting hungry too long. Have light grain for them always, early every morning, and feed with the soft food by noon, if not sooner, and all the grain they will eat for evening meal.

Game Fowls.

While many may deprecate fighting the Game birds on account of its cruelty, they cannot help but admiring the pluck, perseverance and indomitable courage of these birds, who neither give or seek for quarter and struggle until the death. In their proud carriage, their haughty bearing, and self-important ways they show their good blood and choice breeding, and they have many admirers on account of their graceful bearing—for there are no other breeds which approach them in these particulars. There are several varieties of the Games, all of which have special admirers and advocates; and all of them are handsome in plumage—especially the Black Breasted Red, which, in many localities, is the favorite breed. Aside from their courage and their handsome markings, Games have other qualities which commend them to the attention of fanciers and breeders—for they are hardy, arrive at an early maturity, furnishing most excellent flesh for the table, while they are noted for being very good layers of fine sized eggs. They cross well with the Asiatics and with the common dung hill fowls, producing a cross which can be relied upon as extra winter layers.

The Guinea Fowl.

Guinea fowls associate readily with the common fowls in a poultry yard; but they have this peculiarity, that the cocks and hens are so nearly alike that it is difficult to distinguish them, except by the voice—the hens only uttering the cry of "Go back! go back!" The head is covered with a kind of casque, with wattles under the bill, and the whole plumage is either black or dark grey, sprinkled with regular and uniform white spots. The Guinea is a native of Africa; they lay plenty of eggs, rather smaller than those of the common hen, and speckled.

They may be reared by placing the eggs under a hen; but the chicks are extremely tender, and very often a sudden change of wind in March will sweep off a whole brood in a few hours. The young should be fed the same as for fowls.

About Canary Birds.

Place the cage so that no draught of air can strike the bird. Give nothing to healthy birds but rape and canary seed, water, euttelfish bone and gravel-paper or sand on the floor of the cage. No hemp seed. A bath three times a week. The room should not be over-heated—never above seventy degrees. When moulting (shedding feathers) keep warm, avoid all draughts of air. Give plenty of Germin rape seed; a little hard-boiled egg, mixed with crackers grated fine, is excellent. Feed at a certain hour in the morning. By observing these simple rules birds may be kept in fine condition for years. For birds that are sick or have lost their song procure bird tonic at a bird store. Very many keep birds who mean to give their pets all things to make them bright and happy, and at the same time are guilty of great cruelty in regard to perches. The perches in a cage should be each one of different size, and the smallest as large as a pipe stem. If perches are of the right sort no trouble is ever had about the bird's toe-nails growing too long. And of all things keep the perches clean.

The American Bird Trade.

The bird trade in America seems to be in a flourishing condition. Over forty thousand canaries are brought in every year, and probably ten thousand more are raised in this country for the purpose of sale. The number of bullfinches, goldfinches, thrushes, robins and larks, annually imported, rise as high as five or six hundred for each variety. There are fully three thousand Java sparrows brought to the United States by vessels from that region, and fully as many parrots are yearly sold in this city alone. Waxbills and other minute varieties are scarce, and seldom arrive in quantities of more than one or two hundred each year. Parroquets and lovebirds, from Australia, follow parrots in their relative importance. In native birds there is no reliable data to go upon. It is roughly estimated that about ten thousand mocking-birds find their way from the wild nest to the cage each succeeding year.

Mating Fowls for Breeding.

On this subject G. M. T. Johnson, of Broome county, N. Y., an experienced poultry raiser, writes as follows: "This is a branch of the business that is handled very carelessly. In many cases a yard will be stocked with finely-marked birds, but the owners, not knowing the points of merit and demerit in the fowls, will often kill the best-marked birds and keep the 'largest' or 'prettiest,' till after a few years they are far from the standard. Get acquainted with the particular variety, and breed to those points. We will take the light Brahma, for instance. Throw out all the birds with single or lop combs, or that carry the tail a little to one side, or too much over the back, or that have legs not bright yellow, and well feathered, or whose light and dark feathers are not properly distinct, or that lack in size or symmetry, or have not a good get-up to them, or that seriously lack in any of the requirements. With hens that have dark neck hackle and tail, put a cock with light neck hackle and tail, and so guard against the loss of any of the points. We are often asked how many hens to let run with one cock. That will depend on the vitality of the cock, and you must judge from actual observation in each individual case. Some will do well with five, but as a general thing eight hens are enough. The vitality of chicks often depends on the number of hens with the cock. If from a yard where there is an active bird with six or eight healthy hens, the chicks will be strong and vigorous, but if from a yard of fifteen hens with one cock, many of the eggs will be worthless, and those that do hatch will be puny and die off one after another, before they are grown."

LITERARY AND PERSONAL.

A GOOD INCOME FOR SOME ENERGETIC LADY OR GENTLEMAN.—The Ohio Scale Works, of Cincinnati, have just completed and are now introducing to the public, under the title of the Universal Family Scale, an article that has always been needed in every household; and, in a communication addressed to the publishers of this paper, the proprietors ask us to refer them to some reliable party who will represent them in introducing it to the people of this county. It is very seldom that a new article steps so suddenly into universal favor. Housekeepers are loud in its praise, for it possesses the merit of being always ready; there are no weights to hunt up and adjust, it is always reliable—will not get out of order—and is an ornament to the kitchen. The description is simply a base surmounted by a hollow column, in which works a spiral spring so scientifically gauged

and adjusted as to weigh anything up to twelve pounds with perfect accuracy. On the top of the column is the platform on which the articles to be weighed are placed. By the mere turning of a screw the tare of the dish, plate, or whatever you may use in weighing, is taken out and the net weight given. Housekeepers at once see its value in weighing sugar or fruit, in making preserves or jellies, or in testing the butcher's or grocer's weight, and the thousand and one cases that occur where something that should be weighed accurately is necessary. The scales are handsomely painted and bronzed, and are sold at about one-third the price charged for the inferior scales of the same capacity. It seems to us that nearly every family in this county would want one, and it is certainly a rare opportunity for some smart and energetic party to pick up quite a nice little income during the next few months. The company has agents in no more favorable location who are making \$5.00 to \$6.00 per day, and there are certainly several in this vicinity who can do as well. We recommend such to address the Ohio Scale Works, Elm and George streets, Cincinnati, Ohio, and all information, etc., will be cheerfully given them by mentioning our paper.

THE AMATEUR'S HANDBOOK OF PRACTICAL INFORMATION for the Workshop and the Laboratory: Containing clear and full directions for Bronzing, Lacquering, Polishing Metal, Staining and Polishing Wood, Soldering, Brazing, Working Steel, Tempering Tools, Case-Hardening, Cutting and Working Glass, Varnishing, Silvering, Gilding, Preparing Skins, Waterproofing, Making Alloys, Fusible Metals, Cements, Glues, etc., etc. Price 10 cents. New York: Industrial Publication Company. 1878. This is not a mere book of recipes clipped from old journals and encyclopedias, but a carefully compiled book of instructions for performing those little technical operations which are so frequently required in everyday life, and in the workshop of the amateur. In most of these operations the recipe is but half the battle; when we come to put it in operation we are apt to fail from ignorance of some general principle, or from inattention to some important though apparently trifling detail. In the book before us this defect is avoided, and minute practical directions are given, so that any one may be able to put the recipes in practice. This is specially apparent under such headings as glass-cutting, lacquering, steel working, brazing and soldering, silvering, staining woods, waterproofing, etc.

SCIENCE NEWS, published semi-monthly by S. E. Cassino, Salem, Mass., at \$2.00 a year. This is a 16-page 8vo. periodical, edited by Ernest Ingersoll and Wm. C. Wyckoff, 44 Howard street, New York, to whom all communications should be addressed, but matters relating to subscriptions and business, should be sent to the publisher. We have received the first number of this periodical (Vol. I, No. 1, November 1, 1878), and judge from its contents that it will supply the place in our scientific literature, that Hardwick's *Science Gossip* does in England. The prompt publication of scientific news, information relating to scientific literature, and popular "notes and queries," are to be specialties in the "make up" of this journal, and many of its articles will be freely illustrated by competent artists. It has long seemed to us that there was, or ought to be, a place for such a publication among American students in the natural sciences, and we therefore hope it may be scientifically and financially sustained. The yearly volume will give the reader about one hundred pages more than there is in a volume of *Science Gossip*, and it will cost \$1.00 less. Its advertising pages alone (not embodied in the work) are matters of a good deal of interest to men of literature.

AN OMISSION.—At the October meeting of the Agricultural and Horticultural Society there were two varieties of wheat on exhibition, sent to Hon. A. Herr Smith, from the department at Washington City, but which the reporters failed to take any notice of in their proceedings. Namely, the "Red Winter" and the "White Winter." A third variety was "Groff's Clawson White," and a fourth the "Amber." Both the latter were of a better quality than the varieties from Washington, and were grown by Mr. Henry Kurtz, of Mount Joy. Mr. Kurtz had also some fine specimens of tobacco on exhibition, grown in forty days. We not only regret that the reporters omitted to notice these articles, but we still more deeply regret, that after we were informed of these reportorial omissions by Mr. Kurtz, that we mislaid his card and could not find it until too late to insert it in the October number of THE FARMER. We attach too much importance to the material results of agriculture to omit a notice of them, either through willfulness or neglect. In order to avoid a repetition of such neglect we would suggest that each depositor would make a transcript of his deposits and place it in the possession of the reporters. This would facilitate the work and forestall omissions.

BOOK OF ADVERTISERS—For 1878 and 1879. Published by E. N. Freshman & Bros., newspaper and advertising agents, No. 186 West Fourth street, Cincinnati, Ohio. This is a volume of 92 pp., 8 vo.,

in paper covers, and printed on fine buff calendered paper, and includes advertisements of all the principal business houses of all the States and Territories of the American Union, and, no doubt, the best medium in our country for the purpose it is intended to serve. The publishers are advertising agents and keep themselves posted in all that relates to mercantile, mechanical and agricultural interests.

L. B. CASE'S BOTANICAL INDEX for October, 1878, of new, rare and beautiful plants, 28 pages 8vo., splendidly illustrated, Richmond, Ind.

PRICE LIST and description of pure bred Cotswold sheep, Cotswold-Merino sheep, and pure bred Essex pigs. Raised and for sale by Joseph Harris, "Moreton Farm," Rochester, New York, 1878, 24 pp. 8vo.

ADDRESS of the General Council of the Petroleum Producer's Union, 4 pages octavo.

WHOLESALE PRICE LIST of small fruit, plants, &c. Fall of 1878, and spring of 1879. Grown and for sale at the Pleasant Valley Small Fruit Nursery, Moorestown, N. J. Jno. S. Collins, proprietor. 10 pages octavo, beautifully illustrated.

DESCRIPTION of Orange and Vine Lands, Los Angeles county, California. "Lake Vineyard Land and Water Association." Address F. W. Wood, Sec'y.

P. K. FREDERICK'S Patent Hay Press and Ball, 82 pages, 16mo., profusely illustrated. Albany, New York.

GRAFTON'S Patent Galvanized Cap Sheet Metal Roofing. Patented June 25, 1878. Grafton & Hanvey, proprietors and manufacturers, Steubenville, Ohio.

HOOKER NURSERIES, Rochester, N. Y. Autumn of 1878. The Brighton grape, 8 pages, 8vo., illustrated.

HARPER'S MAGAZINE for December opens with four old Christmas poems, by Ben Jonson, George Wither, S. T. Coleridge and Giles Fletcher. Abbey illustrates these with three remarkable pictures: The Christmas Waits, the Shepherds, and the Madonna in the Stable.

An illustrated article on "England's Great University," contributed by M. D. Conway, gives a satisfactorily comprehensive view of the various colleges of Oxford, the social life of the students, the most eminent of the professors, and the work accomplished by the University in promoting scholarship in England. The illustrations are picturesque and interesting.

The most interesting paper in the number—because of its humor—is the fun-provoking narrative of B. Munro Chowson, of Delham, concerning the peculiar institutions of Knoware—an island upon which he is thrown by shipwreck. The article is by Rose Terry Cooke, the author of "Cal Culver and the Devil," in the October Harper. The illustrations are as humorous as the letter-press.

The thrilling adventures of the "Red River Colony" belong to the early pioneer history of the West, and are told by General Chetlain, a descendant of one of the colonists. The article is effectively illustrated.

Lovers of music have a rare treat given them in the beautiful paper on Mendelssohn and Moscheles, covering a remarkably interesting era in the progress of music, both in England and Germany. The paper contains finely engraved portraits of Mendelssohn, Moscheles, Handel, Von Weber, Bach, Thalberg, Robert and Clara Schumann, Beethoven, and Mozart.

An illustrated paper by Charles Barnard describes the mining of silver in all its stages. The brief paper on storm signals, by E. H. Knight, is also very timely.

Ex-Governor Seymour, under the title "Crime and Tramps," makes some important suggestions as to the punishment of minor crimes. Dr. Coan, in "Some Peculiarities of Yellow Jack," presents very curious facts as to the migratory character of yellow fever epidemics, and other features of the disease. A. A. Hayes, Jr., contributes an interesting and piquant description of the "First Railroad in China," the Woosung Railway—recently demolished by the Chinese.

Besides Mrs. Cooke's "Knoware," already mentioned, there are three capital stories. "Two Hundred and Two" is contributed by Elizabeth Stuart Phelps; "Helen," by Alice Perry; and "A Rescue from Cannibals," by Mrs. Frank McCarthy.

Poems are contributed by E. S. Phelps, Will Wallace Harvey, Frances L. Mace, Paul Hayne and W. H. Babcock.

The serial novels by Black and Hardy, continued in this number, will be concluded in January, to be followed immediately with a new novel by Miss Mulock.

The Editorial Departments—including a fuller literary record than usual—are up to their usual standard. It must not be overlooked, in any proper notice of this magazine, that whatever may be the variety and interest of any number, there is also an additional element of peculiar value in the always timely and admirable contributions making up the "Editor's Easy Chair."

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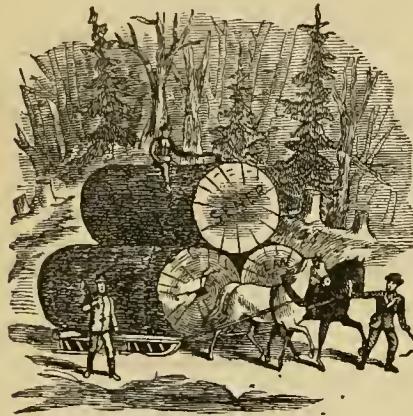
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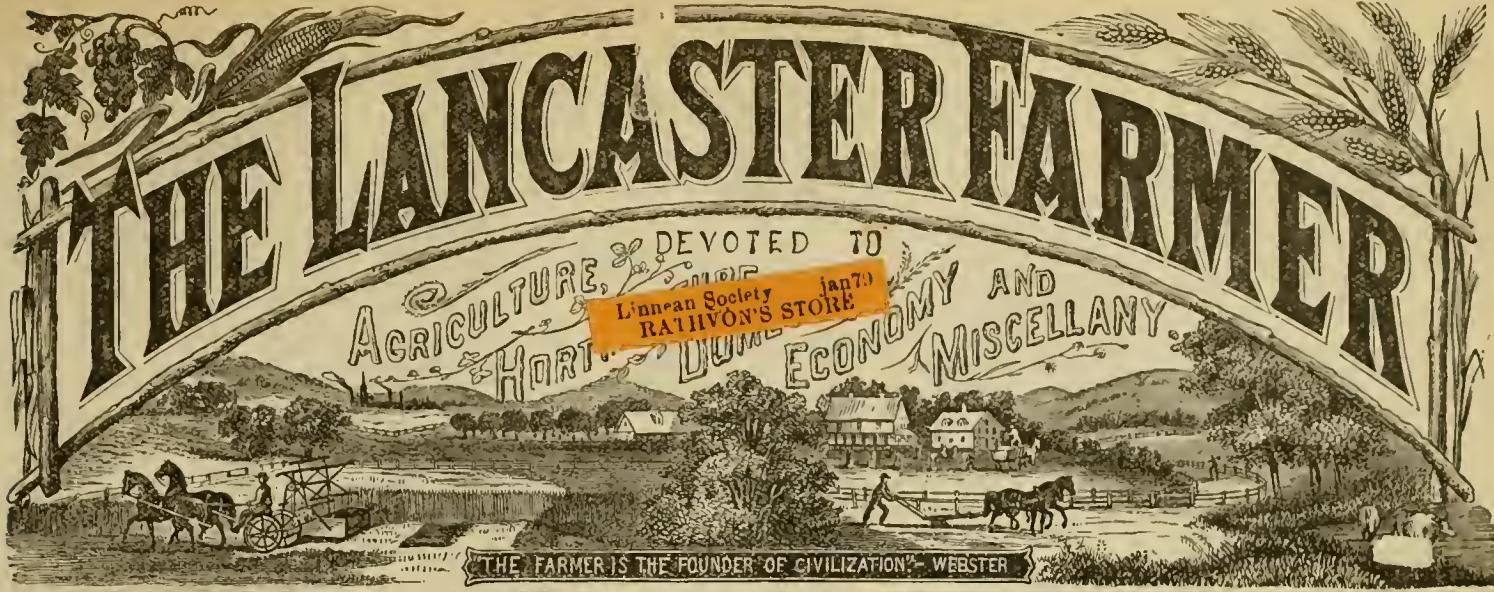
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10-10-3m



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LANCASTER, PA., DECEMBER 15, 1878.

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The Lancaster Farmer;

A MONTHLY JOURNAL,

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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 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
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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 ninth year under various vicissitudes, now commences its tenth volume under, it is hoped, more favorable auspices than attended its former volumes. When the publisher 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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Pacific Express.....	2:40 a. m.	4:05 a. m.
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Niagara Express.....	9:35 a. m.	10:40 a. m.
Col. Accommodation.....	7:20 p. m.	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 Accommodation.....	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.	12:15 a. m.

	EASTWARD.	Lanesster.	Philadelphia.
Atlantic Express.....	12:30 a. m.	3:00 a. m.	
Philadelphia Express.....	4:10 a. m.	7:00 a. m.	
Harrisburg Express.....	5:35 a. m.	10:00 a. m.	
Columbia Accommodation.....	9:25 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*.....	5:15 p. m.	7:20 p. m.	
Harrisburg Accm.....	5:50 p. m.	9:00 p. m.	

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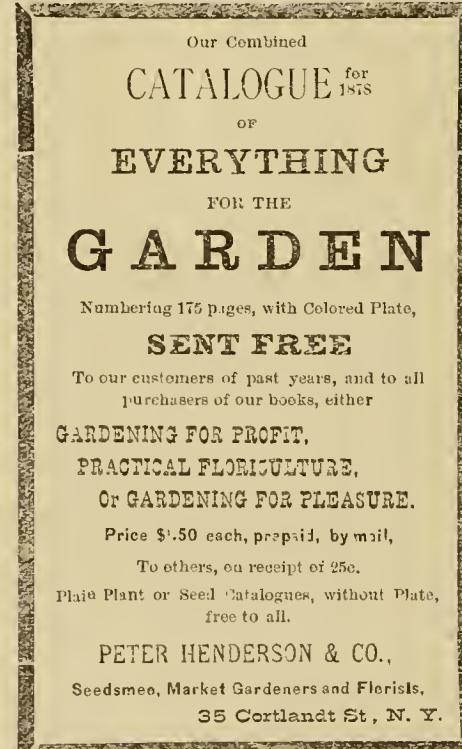
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The Lancaster Farmer.

Prof. S. S. RATHVON, Editor.

LANCASTER, PA., DECEMBER, 1878.

Vol. X. No. 12.

TO THE PATRONS OF THE FARMER.

Thankful for the patronage, the courtesies and the kindnesses extended towards us, as publisher of *THE LANCASTER FARMER*, for the past two years, we would respectfully inform them that we have disposed of all our right, title and publishing interest in that journal to JOHN A. HIESTAND, Esq., the enterprising and genial publisher and proprietor of the *Examiner and Express*, and we earnestly ask for him a continuance of their moral and pecuniary support. Under the auspices of the new publisher the first number of *THE FARMER* will appear in January, 1879. Through ten long years, the last five of which have been adverse to many of the enterprises of our common country, *THE LANCASTER FARMER* has struggled through, and has maintained its existence intact; and we hope that now a better day is dawning for it for our county, for our State, and for our nation. There is material enough in Lancaster county alone to support a first-class agricultural paper, and we hope it may now be made available.

L. RATHVOX, Publisher.

OUR ANNUAL GREETINGS.

With this number we complete the tenth volume of *THE LANCASTER FARMER*, and viewing its progress retrospectively, we can hardly realize that a decade in time has passed away since it first made its *début* before the public. Like many of its contemporaries in the field of agricultural journalism, it has had its vicissitudes, its discouragements, and its shifting responsibilities, but by the perseverance and self-denial of its sponsors it has withstood the trying tests of time, and has reached that adolescent period, from which we hope a vigorous and useful manhood may be developed. The publication of a journal in Lancaster county representing its agricultural, mechanical and domestic interests ought to be no longer considered a mere experiment; it ought to be recognized as an established fact, and every head of an agricultural establishment in the county and the State ought to feel it incumbent upon him to lend a hand in sustaining such an enterprise, and in transmitting its ennobling influences to an enlightened and grateful posterity.

The year through which we have just passed has been a remarkable one in the annals of our country, and still more so in the annals of agriculture. It is true the farmer does not realize the prices for his leading crops that he may have realized in former years, yet he has been blessed with health, employment and abundance, whilst many other interests and peoples have suffered—sadly suffered by reason of the absence of these blessings.

As the editor of this journal, we have never been entirely without hope in its ultimate success, and if we have “hoped against hope,” even in that contingency we have had a valuable compensation, because it has taught us to “hope on;” and accordingly we look hopefully forward to the consummation of our eleventh volume. By the announcement of the publisher it will be perceived that he has transferred his interest to JOHN A. HIESTAND, Esq., the popular and widely-known publisher of the *Examiner and Express*, who, after the first day of January, 1879, will be the sole proprietor and publisher, and we bespeak for him a successful career in the ranks of agricultural journalism. Asstated elsewhere, the editorial department will remain in the hands of the present editor.

As its name might naturally seem to imply, *THE LANCASTER FARMER* is not, strictly speaking, a local paper, but on the contrary, it embraces all legitimate topics which relate to the agricultural interests not only of

the home locality, but all those of the State, and its belt of latitude from one end of the country to the other. Lancaster county is a sufficiently distinguished basis to rest its claims upon, but it will make an effort to truly say—

“No pent up Utica contracts our powers,
The whole unbounded continent is ours.”

With this laudable ambition, and the co-operation of its friends everywhere, it hopes to be unlimitedly diffused. With gratitude to the patrons of the past, we look for a reasonable accession of moral and material strength for the future. But we will not anticipate; our business at this time is mainly with the pending *now*, and that now admonishes us of the speedy return of time's most momentous cycle, when “glory to God in the highest, on earth peace, good will towards men” was proclaimed, and to the influences of that great event we commend our readers during the approaching *Christmas Holidays*.

OUR PERSONAL RELATIONS TO THE FARMER.

If any of the patrons of *THE LANCASTER FARMER*, or any of the public, have an appreciation of our labor in editing it for the past ten years, and feel that we have not been adequately compensated for our labor, we would respectfully suggest that their influence now in the increase of its subscription list and extending its circulation, would be as acceptable to us as a direct contribution. *THE FARMER* needs at least *one thousand additional good paying subscribers* to place it on a self-sustaining basis, and relieving the mind of its publisher from the anxiety usually attending such an enterprise. That there is a “vacancy” in the county of Lancaster alone to amply sustain a first-class agricultural journal is unquestionable, and the necessity of such a journal is equally apparent; therefore, whatever assistance may be directly rendered to the publisher will be indirectly rendered to us, both morally and materially. The new base *THE FARMER* will occupy on the advent of the new year will amplify its sphere of usefulness, and command additional confidence from the farming people. The name of JOHN A. HIESTAND, Esq., who has been for many years identified with the publishing business in Lancaster county, is favorably known far beyond our local borders, and the influence which his long and successful experience can bring to bear upon the interests of this journal will be identified with its progress and improvement.

We are now, perhaps, occupying that dark period in our country's financial and commercial history which immediately precedes the breaking forth of a brighter day. Therefore, a little more of that inflexible perseverance which has brought us to our present point is only required “to carry us through.” If our friends will now put their shoulders to the wheel, they may make *THE LANCASTER FARMER* the peer of any agricultural journal in the country. “This we ask, and nothing more.”

TO OUR LITERARY CONTRIBUTORS.

We particularly desire to avail ourselves of this opportunity to return our sincere thanks to all those who have contributed to the columns of *THE FARMER* during our incumbency as publisher; and also to express our regrets that the pleasant literary relation heretofore existing between us is now about to come to a close; hoping that under more favorable auspices we may be able to reciprocate their kindness. We especially mention Messrs. H. M. Engle, A. B. Keise, Jacob Stauffer, E. L. Hershey, J. B. Garber, Levi S. Reist, Peter S. Reist, F. R. Difffen-

derffer, Casper Hiller, W. H. Spera, Wm. J. Pyle, J. Grossman, Martin Richwine, Samuel Miller, Daniel Smeych, Von Humbolt, Leonine, Rev. A. B. Grosh, and all others who, directly or indirectly, have favored us in that behalf. We know that they have always felt kindly towards our journal—took an interest in all that related to its welfare; sympathized in its struggles; and will feel joyed in any change of circumstances or personal relations which may culminate in the journal's success. We therefore know that we are not asking more than they are willing to cheerfully accord, when we express the hope that they will continue to our successor those contributions from the stores of their minds and pens, which they have so freely and so kindly tendered to us. Our personal efforts hereafter, as heretofore, will be devoted to the mechanical “make-up” of *THE FARMER*, and we believe we are able to realize the most sanguine expectations of its friends in that department.

PUBLISHER.

NOTICE EXTRAORDINARY.

The editor of *THE FARMER* (No. 101 North Queen street,) is authorized to receive subscriptions due the paper and to receipt for the same, but he is not in charge of the subscription lists, nor the accounts due for advertising, those being the property of and in the hands of the publisher, at the office of the *Examiner and Express*, No. 9 North Queen street, near Centre Square. The printed label on each paper will show subscribers how their accounts stand, unless by receipt or other evidence they can show them to be otherwise. We wish to be distinctly understood that we have been merely acting as editor of *THE FARMER*, and never, except for a brief period, eight or nine years ago, have we assumed the responsibilities of its publication, nor have we had an immediate pecuniary interest therein; although, from its very origin, we have performed many services other than those which pertained to its editorship, and have also been collaterally responsible during the past two years in special cases. We have, however, always felt a deeper interest in its success than a merely pecuniary one, or our services and influence would have been withdrawn from it years ago.

Those, therefore, to whom it is most convenient to make payment to us, we will thankfully receive them until January 1, 1879, and report them to the publisher, but all adjustments of accounts must be made with him.

NOTICE!

We have a number of full volumes of *THE LANCASTER FARMER*—quarto edition—for the years 1875, 1876, 1877 and 1878 which we offer for sale cheap for cash. For a single volume, unbound, \$1.00; bound, \$1.50; any two volumes unbound for \$1.75; bound, \$2.75; any three volumes unbound for \$2.25; bound, \$3.75; the whole four volumes unbound, \$3.00; bound, \$5.00. In selecting matter we have been careful to adopt that which was of the most permanent interest to the farmer and house-keeper; the paper is neatly, plainly and compactly printed; each volume is accompanied by a copious index; and on the whole it will form a volume of local ready reference such as may not be accessible to the citizens of Lancaster county for many years to come. It has been asserted by some that in many respects *THE FARMER* was locally somewhat in advance of its time, and that in ten or twenty years hence it will be more fully appreciated than now. It is not for us to say whether this is so or not; but if so, a copy would be a desirable acquisition now. We have also sixty copies of “The Art of

Propagation," which we offer at 30 cents each; regular price 50 cents. Also, ten copies of "Scribner's Lumber and Log Book," a new and revised edition; price, 20 cents. Half a million copies of this useful little book have been sold since its first introduction to the world.

OUR AGGREGATE.

By referring to our index to the present volume of THE FARMER, it will be perceived that during the year we furnished each of our readers with *seven hundred* distinct articles and *thirty illustrations*—all for *one hundred cents*—that is, *seven for one cent*. Some of these articles are three or four columns in length, and contain several subjects. Many of them written out by the editor and his contributors. Will our patrons and the public reflect upon the labor required to write, select, arrange, print and send these articles to the people? It takes almost as much labor to read an article as it does to write one—indeed, the almost universal testimony is that reading up and selecting is more laborious, and requires as much skill, as writing. When we have furnished seven articles, and earned the penny, what can we get for it? Not a decent cigar; not a good apple; not an egg; perhaps half a dozen peanuts. It does not cover the ground to respond that each subscriber pays his penny; for every duplication of the first sheet costs paper, and ink, and labor, to say nothing about the waste of material and labor in proof-sheets and corrections. Fellow-mortals, think of these things.

AS OTHERS SEE US.

Now that the long evenings have set in, ever farmer should invest a dollar in that most excellent agricultural journal—THE LANCASTER FARMER—and thus obtain the views and experiences of our best and most successful farmers. It will prove an interesting and also a very profitable investment. Linnaeus Rathvon, publisher, Lancaster, Pa.—*New Holland Clarion*.

A good idea—a most capital idea—the *New Holland Clarion* is "given to no uncertain sound," and never has hesitated to let its sound be heard where it can do good. The Messrs. Ranck & Sands, the enterprising editors and proprietors, publish a *live* paper, and have an appreciation of what is going on in the world around them, and it is a satisfaction to us to know that their paper is a deserved success.

Through this number of THE FARMER they will learn that it has changed publishers, if they had not been aware of that fact before, and we assure them that the change is a step in advance. Although our function as responsible publisher will cease, our best energies will be devoted to its material "make-up," and so long as ink and paper and nimble fingers are available, we will see that THE FARMER does not retrogress. One *Clarion* blast from home is more grateful to us than a thousand echoes wafted from a foreign shore, because they *know* whereof they sound. We reciprocate the compliment in their kindly notice, and although we are not much given to "that sort of thing," yet we raise our hat high above our *cranium*, and make our very best bow.

MONTHLY REMINDERS.

The care of the hot-beds, &c., is nearly all that demands attention; true, other things may be done, but quite as well at a future day, unless the season be open. The annexed hints may, however, prove useful: Compost prepare. Dung prepare for hot-beds. Hot-beds attend to. Radish and salad sow in frames. Trench and drain vacant ground. Transplanting trees may still be done.

The family which has taken time by the forelock, and during the season of vegetation secured a supply of succulent food for the live stock, may now that the winter's storms are upon us, congratulate itself. So little labor in comparison with the result attaches to root

crops, one may well wonder that any rural family should fail to secure a supply.

Another year draws to a close. As husbandmen, it becomes us to look closely at what has been accomplished, and what we have omitted to do. He who is content to jog along indifferent to the past, will be careless in the future, and in brief space of time will have fallen far behind in every quality and condition necessary to constitute a successful farmer.

With Americans progress is the watchword. It enters into every avocation of life—at the mechanic's bench, in the mill, at the workshop, on the rivers and the lakes. The great aim of all imbued with our national spirit is to go ahead and get onward. It is that impulse which has made us, as a people, what we are, and marked out our future destiny as the ruling power of the world. The American artisan has eclipsed all others in many departments of handicraft, and the mechanical genius of our people is the admiration of mankind. Shall the farmer lag behind? He is here the lord of the soil. No tithe-master measures his grain or counts his herds; the tree which he plants yields fruit for himself and his posterity. Why, then, should he not be the most prosperous of men, advancing his possessions and prospects—each year adding to the productive fertility of his lands, and filling his store and basket to overflowing.

To farm successfully, however, requires as many qualities as the conduct of an intricate commercial business; untiring industry, promptness, thoughtfulness of the future, capacity to retrieve an error of judgment—these are all brought into action in the management of a well-ordered farm. Let them be inculcated and taught, as far as possible, by every farmer who proposes to train his son in his own pursuit. It is well enough, indeed it is a laudable ambition, to excel in all the manipulations pertaining to husbandry, but it is indispensable that the mind be so trained as to be able judiciously to direct others. Simply to plough, to haul, to fell, is not farming in its highest sense. Skillful, intelligent agriculture embraces all which enters into rural life. It enlarges the view, expands the mind, and makes the accomplished farmer the courted companion of the educated and refined. A man thus trained has visions not seen by the mere candidate for wealth. The great book of nature is unfolded to his view—he has enjoyments higher than those which follow the vulgar displays of pampered pride, engendered by sudden, perhaps doubtful, acquisitions. His are the quiet pleasures which spring from time devoted to useful efforts, which while advancing his own and his family's comforts, have subtracted nothing from the rights of others.—*Landreth's Rur. Reg.*

CULTIVATION OF GRAIN OF ALL KINDS.*

Mr. President and Gentlemen: In discussing the cultivation of wheat and other small grain, I shall not attempt it in a scientific manner, but do the best I can in taking a practical, common-sense view of the subject. I presume we nearly all agree that cultivation is advantageous to nearly, if not entirely, all vegetation, even from a strawberry plant up to a fruit tree; and from the beautiful little pansy, that so beautifies our gardens and attracts so much admiration, even to the great, stalwart sunflower.

Then it is but fair to suppose that in growing grain, of whatever variety, which is really the life of humanity and the wealth of the country, it ought also to be cultivated. And in this, our own country, which is so admirably adapted to the growth of all kinds of grain, it is not so much our privilege as it is our duty to make the most of this beneficent gift bestowed upon us by our Great Creator.

To raise good and profitable crops of corn, besides the proper fertility of the soil, it is necessary to observe certain laws in nature to insure a good crop. It is highly important to

have the proper depth of soil, and that thoroughly pulverized, and then to have the rows of corn of sufficient width apart to admit of plenty of air and sun, and this is a matter of so much importance that I feel like doubly impressing it upon the mind of every farmer. If we plant for fodder then we may disregard this rule, but if we want corn then we cannot afford to do it. And in my judgment the observance of these rules are just as important in raising fruit and other grain as it is in the case of corn. And I imagine I hear some of you saying, "Yes, that is very true, but how much space do you want for air and sun in the raising of corn?" In answer, I will only give you my own observation and the practical results or demonstrations of the different sections of the country, where I have been; and it may be that certain qualities of soil and localities will have to be taken into consideration, and even then to determine these questions so as to meet the approval of all, will be impossible. Taking it for granted, however, that in every case the crop shall be well and thoroughly cultivated with the present improved appliances suited to each locality and condition of soil.

On the eastern shore of Virginia, where the soil is a sandy loam, corn is planted four feet apart each way with one and two stalks in the hill, and the very large ears attracted my attention. It was a beautiful white variety, not flint, but much resembling the yellow variety with us. Upon inquiry as to why they did not plant more corn in the hill, they told me it burned, which I concluded meant the deadening of the blades at an early period. I did not learn the amount produced per acre. In Jersey a yellow variety is raised chiefly, and they plant their corn from four to four and a half feet apart each way, with from two to three stalks to the hill, and as a rule, have good corn. Their soil is generally light.

A gentleman in Baltimore county, Md., Mr. Gorsuch, has raised three crops, which yielded him each over 100 bushels per acre. One yielded something over 100 bushels, one 125 bushels, and the other 138 bushels, per acre. He planted three and a half feet one way with two stalks to the hill, every two feet apart, and thoroughly cultivated it, and showed me his awards of diplomas, in each case, by one of their agricultural societies, together with a silver snuff box properly inscribed.

S. S. Spencer, esq., of this city, who is a very practical man in all his undertakings, is, and has been experimenting with corn—his crop last year, so far as quality is concerned, was not surpassed in the county, if equalled, so I learned from a good judge. This year his crop is estimated (as poor as the season was,) at one hundred bushels per acre, a sample of which can be seen in this room. He planted his four feet apart, each way, with three stalks in the hill; and, in conversation with him recently, he told me that he was not sure that if he had left but two stalks to the hill, that he might have had more corn. And from the foregoing statements I will allow each one to make his own deductions, with the caution not to plant too thick, nor have the rows too close together.

And now a few words on the subject of wheat culture, and in discussing this branch of husbandry, I intend my remarks to apply to rye, barley and oats, with such slight changes as shall be obvious to every mind, without going into a minute detail in every particular case. The cultivation of wheat is in a large measure new to the people of this country, while it has been practised in England for many years with good results; and not new with us because our progressive farmers did not know that wheat ought to be cultivated, but because we did not have any proper and practical implement with which to do the work, and hand labor was too expensive. And just here, a word directing our minds to the great need of cultivating wheat, may not be out of place. In the first place, we plow our ground in August and September, and our seeding is done chiefly in the latter month. The soil has been properly fertilized

*Read before the Lancaster County Agricultural and Horticultural Society, by F. Sutton.

at considerable expense, either with barn-yard manure, bone, or phosphates of different kinds, all of which have been placed in the ground to feed and nourish the plant, and then the ground is left untouched, and is subjected to all the rains, snows, freezing and thawing, through a period of six or seven months. In the spring the ground dries off, and is hard and solid; we may walk over it and not leave an impression upon it, and the plant has formed some small fibrous roots during the short time it had to grow in the fall. And now that the spring has come, and the weather is warm we look for the grain to grow, and expect those little roots to go out in this hard solid earth in search of, and to take up the food placed there to sustain, nourish and mature a full crop of grain, and the roots are of course the only medium through which it can take up the food, and the further the season advances, the harder and dryer the ground becomes, and the more difficult it is for the plant to get it; and the consequence is that enough has come within the grasp of these little roots to furnish a fair straw with a small short head; for long before heading time the larger portion of the nourishment that was within reach of the plant, has become exhausted in supplying the demand to produce the straw, and there is but little left to supply nourishment for the head.

And here the question may very properly be asked, "What are you going to do about it?" And the answer is, I would seed the wheat in rows far enough apart to admit of sufficient air and sun, as in the case of corn, and not allow the grain to be crowded into little narrow rows, closely together, and on top of each other; but have the grain properly distributed over the ground in the rows and of proper and sufficient width apart for cultivating in the spring, and in this way we thoroughly pulverize and loosen up the soil, let in the air and sun, and the little roots can go out in search of the nourishment put there for the plant; and the moist earth *absorbs* the fertilizing gases in the atmosphere, and also the dews of the night, all of which tends to give strength and nourishment to the plant, giving it a strong, substantial stalk capable of conducting a much larger amount of sap, sufficient to produce a large, full prolific head, at least one-third larger than the usual average head. To expect a large crop ordinarily, without cultivating it, might well be compared to feeding a good cow, and placing the feed in the trough, just so that the cow can reach one-half of it, and then wonder why she did not give more milk. Cultivating is the least expensive part of the work in raising a crop of wheat, yet we have gone through with all the greater part of the cost of labor, seed, fertilizers, &c., and have taken our chances for a crop, and left undone the least expensive and most important part. In support of my argument, I would say, that practical demonstrations everywhere, fairly tried, have fully proven this fact; and that there is something wrong in our present method of seeding wheat I think is obvious to every close observer and practical farmer. If one grain of wheat is capable of producing from 40 to 50 heads, then we sow too much seed in too small a space—in other words we use too much seed. I was told by a practical farmer in Adams county, Pa., that from one grain he gathered a product of 49 heads, which yielded 1173 grains. Mr. Harris, of Washington county, Md., had a very fine crop this season, which yielded 36 bushels per acre in one field, and a part of the field was seeded with one-half bushel per acre, a part with three-fourths bushel, and remainder with one and one-fifth bushel per acre, and in the growing wheat at harvest time, no difference could be seen so far as thickness on the ground was concerned. An old experienced farmer in Jersey has for a few years past been seeding one bushel per acre, by broad-casting it, and says he gets more wheat than when he sowed two bushels per acre. I would therefore say, sow less seed and cultivate it, and feel warranted in predicting an increased yield of from 25 to 75 per

cent., and the wheat will stand up. Of course it is expected that care will be used in selecting good seed, and of such variety as is best adapted to each locality and soil.

And here, although somewhat foreign to the subject proper, the inquiry might properly be raised: When shall we sow our grass seed? We generally sow our timothy seed in the fall, when we seed, or else in the early spring with our clover seed.

In reply, I would say, sow all your grass seed, of whatever variety, in the spring, after you have cultivated your wheat, and when the ground is prepared to receive it, the roots can get a good strong hold, and it is not likely to perish from hot sun and drought after harvest, when it is exposed to the sun. And it will be as proportionably better as will also be the wheat.

CORN CULTIVATION.*

Corn being the largest of the cereal crops grown in this country, makes it one of the most important. There is no field crop which the farmer can rely on with so much certainty as that of corn, it having so few enemies. Evidently there was but one kind originally, but its tendency to spread and increase, has produced so many varieties, that when we say corn it seems necessary to define what variety we mean. These include large and small gourd, white and yellow flint, besides many other kinds, grown from selected seed to fixed varieties to suit the fancy of growers. Sugar and popcorn, of which there are quite a number of varieties, have no doubt sprung from the same original stock. With a rich and porous soil and a high temperature, a corn crop will seldom if ever be a failure, except from extreme drought.

Preparation of Soil.

A clover sod two or three years old is, as a rule, the best ground for a corn crop. Deep plowing is important to insure success. The ground must, however, have been plowed deep, and thoroughly fertilized previously, as the turning up of subsoil that has never been on the surface is in many cases more injurious than beneficial. Subsoiling is much better in stiff clay, than turning the subsoil upon the surface. In sandy or other loose and porous soils it may not be important to plow deep, but as a rule corn requires a deep, rich and rather porous soil.

When to Plow.

Fall and spring both have their advocates. Where there is an abundance of vegetable matter the former is generally preferred, as it is pretty certain to destroy a brood of cut-worms, which oftentimes make sad havoc among young corn. Fall plowing will also bear more drought than that plowed in the spring, unless the latter is plowed quite early, which some soils will not permit.

Preparation of Ground.

It is well known that corn, although it may germinate, will not flourish in cold earth, therefore the ground must be thoroughly cultivated and harrowed several times, and be put in fine friable condition, so as to permit the sun's rays to penetrate and warm it; this should be attended to as early as the ground will permit without closing, especially in sections where the whole season is required to mature the crop.

Time of Planting.

This depends very much upon the weather, variety of corn and condition of soil; but never plant until the weather is mild and the ground warm and dry.

Proper Selection of Seed.

This should be attended to in the field, at or before husking time. In the selection of seed lies one of the most important points in successful corn culture, as it is possible to run it into almost any size, shape, color or quality desirable, and nearly as early as we wish, or so late that it would not mature at all. While there are some farmers who seem satisfied to

grow corn of which two bushels of ears will not make one bushel of shelled corn, there are others who by proper selection have improved theirs, so that one and a half bushels of ears will shell a bushel of corn. There is plenty of corn raised of which the cob is nearly as thick as the ear, while there are other kinds of which the length of the grain is very nearly that of the diameter of the cob upon which it grew. In these extremes there must also be great difference of yield per acre. It may be claimed that the largest corn will yield an excess of bulk of ears sufficient to make up for loss of shelling, but this is not generally correct. I will, however, admit that the large gourd, although having a large cob, has also long grains, which will yield largely in the ear and also turn out well in shelling, but it has (like all kinds with large cobs) also large stalks which require more room to grow, and richer soil to produce a crop than the smaller kinds, and in addition requires a longer season to mature and is always of light weight. The small cob varieties having smaller stocks, may be planted closer, and will produce a crop on poorer soil and mature in a shorter season, seldom having any soft corn, will shell more to bulk, weighing heavier, and will feed further than the large kinds. I have, however, special reference to the large and small gourds, the eight rowed kinds not being much grown in this section.

For the above reasons I consider the small yellow gourd seed the most desirable of all the varieties that have come under my observation; not only for the corn, but also for the superiority of the fodder, which is not so coarse and unwieldy as the large kinds. With the best kind, however, vigilance is required in selecting seed, and to bring and keep it to the highest standard of excellence. This can be done only by selecting the best formed and most perfect ears, which should be well ripened, of as near regular thickness from butt to point as possible, and nicely rounded at both ends, with the grain as long in proportion to thickness of cob as possible. The surface of the ear should be smooth and close, having no grooves between the rows of grain. When two or more perfect ears are found on a stalk, they should be secured, as from continued selection of such, it may eventually establish a fixed variety. I have no doubt that by proper selection, if continued, any desired type can be established from any of the present kinds, whether we desire white or black, red or yellow, long or short, thick or thin ears, thick or thin cobs, rough or smooth grains.

In short, almost anything within the limits of corn may be obtained, and when a fixed kind is established, and strictly kept to that standard for a long period, it will not readily vary, but in stock breeders' language, becomes thoroughbred.

Methods of Planting.

For large plantations the machine planter is the most expeditious and economical, but with the hoe the best job can be made, and for this purpose will never be superseded, as each hill can be planted the proper depth, and no stone, clod or rubbish ever cover the seed; either of these will injure the corn as it comes up, from which it will seldom if ever recover. The hoe, of course, can only be used to advantage in hill planting, which should always be checkered and cultivated both ways, although it is conceded that the largest crops have been grown in drills, yet the largest average is from checkered, and for the only reason that the latter is generally better cultivated and kept clear of weeds.

Corn should never be planted too deep nor covered too thick; one inch of mellow ground is better than more, as all seed comes up stronger and heartier when only sufficiently covered to germinate. Corn thus planted is more likely to be pulled up by birds, but a slight coating of coal tar has never failed to protect me from feathered pilferers.

Distance of planting depends very much on variety. As above stated, the large growing kinds require more room than the small. The latter will do as well with three feet square to

*Read before the Lancaster County Agricultural and Horticultural Society by H. M. Engle.

the hill as the large will with four feet. In either case two good stalks to the hill will on an average, make a larger yield than more, although in rich soil and a very favorable season, three stalks may sometimes yield more than two; but in a dry one the yield will be less. With the best of seed three grains should always be planted, as a very large proportion of the hills will have one or more inferior stalks, or partial failures; by this method the set will be regular and uniform. With all plants or trees, where strong and weak plants grow together, the former will gain continually on the latter, which prevents a uniform crop, and without uniform growth it is impossible to obtain the largest yield. Cultivation should be commenced as soon as the corn is all up nicely and be continued frequently until it is in tassel; at first deep and thorough, but shallow toward the close. Level culture is best, for checkered at least. In drill culture there need not be quite the same number of square feet to the stalk, as each plant stands isolated, while in the hill they will be somewhat crowded as they attain size, but this can be remedied to some extent by dropping the seeds not too close together. By whatsoever system corn is grown it should be kept strictly clear of weeds. The custom of planting pumpkins or sowing turnips among corn must necessarily reduce the latter to some extent. The suckers should, under all circumstances, be taken off before they appropriate too much substance which the main stalk should receive, but under no circumstances allow suckers to tassel, for, whatever pains may be taken to bring or keep the corn at its greatest perfection by selection of seed, the pollen from the sucker may undo what has been gained by years of careful selection.

I would as soon think of breeding from a scrub male to a thoroughbred animal, as to have pollen from suckers cast upon an excellent variety of corn. It is also well known that the pollen from a neighboring field is oftentimes carried to an almost incredible distance, and consequently may cause more mixture than is desirable.

LETTER FROM NORTH CAROLINA.

SALISBURY, N. C., Nov. 25, 1878.

Editor Lancaster Farmer: Cotton is coming into this market freely and selling for about 8½ cents per pound by the bale. The lint is better than I have ever seen it grown in this and adjoining counties since here, over thirty years. The crop is a good one, both in quality and quantity. Tobacco in this and surrounding counties is good in quality but rather short in quantity. Never knew Irish and sweet potatoes more plentiful, both good in quality; have bartered for both kinds at 25 cents per bushel, each large size and good flavor. The apple and peach crop has been short in this section and over this State, so far as I can learn. Upon the whole, pretty fair crops of all kinds of grain, vegetables, fruit, cotton and tobacco, and other crops grown in this section of the country. Success to THE FARMER and all connected with it. Hope to live and write you again in 1879, and long years thereafter, if you wish it. Let us hear from you; always pleased to hear from you and your great county and its people.—Yours truly, M. R.

FOR THE LANCASTER FARMER.

RANDOM THOUGHTS.

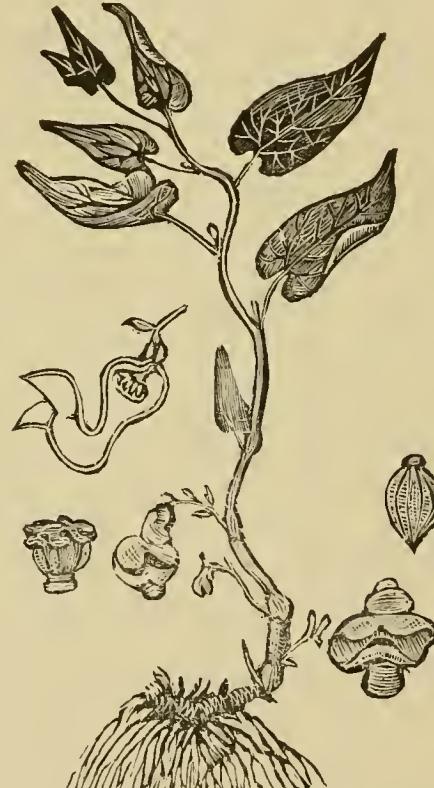
Mr. Editor:—Your correspondent in October number of THE FARMER, page 152, recommends tea growing as among the products that could probably be raised with profit in the United States, but on account of wages being so much higher, a resort to improved machinery would be necessary to prepare it. He "has no doubt the plants could be raised as cheaply as is done by hand in China." His remarks would appear to recommend the growing of tea anywhere in the United States. Does he not know that the Chinese tea plant, *Thea viridis*, is a tender plant, and cannot live in the open ground during our cold winters. It may be grown in some parts of the Southern

States, and has been grown in South Carolina for many years. But your correspondent's article, of "Random Thoughts," might lead some people to infer or suppose this plant can be cultivated anywhere, and any one who will test it, will surely have "his labor for his pains"—in Lancaster county, or Pennsylvania.—J. B. G.

For THE LANCASTER FARMER.

VIRGINIA SNAKEROOT.

The small, fibrous-rooted Snakeroot is well known for its pleasant aromatic and tonic properties which it imparts to old rye, and in early days was famous as a stimulant and grateful tonic bitters. The botanical or scientific name of this plant is *Aristolochia serpentaria*. Names are or ought to be significant. Let us inquire why it is called snakeroot: Cormontus, at the end of his book on the plants of Canada, published at Paris in 1635, tells us, "that a root had been sent him from 'Notha Anglia,' which was called *Serpentaria*, and in the vernacular tongue *Snagroel*. This root was a very sure safeguard against the bite of a huge serpent in that country, which proved inevitably fatal within twelve hours, unless a good portion of the antidote was swallowed in season, which being done, no one was ever known to be in danger of his life from this cause."



These snake stories and snakeroots are numerous; except a few venomous species the majority of snakes are harmless in their bite, and all the fuss to cure such bites arises from ignorance. But why is this genus of plants called *Aristolochia*? The Greek, *aristos*, means "best," and *lochia*, "parturition;" but the generic name may more specially relate to some other species. This plant has a singular flower near the ground and usually covered among the dead leaves. They have a stiff leathery texture of one piece (monopetalous tubular corolla), a contorted tube bent in the form of a letter S, swelling at its two extremities, the throat surrounded by an elevated edge or brim, and its border expanded into a broad, irregular margin, forming an upper and under lip, which are closed in a triangular manner in the bud; this odd flower is of a dull, brownish purple color, not much for beauty. The plant is of humble growth, not over a foot high, simple, slightly branched, jointed, flexuous, and often of a reddish tinge. The leaves are alternate, on short petioles, oblong, entire, acuminate, heart-shaped at base, and three-nerved. The root is extremely

fibrous, and sends up a number of stems; the root has a penetrating rather agreeable, resinous smell, and a pungent, bitter taste, somewhat approaching that of hemlock spruce (*Pinus canadensis*). A so-called "Indian herb doctor" told me to notice the direction the terminal leaf pointed of the one I was taking up, as I would find the next plant to which it pointed. When plants were few and far between, I found the advice of no avail. True, a day's journey in that direction might reveal another plant, while you miss one three yards off in another direction. Such was my experience—not favorable on that "point." I believe in some very queer things in nature that I cannot understand, because our knowledge is limited as to hidden causes that underlie the physical appearance of things. We need not, however, "believe" ourselves in that which affords no kind of evidence. Medicinally considered, *Serpentaria* is a tonic, diaphoretic, and in certain cases an antispasmodic and anodyne. It has been extensively used, and received the highest commendations of a host of medical writers when judiciously employed. While in the early stages of fever, or when attended with an active pulse and inflammatory diathesis, it is contra indicated. Yet in advanced stages of fever and those attended with typhoidal symptoms, this medicine is resorted to with great advantage both alone and in combination with other tonics and stimulants. It is peculiarly useful in supporting the strength, and in allaying the irregular actions which attend great febrile debility, such as are known to the faculty as *subsultus tendinum*, delirium, watchfulness, &c. Its bitter ingredients, and the camphor which it contains, no doubt contribute to these effects. It is very advantageously given in combination with bark, or with wine and opium.

Dr. Chapman, in his Therapeutics, considers the *Serpentaria* as partaking the mixed qualities of a stimulant and tonic, and acting also as a diaphoretic and diuretic. I cannot follow Sydenham, Dr. Lewis and other old school physicians and country practitioners of the regulars. I will only add Dr. Chapman's concluding remarks on this article; he says, "that it is admirably suited to check vomitings, and to tranquillize the stomach, more particularly in bilious cases. It is given for this purpose in decoction, in the small dose of half an ounce or less at a time, and frequently repeated."

Infusion is a common form by steeping half an ounce in a pint of boiling water for two hours in a covered vessel. An ounce taken every three or four hours; the powder, dose 10 to 30 grains. A tincture of the root is made by digesting an ounce of the root in a pint of proof spirits. It is also one of the ingredients in the compound tincture of bark, commonly called Huxham's. The German name is *Schlangen osterhuzey*. The French name comes near the English, *Serpentaire de Virginie*. Dr. Gray gives but one species. A narrow-leaved variety is *A. sagittata*, of our Lancaster botanist, Rev. Mr. Muhlenberg, and the *A. hirsuta*, of Nuttall. Either Dr. Gray reverses the names or Dr. Griffith, who gives five species, viz: 2. *A. hirsuta*, Muhlenberg; 3. *A. hastata*, Nuttall; adding this is the 4. *A. sagittata* of Muhlenberg; *A. reticulata*, Nuttall; 5. *A. tomentosa*, Sims. Although modifications do exist, we can consider *A. serpentaria* No. 1. It is found widely dispersed, growing in shady woods, especially on hillsides. It is less common in alluvial and calcareous soils. It flowers in May and June. Rafinesque, that singular genius and naturalist, says it flowers but once, or seldom. It does flower regularly every year when fully matured; this certain age is set down at three years. I have frequently found it with the flower, and a large, bulky cluster of fibers; again, without flower, and the plant not so vigorous; the roots less, it may possibly not get flowers till its third year.

Formerly this root was diligently sought after and shipped off in quantity to meet the demand. It has become rather scarce in all

the Atlantic States, or at least in their more eastern parts, now only found in certain situations—often few and far apart.—*J. Stauffer.*

FOR THE LANCASTER FARMER.
A FEW WORDS ON BEES AND
GRAPES.

Mr. Editor:—So it appears the bee men, in “council met,” have unanimously come to the conclusion that bees don’t sting grapes, and so that question is settled. Of course it will be labor lost for me to differ with such an august assembly of judges, for ‘tis known,

“To convince men against their will,
They’ll be of the same opinion still.”

We know as well as the bee man, that bees don’t sting the grapes, but we too consider the “question settled,” that these Italian bees can and do eat the grapes, and suck the berries dry. When men like J. F. H. can show a clear profit of \$400, and nine-tenths of this profit is collected off his neighbor’s property, he at least will not agree to have the question settled contrary to his interest. But when other people’s stock trespass, and rob me of my property, I, as a matter of course, try to avail myself of the only remedy at hand, in the same manner as we try to save potato crops. So if they find their swarms growing small and beautifully less, they may know the reason why.—*J. B. G.*

FOR THE LANCASTER FARMER.
STRAWBERRIES.

Such a large number of new strawberries are yearly offered that if each one were to invest in all that are said to be superior to anything we ever had before, he would need to have a long purse, and would have to enlarge his fruit gardens. I thought it would perhaps be interesting to the readers of THE FARMER to have some description of some of the most prominent varieties now before the public :

Charles Downing.—A variety that has made itself a name—a rival to Wilson in productivity, and of better quality.

Cumberland Triumph.—A grand berry for home use and for near market—fruit large, productive, with remarkable healthy foliage.

Monarch of the West.—A good grower, large berry, bears the hot sun better than Wilson, productive and very good.

Crescent Seedling.—Another year’s experience has shown its superior productiveness. Has yielded 15,000 quarts per acre on its original place. In size and flavor it does not compare with some others, but as quantity is more essential than quality, it is destined to become very popular.

Prouty’s Seedling.—A fine, showy, conical berry, from medium to large size, good quality, and enormously productive.

Captain Jack.—As productive as the Wilson, and of better quality, but does not average as large.

Duchess.—The reputation of this for earliness stands very high.

Forest Rose.—A large, showy berry, from Lancaster, Ohio. Several years’ trial in various parts of the country would indicate that it will prove a really valuable acquisition.

Cinderella and Continental Favorite.—Two varieties originated by Mr. Felton, of New Jersey, have been highly spoken of last season, said to be as productive as Crescent Seedling and of better size and quality.

Sharpless.—Originated by J. K. Sharpless, of Catawissa, Pa. Has been tested by noted fruit-growers in different localities—is an enormous grower and very productive. Said to have been grown twelve inches in circumference. Think of it! Strawberries as large as the largest peaches!

Great American.—Said to be a match in size to Sharpless.

President Lincoln.—A strong, healthy plant, berries of the largest size and of very good quality.

Durand’s Beauty and Miner’s Great Profits.—Both large, showy berries; are also highly spoken of where tried. To grow these

large varieties in perfection requires high manuring, deep and thorough cultivation, and plenty of water in a dry season—care by day and care by night—and then, even then, we will, perhaps, as we have often done before with new varieties, gradually drop them out of the list, and the sour despised Wilson may again become the favorite berry on our ground. One thing is certain, if we want to ascertain the value of these strawberries, we must test them on our own grounds.—*Casper Hiller.*

FOR THE LANCASTER FARMER.
OUR CORN CROP.

In this section of the country, the present season was the most unfavorable for the corn crop that has been known for some years. The spring opened warm and favorable, so that corn was planted much earlier than usual, but was hardly planted until cold, wet weather set in that stunted the just sprouted corn, so that it came up yellow and feeble, and in some cases had to be replanted. Then when warm weather did come, it was accompanied by drouths such as are rarely experienced. The result of all this is seen in less than a half crop, and in some cases a total failure.

I will try to give the history of our effort at raising corn and the result :

The field, facing directly north, was a two-year old clover and timothy sod, which was very tough. Early in the spring a moderately heavy coating of lime was given, and the ploughing and preparing done just before it was to be planted.

It is generally supposed that corn should not be planted deeper than two inches, certainly not deeper than three inches. When we commenced drilling, about one-half the corn was not covered at all, and without close inspection we thought the plow to the drill did not run deep enough. We then had a long point put to the drill-plow, and we had no further trouble about not covering.

We got the corn planted, and waited eight days and saw no sign of it coming up yet. Then we examined to see the cause of this, and we found that we had planted our corn from five to six inches deep; it was only on the ninth and tenth days that it commenced to show above the surface, and then very irregularly. About the time the corn was coming up one of those cold, wet spells set in and it was too late, we thought, to replant when the soil was in condition again.

If we would have examined the corn-drill a little closer we would have found the difficulty to exist in the spout that drops the grains in the furrow; this spout must always be made to drop as close up to the plow as possible or the work will be imperfectly done.

At the first harrowing the plants had a miserable appearance, being yellow and striped, and without that full heart for which healthy young corn is noted. At the second harrowing it had grown some, but was still yellow and striped, and much behind the corn of surrounding neighbors. On examining the roots of the stalks that were striped we were surprised to see them full of plant-lice (*aphis*), and we were now pretty certain we would have a complete failure. But we kept on harrowing the corn, keeping the surface loose, until at last the corn commenced to grow and we only quit working it when it got to be pretty large and a storm laid it over so we could not quite finish the field, so that a part of the corn was not thinned out. In the finishing we used the hoe only to remove the grass in the row, using nothing but the harrow between the rows and not hitting any, having adopted the flat system of cultivation.

We have just finished husking, and the result was a surprise to all, the yield being 115 bushels of ears to the acre and very little soft corn, even the smaller ears being fully matured. Though it was not one of the “over a hundred bushels shelled” crops of corn, it is satisfactory, considering the season. Let us see whether we cannot glean something worth remembering from the results given above.

The liming we will not discuss at present,

but I merely state that my father considers sod that is to be ploughed under for corn the best place to put lime. Some practice ploughing sod in the fall because the soil will be more completely rotted. I have no doubt but that this is the case, but is there any advantage in it. Corn when young does not need so much nourishment as when older, and even if it did, if the sod was completely inverted, the young corn would derive very little benefit, because the roots do not extend to where the bulk of the sod lies.

If we plough just before planting time the soil will, in most cases, be just in that moist state that will facilitate germination; if it has been ploughed longer, then it may be either too dry or too wet. And as the young corn can find a sufficient supply of nourishment the sod will be rotting below it, and by the time the plant needs additional nourishment the sod will be just about rotted, and this is the time when all manures are at their best. Before that time they will not so readily give up the elements necessary to plant growth, and after it they do not seem to have the same strength, probably because this strength has been scattered into the surrounding soil.

In the next place we must consider the seasons we now have. According to the “oldest inhabitant,” long years ago our seasons were quite moist, the very dry season being the exception. Now dry seasons are the rule, and moist or wet seasons very exceptional. Should not this have some bearing on the depth at which we plant and also the method of cultivation?

Most of the readers of this will probably recollect a short article published to the effect that a certain tribe of Indians in one of the western territories planted corn fifteen inches deep, if I recollect aright. This deep planting is practiced by them on account of the drouths to which they are accustomed. Why should we not imitate them, not by planting fifteen inches deep, because that would rarely be possible, except in Jersey sands and a few other favorable places, but by planting, say six inches deep on all loose or sandy soils that are well drained. I believe that in five years out of six we would be gainers by this practice, as there are very few years when our corn crops would not be benefited by the roots having more moisture.

In the cultivation, also, something can be done to keep more moisture at the roots. If we ridge or hill the corn as has been usual, we take several inches of soil from the top and bring the bulk of the small fibrous roots that much nearer the dry surface. This is avoided by flat cultivation, and when the corn is planted deep there is very little danger of the rootlets being cut or mutilated by the harrow being run through as late as possible. In a moist season, or at any time when there is a danger of the corn running to stalk too much, the harrow may be run deeper, so as to purposely cut the roots, it being now almost universally acknowledged that root-pruning will cause an increased yield where growth is excessive. Let it not be supposed that we attribute our success this year to any foresight, as we must give all the credit to accidents and necessities. The deep-planting was an accident; the repeated cultivation was necessary to keep weeds down while the corn was small; the flat cultivation was only done because the field, all but two acres, is a pretty steep hillside. We can attribute the crop, however, to liming, late ploughing, deep planting and thorough cultivation.—*A. B. K.*

FOR THE LANCASTER FARMER.
CHOCOLATE SORGHUM.

If sugar may be made out of watermelons, sweet potatoes and cornstalks, as well as out of sugar cane and sorghum, why not chocolate out of other plants as well as out of the chocolate nut?

When a lad of some ten or twelve years I was sent on an errand to Jimmy Low’s, a colored family, on Walnut street, Marietta. It was early morning, and the family was

just rising from the breakfast table. They invited me to sit down and eat, but as their hospitality had been forestalled by a hearty breakfast at home, they offered me "a cup of chocolate," an article too rare and too delicious to a boy's palate, when well made and well sweetened, to be refused more than once, and that only "for good manners!" So I sat down and soon despatched what appeared to my uncoincisseur taste to be a cup of weak but pretty good chocolate. I found out that they raised the article of which it was made in their own garden, and was shown the plant on which it grew, and often saw it afterward. It resembled what is now called Imphee, a plant of the broomcorn and sorghum order, much used, like sorghum, in the west as well as elsewhere, especially during the rebellion, for making syrup and sugar. The stalk and leaves were like sorghum, the head forming an oval clump of dark purple seeds, which were roasted, as if for coffee, and pounded in a mortar or coarsely ground in a coffee mill, and then prepared as chocolate usually is. I have searched among the many varieties of sorghum and imphee met with in the last fifteen years, but have been unable to find this particular plaut. Yet I have been told that it is grown as one of the many sugar-producing sorghums, and that its botanical name is *Holcus bi color*. As the seed head of that raised by James Low was uniformly purple, and so dark as to be called *black*, I have thought there might be a mistake in the name or its application.

I will add that I have heard that the seeds of the common broom-corn, when properly roasted, and mixed and ground with a little coffee, have been used as a substitute for coffee during "hard times," and been found very palatable. Perhaps when the palate and nervous system have been duly disciplined while coffee is very dear, the addition of this (by way of change,) to other numerous substitutes for the Arabian berry, may be of some gratification to lovers of coffee. It has, at least, the merit of being very cheap and plentiful in some sections of our land, and easily raised in almost any garden.—A. B. Grosh, Washington, D. C.

[When a boy we lived in the same street that Jimmy Low did, about two squares west of his house; and we can distinctly recall the kind of chocolate referred to by the writer of the above. For, not only was it cultivated and used at our home, but also by a number of our neighbors, and we imagined it as good as the genuine; and we can yet see the bunches of seed heads hanging all winter in the attic, for next seasons planting. Judging from such time-marks as we can fix in our mind, our mother cultivated the "chocolate corn" in the summers of 1821, 1822 and, perhaps, 1823. On the stalk the seeds, or that portion protruding from the glumes, were a very dark purple, and the stalk was also streaked with the same color. But we have no distinct recollection of having seen any of it since that period. We think it was called "Chinese chocolate."—ED.]

HOME-MADE MANURES.

We publish the following scientific formulas for the manufacture of "home-made manures" on the farm, and which our agricultural readers can keep and refer to at any time when they may have occasion and opportunity to compound them for themselves. The time is certainly gradually, but steadily, approaching when every farmer will be compelled to pay some heed to scientific farming, and especially to the compounding of artificial manures. The future tendency of our country, through the rapid increase of its population, will be towards increasing the number of our farms and farmers; the diminishing of the size of our farms, and a higher, more thorough and intelligent state of culture, through which, and with less labor, an increased and improved amount of products may be realized. The following twenty-two formulas—twenty-one of which are adapted to crops grown in Lancaster county—will, at least, behelpful in experi-

menting on manures and soils. They were originally published by the Harrison Brothers & Co., of Philadelphia, Pa., who have devoted much time and thought to analytical chemistry, and possess no ordinary reputation in that branch of science.

The great need of the farmer is a cheap and effective manure. In these formulas we have aimed to meet that want.

Chemical manure is a concentrated fertilizer having no useless materials. It is more powerful than barnyard manure, since in the latter the four valuable constituents, nitrogen, phosphoric acid, potash and lime are mixed with bulky foreign matters, which hinder their action, while on the other hand, chemical manure is composed only of substances which act directly, and are easily absorbed by plants.

No machinery is required to mix these "home-made" manures. Ordinary farm labor can mix them as successfully as the practical chemist.

The formulas may be relied upon as the best mixtures for the special crops for which they are intended, and are calculated to suit the requirements of the average product of a well cultivated single acre.

No. 1. WHEAT.—For 20 bushels over natural yield.	
Sulphate of Ammonia, 25 per cent.,	200 lbs.
Ground Bones,	100 "
Oil of Vitriol, 66°,	40 "
Muriate of Potash, 80 per cent.,	50 "
Sulphate of Soda,	40 "
Land Plaster,	170 "
	600

No. 2. INDIAN CORN.—For 30 bushels over natural yield.	
Ground Bones,	100 lbs.
Oil of Vitriol, 66°,	40 "
Sulphate of Ammonia, 25 per cent.,	180 "
Muriate of Potash, 80 per cent.,	125 "
Sulphate of Soda,	35 "
Land Plaster,	120 "
	600

No. 3. OATS.—For 30 bushels over natural yield.	
Sulphate of Ammonia, 25 per cent.,	150 lbs.
Ground Bones,	50 "
Oil of Vitriol, 66°,	20 "
Muriate of Potash, 80 per cent.,	50 "
Sulphate of Soda,	30 "
Land Plaster,	100 "
	400 "

No. 4. BARLEY.—For 30 bushels over natural yield.	
Sulphate of Ammonia, 25 per cent.,	175 lbs.
Ground Bones,	75 "
Oil of Vitriol, 66°,	30 "
Muriate of Potash, 80 per cent.,	65 "
Sulphate of Soda,	35 "
Land Plaster,	120 "
	500 "

No. 5. RYE.—For 20 bushels over natural yield.	
Sulphate of Ammonia, 25 per cent.,	140 lbs.
Ground Bones,	60 "
Oil of Vitriol, 66°,	25 "
Muriate of Potash, 80 per cent.,	50 "
Sulphate of Soda,	45 "
Land Plaster,	130 "
	450 "

No. 6. BUCKWHEAT.—For 25 bushels over natural yield.	
Muriate of Potash, 80 per cent.,	100 lbs.
Sulphate of Ammonia, 25 per cent.,	185 "
Ground Bones,	100 "
Oil of Vitriol, 66°,	40 "
Sulphate of Soda,	75 "
Land Plaster,	100 "
	600 "

No. 7. COTTON.—For 500 pounds Lint over natural yield.	
Ground Bones,	75 lbs.
Oil of Vitriol, 66°,	30 "
Sulphate of Ammonia, 25 per cent.,	235 "
Muriate of Potash, 80 per cent.,	40 "
Sulphate of Soda,	30 "
Land Plaster,	120 "
Sulphate of Magnesia, crude,	70 "
	600 "

No. 8. TOBACCO.—For 1,000 lbs. dry leaf over natural yield.	
Sulphate of Potash, 25 per cent.,	700 lbs.
Sulphate of Ammonia, 25 per cent.,	310 "

Ground Bones,	100 lbs.
Oil of Vitriol, 66°,	40 "
Sulphate of Magnesia, crude,	100 "
Land Plaster,	150 "
	1400 "

No. 9. CABBAGES.—For 15 tons over natural yield.

Muriate of Potash, 80 per cent.,	350 lbs.
Sulphate of Ammonia, 25 per cent.,	400 "
Ground Bones,	250 "
Oil of Vitriol, 66°,	100 "
Sulphate of Soda,	50 "
Land Plaster,	200 "
	1350 "

No. 10. BEANS.—For 20 bushels over natural yield.

Muriate of Potash, 80 per cent.,	120 lbs.
Sulphate of Ammonia, 25 per cent.,	320 "
Ground Bones,	100 "
Oil of Vitriol, 66°,	40 "
Sulphate of Soda,	100 "
Land Plaster,	120 "
	800 "

No. 11. PEAS.—For 20 bushels over natural yield.

Muriate of Potash, 80 per cent.,	90 lbs.
Sulphate of Ammonia, 25 per cent.,	250 "
Ground Bones,	100 "
Oil of Vitriol, 66°,	40 "
Sulphate of Soda,	60 "
Land Plaster,	160 "
	700 "

No. 12. SUGAR BEETS.—For 10 tons (Roots) over natural yield.

Sulphate of Ammonia, 25 per cent.,	240 lbs.
Ground Bones,	100 "
Oil of Vitriol, 66°,	40 "
Sulphate of Potash, 25 per cent.,	850 "
Land Plaster,	120 "
	1350 "

No. 13. POTATOES.—For 200 bushels over natural yield.

Sulphate of Potash, 25 per cent.,	550 lbs.
Sulphate of Ammonia, 25 per cent.,	200 "
Ground Bones,	100 "
Oil of Vitriol, 66°,	40 "
Land Plaster,	120 "
Sulphate of Soda,	40 "
	1050 "

No. 14. ONIONS.—For 400 bushels over natural yield.

Sulphate of Ammonia, 25 per cent.,	220 lbs.
Ground Bones,	150 "
Oil of Vitriol, 66°,	60 "
Sulphate of Potash, 25 per cent.,	250 "
Land Plaster,	120 "
	800 "

No. 15. TURNIPS.—For 10 tons (roots) over natural yield.

Ground Bones,	100 lbs.
Oil of Vitriol, 66°,	40 "
Sulphate of Ammonia, 25 per cent.,	275 "
Sulphate of Potash, 25 per cent.,	600 "
Land Plaster,	150 "
Sulphate of Soda,	35 "
	1200 "

No. 16. CARROTS.—For 300 bushels over natural yield.

Sulphate of Ammonia, 25 per cent.,	350 lbs.
Ground Bones,	100 "
Oil of Vitriol, 66°,	40 "
Sulphate of Potash, 25 per cent.,	500 "
Land Plaster,	150 "
Sulphate of Soda,	60 "
	1200 "

No. 17. PEACH TREES AND GRAPEVINES.—Per aere.

Muriate of Potash, 80 per cent.,	400 lbs.
Nitrate of Soda, 95 per cent.,	350 "
Ground Bones,	400 "
Oil of Vitriol, 66°,	180 "
Sulphate of Soda,	90 "
Land Plaster,	200 "
	1600 "

No. 18. STRAWBERRIES.—Per aere.

Muriate of Potash, 80 per cent.,	220 lbs.
Nitrate of Soda, 95 per cent.,	160 "
Ground Bones,	150 "
Oil of Vitriol, 66°,	60 "
Land Plaster,	110 "
	700 "

No. 19. TIMOTHY AND MEADOW GRASS.—Two tons (Dry) over natural yield.

Sulphate of Ammonia, 25 per cent.,	300 lbs.
Ground Bones,	100 "
Oil of Vitriol, 66°,	40 "

Muriate of Potash, 80 per cent.,	150 lbs.
Sulphate of Soda,	60 "
Land Plaster,	200 "
	850 "
No. 20. CLOVER.—Two tons (Cured) over natural yield.	
Muriate of Potash, 80 per cent.,	175 lbs.
Sulphate of Ammonia, 25 per cent.,	250 "
Ground Bones,	100 "
Oil of Vitriol, 66°,	40 "
Sulphate of Soda,	35 "
Land Plaster,	150 "
	750 "
No. 21. FODDER CORN.—For 10 tons (Green) over natural yield.	
Muriate of Potash, 80 per cent.,	175 lbs.
Sulphate of Ammonia, 25 per cent.,	175 "
Ground Bones,	100 "
Oil of Vitriol, 66°,	40 "
Land Plaster,	110 "
	600 "
No. 22. FODDER RYE.—For 3 tons (Green) over natural yield.	
Muriate of Potash, 80 per cent.,	90 lbs.
Sulphate of Ammonia, 25 per cent.,	160 "
Ground Bones,	75 "
Oil of Vitriol, 66°,	30 "
Sulphate of Soda,	45 "
Land Plaster,	100 "
	500 "

Remarks.

Chemical manures should be spread as regularly as possible, at once after the last plowing, broadcast, and follow by a careful harrowing, that they may be thoroughly mixed with the soil. If the spreading be done by hand, it will be more evenly performed if the manure be mixed with its own bulk of fine dry earth.

WHEAT.—After a severe winter, or one in which but little snow has fallen, wheat is generally much enfeebled. With 125 lbs. sulphate of ammonia, or 150 lbs. nitrate of soda, mixed with 150 lbs. land plaster, to be used as a top dressing for one acre, as early in March as practicable, the field will be changed in a few days from its sickly appearance to a healthy state, and the crop insured. The effect of such top-dressing is quite marked. It is important, however, not to apply this top-dressing later, in this latitude, than April 1st, as its effect might then be to hasten the growth so much that straw would preponderate and the grain not be plump or plentiful.

GRAPEVINES.—The proper method of application is to take half of the manure and spread it in a band 12 inches wide, and 8 inches distant from the rows of vines; this manure is then buried with a spade. The other half should be spread at the surface of the ploughed ground. Always manure grapevines in the fall of the year.

Barnyard manure may be used in conjunction with chemical manures, if desired; and when so used our recipes may be reduced in amount one-half. Plough under, deep, the barnyard manure, and spread over the surface the chemical fertilizers *after* the last ploughing.

The preparation of chemical manures, made by the foregoing recipes, is a very simple process. Any person may, by following the instructions here laid down, manufacture his own fertilizers without difficulty.

To dissolve bones, sulphuric acid should be used, as it is the most powerful economical means for that end. When the acid reaches the bones the mass effervesces, boils up and becomes warm, the sulphuric acid taking away two-thirds of the lime of the bone from the phosphoric acid, which remains united with the other third, forming a super-phosphate, which substance is perfectly soluble in water, and is called soluble phosphate. One hundred pounds of ground raw bones require forty pounds of sulphuric acid (oil vitriol).

If calcined bones (bone-black) be the material used, every hundred pounds will require eighty-six pounds of oil vitriol: if steamed bones are used sixty-six pounds of oil of vitriol will be required for their reduction.

Directions for Mixing.

The usual mode is to select a tight floor in a barn, or to make a box, eight or ten feet

long by six wide, of inch boards. Take the bones, and if not ground fine sift them and place only the coarser part on the floor, or in the box, reserving the fine bone for mixing in afterward as a dryer. Only the coarse bone should come into direct contact with the oil of vitriol. Water, equal to about one-fourth the weight of the coarse bones, is first to be poured on the bones, and be well stirred in with a spade or hoe, and left for two or three days to heat and ferment. After the bones have fermented (and not until then) add the oil of vitriol, at the rate of 40 lbs. to each 100 lbs. of bones, stirring well with a wooden spade, or board, until the mass stops boiling. Stir twice a day, thoroughly, for two days, and then let the whole stand for two days; after which the fine bone may be added to dry up the moisture. If these prove insufficient use some absorbing substance, as saw-dust, dry peat or muck, or fine dry earth, in small quantities, and mix in well. Do not use for this purpose lime, ashes or marl, as they would destroy the superphosphate and spoil the whole work:

When the dissolved bones have become perfectly dry—and not before it is so—add the other substances which are to compose the fertilizer, one at time, stirring each in thoroughly, in its turn, with the bones, reserving the land plaster to be worked in as the last thing. Chemical manures, when not intended for immediate use, should be barrelled up and kept in a dry place.

THE GERMANTOWN TELEGRAPH'S REVISED FRUIT LIST.

Since the last publication of our fruit list we have, for satisfactory reasons, changed our opinion with respect to a few of the fruits which it contained. But in regard to the list as a whole we can see no just grounds for disturbing it. Indeed, we do not see how it can be improved for this section of the country, or as a general list for all the Middle States. Some of each of the separate selections may not do well upon one premises that will succeed admirably on another. Each grower must find out for himself the particular apples, pears, &c., especially adapted for his soil and location.

According to our present preference we should select the following for our own planting:

Standard Pears.—1, Giffard; 2, Early Catharine; 3, Kirtland; 4, Bloodgood; 5, Summer Julianne; 6, Tyson; 7, Brandywine; 8, Bartlett; 9, Belle Lucrative; 10, Manning's Elizabeth; 11, Seckel; 12, Howell; 13, Anjou; 14, Sheldene; 15, St. Ghislain; 16, Rutter; 17, Lawrence; 18, Reading.

For those who may desire a smaller number we should select: 1, Giffard; 2, Early Catharine; 3, Bloodgood; 4, Tyson; 5, Bartlett; 6, Belle Lucrative; 7, Seckel; 8, Lawrence; 9, Reading. They ripen in the order they are arranged.

In the above general list, from No. 1 to 8 are summer varieties; from 9 to 16 autumn (early and late); and 17 and 18 winter, thus affording a sufficient number for each of the periods of the best known sorts for this region. We have dropped Doyenne d'Ete, Buffam, Boussock and Feaster, as not coming up to the mark of excellence or productiveness we aim at.

We have added St. Ghislain as an excellent variety, though but little cultivated here, and restored Kirtland, a good and reliable variety, after a long trial.

Dwarf Pears.—1, St. Michael d'Archange; 2, Bartlett; 3, Comice; 4, Rostiezer; 5, Diehl; 6, Tyson; 7, Belle Lucrative; 8, Lawrence; 9, Ott; 10, Louise Bonne; 11, Boussock; 12, Glout Moreau.

Apples.—1, Maiden's Blush; 2, Baldwin; 3, Smokehouse; 4, Jefferies; 5, Smith's Cider; 6, Northern Spy; 7, Fallawater; 8, Cornell's Fancy; 9, Red Astrachan; 10, Wagener; 11, Porter; 12, Gravenstein.

We add to the foregoing list Porter and Gravenstein, both most excellent varieties,

the latter perhaps, as it respects quality, the best apple grown.

Peaches.—1, Crawford's Early; 2, Hale's Early; 3, York's Early; 4, Old Mixon; 5, Crawford's Late; 6, Ward's Late; 7, Smock's Late; 8, Susquehanna.

There is no solid reason to change this list so far as it goes. We suggested to peach-growers to favor us with a list of their own, and a few did, but where they differed from ours we did not deem an improvement.

Grapes.—1, Telegraph; 2, Concord; 3, Hartford; 4, Clinton; 5, Salem; 6, Creveling.

Salem has proved with us to be excellent—we think the best out-door grape, it having but little pulp; also Rogers' 21 bears abundantly, and will become popular. No. 32 is a beautiful pink grape, almost transparent, an abundant bearer and very good in quality. There are new varieties "in the market," but we advise to keep them at a distance for the present. Clinton, in the foregoing list, is only for wine, and is probably the very best for that purpose in this section.

Cherries.—1, May Bigarreau; 2, Belle de Choisy; 3, Black Tartarian; 4, Black Eagle; 5, Black Hawk; 6, Elton; 7, Downer's Late; 8, Early Richmond; 9, Early Purple Guigne; 10, Delaware Bleeding Heart.

The ripening of the list will range from the earliest to the latest, thus carrying one through the whole cherry season. No one can go amiss in adopting this list.

Raspberries.—1, Hornet; 2, Herstine; 3, Philadelphia; 4, Brandywine.

The Herstine has proved itself to stand in the front rank among raspberries in quality and productiveness, but requires winter protection. In other respects it is not to be preferred to the Hornet, which is larger and the quality quite as good, with the additional advantages of keeping in bearing *nearly three times* longer than the Herstine. The Brandywine as a market fruit is coming into much notice.

Strawberries.—1, Captain Jack; 2, Seth Boyden; 3, Monarch of the West; 4, Triomph de Gant.

We have dropped Hovey's Seedling and Albany Seedling, as having seen their best day in this section, and substituted Captain Jack and Seth Boyden, which just now are high up in the public favor. As to the former it is unexcelled. There are several new varieties announced, but for the present we prefer to stick to our short list.

Currants.—1, Black Naples; 2, Red Dutch.

These two varieties are the best among the different colors. The Red Dutch is a regular bearer and is of better quality than any other. There are others larger, but they are more acid. The white grape is transparent, of good quality, and ought to be more generally grown, but it is not a great bearer.

Gooseberries.—1, Houghton; 2, Downing. These are the two best gooseberries grown in the country. They bear every year heavy crops, are free from mildew, and are of excellent quality. They are large enough for all practical purposes. Keep clear of the giants and their big pries.

Blackberries.—1, New Rochelle; 2, Misorouri Cluster; 3, Wilson's Early.

The Snyder, a new Western blackberry, is highly spoken of at distant points, but we prefer to wait another year before recommending it.

It is better that those who intend to cultivate fruit and have to make purchases, to take this list with them to the nursery, and adhere to it as far as possible.

In selecting fruit trees, or any others, be careful to choose those with smooth, healthy-looking bark, and have entirely shed their leaves, with plenty of small or fibrous roots. Trees on which the leaves remain after frost sets in, and stick to the branches in the spring, may be regarded as not healthy, and in some way lacking stamina.

[In addition to the above, or foregoing list, we would recommend the Sener Peach; Schmeych's Lancaster Cherry, and Sener's Holland Pippin for Lancaster county.—ED.]

LIVESTOCK FARMING.

No interest connected with American agriculture has of late years attracted more notice than livestock farming. This interest embraces beesves, horses, sheep, swine and poultry, but the development to which we refer relates more particularly to cattle and horses. The food supply for Europe has for a long series of years directed enterprise to the provision trade of the United States, in such a way that it has attained colossal dimensions. Latterly efforts have been made to transport to Europe fresh beef for sale, but the difficulties connected with this enterprise have more recently stimulated the exportation of livestock to Europe instead of fresh beef. This movement has taken shape more particularly in Boston, at the port nearest Europe, and consequently the one from which the shortest voyage is made. But the shipping of livestock by steamers from that port embraces horses, sheep and swine, as well as beesves, and the business increases at such a rate that it bids fair to become a leading branch of our national commerce. As regards horses, the demand in Europe is at all times so great that the principal martial powers of the continent frequently prohibit the exportation of these animals as an indispensable measure required to insure for themselves an adequate supply of cavalry and artillery horses.

The capacity of our country for the production of livestock is so vast that too much attention cannot be bestowed upon this business. Rightly understood livestock farming is really one of the best resources for the support of a large population. Thousands of farmers who now waste their capital, time and labor, in the culture of crops that do not pay expenses on account of the markets being overstocked, could much more advantageously turn their attention to the breeding of horses, horned cattle, sheep and swine, not merely for the European markets, but for the home demand also. In the prairie States of the West this has become a favorite employment in regions where, owing to the distance from the seaboard, the culture of the cereal crops is unprofitable. The leading livestock markets of the West are Chicago and St. Louis, but the shipments of stock to Europe are made chiefly from Chicago as a centre. These have proved so profitable that the business of exportation bids fair to become permanent and to take the place of the shipments of fresh beef.

In the Southern States no movement has yet been made in this business, although no country in the world is better adapted to it. In the course of time, no doubt, the people of that section will find it to their interest to raise live stock for exportation upon the same scale that they do cotton and tobacco. Of the States of the old South, Missouri, Texas and Kentucky seem to be the only ones that have gone into stock farming to any great extent, and of these Texas has made it an immense interest; in fact the cattle herds of Texas exceed those of any other State or territory in the Union—the horned cattle alone reaching four millions. From Texas as a centre the cattle breeding interest has extended into Colorado, Wyoming, Nebraska, Dakota and Montana, and would be colossal in all of them but for the havoc committed by border ruffians and predatory Indians. In California this business has been revived in the southern counties, where it flourished in the old Spanish times on a great scale, but perished with all other industries at the outbreak of the gold excitement. The old settlers of Spanish race still cling to stock farming as their traditional business, and many of them employ the original Indians as herdsmen. Connected with stock farming are various industries of great importance to a country like ours, such as the commerce in hides, glue, wool, whips, boots and shoes, leather, etc. Thus, therefore, stock farming has an importance to the civilized arts of the world beyond and above all connection with the food supply; and if our countrymen can be induced to engage in this business generally, and on a grand scale, there can be no doubt that the result would

be to give us command of the commerce of the world. It is greatly to be regretted that a more general attention is not paid to the business at the South, where immense tracts of land are available for the purpose that are now lying idle.

In consequence of the rapid rise of this interest, young cities in the West have risen up to large dimensions, and promise to become commercial rivals of St. Louis and Chicago. This is really the case with Kansas City, and will in the course of time become so also with Denver and other places. West Virginia seems to us peculiarly fitted for such a business as this. It is carried on there already to a considerable extent, and contributes large supplies of cattle to the seaboard market. Western Pennsylvania has also bestowed some attention on this business, but not to the extent that it should have done. Grain farming being in a large degree unprofitable here in the seaboard States, on account of the enormous crops of the West, and truck farming in this region being also subject to the competition of the earlier crops of the southern seaboard, stock farming seems to afford exactly the resources needed by our agricultural interests. This is a business in which the South has no advantage derived from its earlier seasons, and in England, where farming labors under the disadvantage of enormous foreign competition, stock farming has become a general reliance. So it should be with us of the North Atlantic States, where the profits of agriculture have been diminished year by year in consequence of our markets being flooded with the enormous crops of the West and South.—*Germantown Telegraph.*

ALL ABOUT EGGS.

Perhaps not one person in a thousand can tell that anything is the matter with an egg unless it is completely spoiled. Doubtless the vast majority of those who eat eggs, so season them as to do away with its flavor, if it had any in the first place. Three-fourths of them go down to their graves in blissful ignorance of the fact that for half their lives they have been eating “pickled” eggs and paying for fresh ones. A pickled egg is brought about in this way: Some time during July, when the weather is warm, and the eggs low, a worthy farmer, whose business tact and piety is about equally balanced, procures a barrel, fills it full of lime and eggs, and in the fall, stocks the market with “fresh” eggs. The lime, of course, prevents the egg from addling. It requires an epicure to detect the difference in taste between a “limed” egg and one fresh from the manufactory. But there is one test that gives the “pickled” egg away: It won’t boil; whenever it comes in contact with hot water, the shell dissolves partnership in the middle. They are sold at a figure one-third less than can be obtained for the newly-laid article.

The “Ice-House” Egg.

Then there is the grade known as the “ice-house” egg, where the same worthy farmer aforementioned, instead of putting his “corner” in eggs in a lime barrel, places the barrel in an ice-house, and confidently waits cold weather and increase in prices. One characteristic is noticeable about an “ice-house.” When taken from the barrel it invariably “sweats;” in fact a keen eye can discern a vapor rising from the shell. Another sign of this egg is, the “white” and yolk contract and do not fill the shell. The endurance or capacity of an egg to retain its freshness is brought out quite vividly in this process. A New Jersey Cochin China egg will taste the same three weeks after as when it was first laid; a longer time than that gives it a rather insipid flavor. Pennsylvania and Maryland rank equal in the matter of retaining freshness, and then follow Wisconsin, Iowa and Missouri.

“Candled” Eggs.

It may be safely said that of the thousands who take their “fried, both sides,” not one is aware that a test exists by which experts can

correctly determine the age of an egg. This is, however, true. In the matter of butter such a test is unfortunately, as yet, undiscovered. This is ascertained by what is known as the “candling” process. A good egg is transparent—everybody admits this. To determine this fact it is generally held before a candle. If it can be seen through it is good; if otherwise it is “n. g.” The extent of shrinkage in the white determines how old the egg is, a thirty-second part of an inch indicating three weeks, a sixteenth six weeks, and so on. A bad egg is opaque; it also generally makes its whereabouts known.

Added Eggs.

To the general reader the good in a bad egg was past finding out. It has none—except to be used as “testimonials of esteem” upon candidates for office, when all other experiments to make them aware of the feelings of their constituency have failed. “If you suppose that the only use to which a bad egg can be put,” said an egg merchant to a press reporter yesterday, “is to pelt objectionable politicians, you are as benighted as the African heathen. Now, mum’s the word, is it? All right. Well, I sell bad eggs to be used for cooking purposes. As you live, that’s so. Not only have the parties told me for what they used them, but I have seen them with my own eyes. How much do I get for them? Six cents a dozen. Here, look at this egg. Its ‘spotted’—in other words addled; to make it plainer, rotten. Were I to break the shell the odors it would shed would rival a first-class glue factory, or a horse-boiling establishment in July. Don’t mean to say that things people eat are made of those eggs? That’s just exactly what I mean to say and can prove it. What do they make? Cookies, doughnuts, pies, cakes—in fact, this woman whom I know used them to make these things sells to all these vendors of pastry and pies on the streets. The smell? Oh, that is deadened by the preparation of hartshorn. You are fond of cookies? So was I until this revelation. Somehow I don’t relish them now—maybe its owing to the water—possibly because I know what’s in them. That’s why these street-corner merchants sell their eatables so cheap—because eggs are the principal ingredients, and if they can buy them for six cents a dozen you at once see that they can afford to sell ‘cookies’ cheaper than parties who have to pay twenty-five cents a dozen. The longer you live the more, etc. I wouldn’t have believed it if I hadn’t seen it; now that I have seen it my diet has changed. I am convinced now that there is no waste in this world; matter simply changes form, that’s all.”

MANAGING A SMALL FARM.

Whether it is best for a farmer to own a large or small farm is a question to be determined by each individual. If a man has the capital to buy and stock a large farm, and the business capacity to manage it, then a large farm is the best for him. It is a fact which a limited observation will prove, that large farms are not, as a rule, as well cultivated, or as economically managed as small ones. As I have had twenty years’ experience on a forty acre farm, I feel a sympathy for small farmers, and somewhat competent to advise them. There are many men who have not means to buy a large farm, yet whose tastes are such that they prefer a country life; and yet they are afraid that they cannot make a living on a small farm, for they see many farmers with a hundred acres or more, who seem to have a perpetual struggle to make both ends meet. I am aware that it requires better farming, and often more economy to manage a small farm, and support and educate a family, than it will on a larger farm, but that it can be done has been proved in numberless instances.

In the management of such a farm, one must be governed by the circumstances surrounding him. He needs to grow crops which will bring quick returns, for he cannot wait, as the large farmer sometimes can, to raise a herd of cattle and sell them at three or four

years old; neither can he afford to hold crops very long for a rise in prices.

The first object of the small farmer should be to produce as nearly as possible, all that his family needs. And then if possible he should have a small regular income from the farm to enable him to meet current expenses, so as not to be confronted with a pile of bills at the end of the year. In fact, I would urge that nothing but the direct necessity should induce him to go in debt a dollar. There is a satisfaction and independence in the "pay as you go" rule, which will compensate for a large amount of self denial. It will cost you more unhappy hours, to find yourself at the end of the year unable to pay your bills, than to wear patched clothes and deny yourself table luxuries. I do not believe that many small farmers will find close economy necessary, but I should be glad to see them entertain such a horror of debt that any degree of economy would seem preferable. As the farm will furnish breadstuff, meat, poultry, vegetables and fruit, a house to live in, and generally fuel, the necessary cash expenses of the family will be greatly reduced, and it will be easy to plan to meet them.

If you are situated near a town which will afford a market, you can combine gardening with farming, but you must not try to compete with the regular market gardeners and run hot-beds, grow all varieties, and attend market early and late. The farmer's time will all be needed at home during the spring, but when his corn is laid by and his wheat harvested he will have leisure during the fall to attend to some special crops. If you attempt market gardening it is best to make a specialty of a few things which you find pay you, and get a regular set of customers who will depend on you for them, and keep their trade by giving them a superior article and the full worth of their money. For many years I attended market for three months every fall, and received from ten to thirty dollars a week in ready cash. I made a specialty of sweet potatoes, tomatoes, pickles, Lima beans, nutmeg muskmelons and turnips, and I often sold from one to two hundred dollars' worth from an acre. Many farmers are so situated that they can make the growing of small fruits profitable, and an acre or two devoted to strawberries and raspberries will, if properly cared for, be found profitable. There is a better market for these in small villages than in our cities, for most of the fruit is rushed into the cities and the market glutted. The demand for berries for festivals and for canning will always be good, and if well cared for they must prove profitable.

But supposing a man has no experience in gardening and no taste for it, he can make a small farm profitable for dairying. Let him begin with five or six good cows and make a first-rate quality of butter, and he will have no difficulty in engaging it by the year at a good price; and as his experience increases and his land becomes enriched, he can increase his dairy operations. By following a system of partial soiling, a dairy of ten cows can be kept on a good forty acre farm, and by purchasing a few tons of bran at the season of the year when it can be had for the least money, to feed in connection with his skim milk, two hogs may be well kept for each cow. If the cows are kept in a stable all winter and at night in summer, with a ditch water-tight to save the droppings, his land can be rapidly made fertile. In managing a small farm in this way he would have so little under the plow that he would be able to give his crops the very best attention, and each year could manure nearly or quite one-fourth of his farm.

In managing a small farm I would sell nothing that could be consumed on the farm, for by enriching your land you increase its productiveness and add to your capital. The farmer who has two or three hundred acres of land is not as deeply interested in keeping his land rich as is the one whose entire capital is represented by a few acres. I believe that the majority of farmers would have less care and worry, and more net profit, if they would

reduce the size of their farms, be more thorough in the cultivation of their crops, and more economical in all the details of their management. I hope others will write on the subject of small farms, and that some of our readers who are living on farms of fifty acres or less will give us an account of their management and what their income is.—*"Waldo," in the Practical Farmer.*

OUR LOCAL ORGANIZATIONS.

Proceedings of the Lancaster County Agricultural and Horticultural Society.

The regular monthly meeting of the Lancaster County Agricultural Society, was held on Monday afternoon, December 2.

The society was called to order by the President, Calvin Cooper, esq.

On motion, the reading of the minutes was dispensed with.

The following members and visitors were present: H. M. Engle, Marietta; S. P. Eby, city; Levi W. Groff, West Earl; Casper Hiller, Conestoga; Jos. F. Witmer, Paradise; W. H. Brosius, Drumore; Daniel Smeych, city; Calvin Cooper, Bird-in-Hand; Frank R. Diffenderfer, city; John Huber, Warwick; J. M. Johnston, city; Clare Carpenter, city; William Johnson, Paradise; William McComsey, city; Dr. D. W. Bollinger, city; Ephraim S. Hoover, Manheim; Levi S. Reist, Manheim; Isaac Bushong, Upper Leacock; William Weidle, city; C. L. Hunsecker, Manheim; Israel L. Landis, city.

Reports of special committees being called for, F. R. Diffenderfer said the committee appointed to examine the competitive essays sent in were ready to report, but as only one member was present, asked that the matter be delayed a short time.

Crop Reports.

H. M. Engle said the grain crop has improved vastly since the last meeting. It is not good yet, but still it looks as if it might make fair crop. The rain fall for November was $2\frac{3}{4}$ inches.

W. H. Brosius reported the wheat crop as looking very well, especially that sown prior to September 20th. The corn crop is a two-thirds crop, which is much better than was expected.

Casper Hiller has seen grain look better than now, but still there is no cause for alarm. It has improved very much of late, and looks well.

C. Cooper also reported the general improvement in wheat. It now looks as if it would stand the winter well.

Levi W. Groff thought much of the wheat did not come up when first sown, but has come out since. The grass looks well; he has some, both clover and timothy, on a cultivated field, and he never had any that looked so regular and even.

Reading of Essays.

A lengthy essay, on the cultivation of grain of all kinds, written by F. Sutton, of this city, was read. (See page 168.)

The report of the Committee on Competitive Essays was then read, and was as follows:

Competitive Essays.

Frank R. Diffenderfer, Chairman of the Committee on Competitive Essays, read the following report:

The undersigned committee, appointed at the last meeting of the Society to examine and report on such essays on the cultivation of small fruits and the cereals as might be handed in for examination, respectfully reports that two papers have been submitted, for their inspection—both on the cultivation of corn. They have carefully examined both, and find them very carefully prepared, embodying the best results of the present state of corn growing. They award the preference to the essay marked "A," because of its exhaustive character, which is indeed such as to leave scarcely any point in the cultivation of this grain untouched.

Respectfully,

F. R. DIFFENDERFER,
PETER S. REIST,
WM. MCCOMSEY.

A motion was then made to pay the premium offered to the successful essayists and agreed to.

H. M. Engle, one of the successful competitors, then read his essay, for which, see page 179.

The second essay was then read by its author, Casper Hiller, of Conestoga township.

In order to raise a first-class crop of corn, it is important to have a good clover sod, in fact it is questionable whether it is good farming to plant in any other way. Towards spring, when the snow and ice are out of the way, spread five or six loads of good stable manure on each acre, and if you have not enough to cover the field, sow just before plowing 5 ewt. of Acidulated South Carolina rock on the balance of the field. You need be in no hurry to plow. If you were sure that the ground would not become too dry, the 1st of May would be time enough. After plowing, sow an additional 5 ewt. of the rock per acre, on the plot where the rock was plowed down.

Harrow and roll, and leave in that condition until time to plant—say about the 15th or 20th of May. Draw your furrows $3\frac{1}{2}$ feet apart, and make the hills from two to three feet apart, according to the strength of the soil. Put in seed sufficient to have a set of two plants to each hill, and in order to make sure of that, it may be necessary to follow qualnt old Tusser's saying:

Two for the black-bird, two for the crow,

Two for the cut-worm, two left to grow.

Select seed that has an acknowledged reputation, not in New York and Virginia, but in your own locality. Let it be a kind that makes ears somewhere in the neighborhood of a foot long, with from sixteen to twenty four rows of seed. Harrow as soon as the plant peeps out of the ground, and repeat the process occasionally.

If the corn grows rank during June, root prune with a light, sharp plow, by turning a furrow from each side of the row, and return the earth the same day.

Cultivate during July, making each succeeding cultivation shallower. Cut when pretty well ripened. Green cut fodder is not so well relished by cattle.

Build your cribs to hold one hundred bushels to each acre planted. If the season was a good one they will be filled.

Remarks.

Casper Hiller did not agree with the deep plowing advocated in Mr. Engle's essay. Some soils yield best when plowed shallow. Every man should understand the character of his soil and plow accordingly.

H. M. Engle defended his essay by stating that he did not in all cases recommend deep plowing.

W. H. Brosius had no doubt that in some cases shallow plowing is best, especially where there is a light gravelly soil, but as a rule he believes in deep plowing. The more soil the plant has to draw on the more likely it is to prosper.

H. M. Engle remarked that he was accustomed to plant large gourd corn at one time, but he gave it up for the small gourd, which he assiduously cultivated until it also became large. You can increase or decrease the size of your corn by proper selection.

W. H. Brosius thought the long season required to mature the large gourd seed was an objection to that variety of corn.

Joseph F. Witmer said he once got seed from Massachusetts, and the first crop was magnificent, but it has deteriorated until the present season, when it was a total failure.

H. M. Engle said he has raised from eighty to ninety bushels per acre of the improved small gourd variety.

Questions for Debate.

"Should the growing of tobacco be encouraged? If so, to what extent?"

Ephraim S. Hoover said it appeared to him there was at the present time a mania for tobacco growing. He did not believe a hundred acre farm should grow more than five or six acres of tobacco. You do not do your farm justice by growing more. We have not manure enough to plant more. Manure your six acres well; but if the farmer does not make large amounts of manure even two acres are enough. Tobacco growing seems to be the leading agricultural interest in this county now. We are carrying this matter too far. We cannot keep up our present standard of fertility if we grow more tobacco than indicated above. Our straw product will decrease, and with it our capacity to keep up the fertility of our acres. This has been found out in some of the older tobacco-growing States.

We know that all interests have their days of prosperity. He thinks the time will come when tobacco growing must give way again and there be a return to the other crops.

C. L. Hunsecker differed with the former speaker about the wearing out of soils. In Europe the cultivation of tobacco is mostly in the hands of the governments. Here it is practically free and unlimited. Farmers follow a natural law in planting what yields them the best returns. When tobacco growing becomes unprofitable they will give it up, but not until then. They will always be the judges. Our last year's wheat was the best we had for years, and most of it was grown on tobacco ground. There was no deterioration of soil there. He does not think a few years will see the close of the tobacco interest among us. The consumption is greater now than ever before. What then will prevent farmers from growing it? As long as it makes them money they will raise it.

Ephraim S. Hoover has noticed fields that were partly planted on tobacco ground; on such ground it was far better than on that where no tobacco had been planted, showing the tobacco ground was manured at the expense of the rest of the farm. We ought to keep all our acres in good condition, so that any crop can be grown when our interests point out a change as desirable, as is often the case.

S. P. Eby thought that as tobacco can be dispensed with, we might as well not grow the weed. If farmers took half the care in growing their other crops that they do in tobacco, they would do well. But careful tobacco cultivation may result in a more care-

ful cultivation of other crops, and in this way the culture of the weed may do good. After all, such things regulate themselves, and might therefore be very properly let alone.

W. H. Brosius, from observation, believes the raising of tobacco has been a god-send to hundreds of people in this county. Many people with a few acres have been enabled to pay for them through tobacco alone. We are not farming tobacco growing on the Virginia plan.

C. L. Hunsecker said growing tobacco has been of vast benefit to many farmers. We ought not to bring our prejudices to bear on this question. Everybody knows our methods of farming are so good that there is no danger of their exhausting our soils.

Levi S. Reist said all knew our soil has been growing better yearly. Tobacco is not more exhaustive than corn, yet who talks about limiting the growing of corn? We get five times as much money out of an acre of tobacco as from one of corn, while the former crop is not so exhaustive. Tobacco brings hundreds of thousands of dollars into the county; with this we can buy all we need to keep up the fertility of our farms.

Israel L. Landis thought there was no question that a crop that helps us out of our financial difficulties ought to be continued. You may as well recommend the limitation of the wheat crop. Besides, if we stop, other portions of the country will not. Our farms are growing richer yearly. Tobacco farms are no exception. Our farmers are too shrewd to make the mistake of letting their farms run down. Neither did he believe the weed is as exhaustive as some believe.

William McComsey was not sure that his opinion on this subject was of much value, but he would give it for what it was worth. Our farmers have been crowded out of certain markets, such as pork, beef and others, by the cheap lands of the west. It has become necessary therefore to give their attention to some other crop in which they may compete successfully with other sections. Tobacco is of universal consumption. Our soil fortunately is well adapted to its growth. Our production commands the highest price in the market. It is a legitimate pursuit, and being very remunerative, it is very proper that our farmers should be encouraged in its production. But at the same time he feared the love of gain may lead some farmers to attempt to grow too much. This may in time impoverish the soil. We should have the future in view, and while he believed in the cultivation of tobacco to a limited extent, he deprecated its excessive growth. It is the part of wisdom to limit its cultivation among us, so that one part of our farms are not enriched while others are impoverished.

Casper Hiller merely wished to tell how he felt on this question. He was not opposed to raising the weed. Every man should be left to settle the matter for himself.

H. M. Engle, who occasionally looks at the "curse," but neither grows nor uses it, thought we should not be altogether swayed by the matter of dollars and cents. At what expense has all the money gained by tobacco been made? He could see no good results from its use; therefore, he cannot encourage the growing of it. He at the same time did not see how the production is to be curtailed. The Russian Mennonites admit no members to their church who use tobacco. He wished they would in time absorb all other denominations, and thus put an end to its culture.

On motion, the further discussion of the subject was postponed indefinitely.

Report of Fruit Committee.

The fruit committee reported as follows:

Wm. Weidle, of Lancaster city, showed extra fine specimens of pears, viz: Lawrence, Duchess, Beurre d'Anjou, Vicar of Winkfield, Winter Nellis, and some small specimens of the Henderson pear.

Daniel Smech had a fine specimen of Iona grape just picked from the vine; also a good specimen of Baldwin apple and a specimen for name.

James Martin, of Soudersburg, exhibited a seedling apple that appears to have more than ordinary merit. It is said to be a good bearer, hangs well on the tree, and keeps all winter; quality good.

Hiller & Sou showed Tewksbury Blush, York Imperial, Yellow Twig and Lady Apples, as varieties that will hang on the trees late in such dry seasons as the last one. Also some specimens of a Lancaster persimmon of good quality, almost seedless.

Henry M. Engle had an exhibition about a dozen varieties of Ohio apples, some of them very superior in quality, but the varieties were not recognized by the committee.

F. Sutton and Casper Hiller exhibited fine specimens of corn.

Bills Paid.

Bills for janitor's services, \$1.25, and subscription to THE FARMER, \$2, were ordered to be paid.

The Lancaster Farmer.

H. M. Engle read the following:

To the members of the Agricultural and Horticultural Society of Lancaster county:

GENTLEMEN: I feel it my duty to announce to you, and through you to the friends of agriculture,

that I have disposed of all my right, title, and publishing interest in THE LANCASTER FARMER to John A. Illestand, Esq., the proprietor and publisher of *The Examiner and Express*, and from and after the 1st of January, 1879, that journal will be printed and published by him at *The Examiner Office*, No. 9 North Queen street, and I ask of the society a continuance of the courtesies and kindnesses they have always extended towards THE FARMER while I was the publisher. It gives me pleasure also to announce that the editor who has been identified with the journal from its origin, will continue his services as heretofore. Further details will be announced in the December number of THE FARMER.

L. RATHVON,
Publisher.

There being no further business the society adjourned.

LINNÆAN SOCIETY.

The society met at the museum on Saturday, November 30, at 2 o'clock, p. m., President J. S. Stahr in the chair. In the absence of the Secretary, Wilmer P. Bolton was appointed Secretary *pro tem.* After the usual opening business the following donations were made:

Donations to Museum.

A white Quartz arrow head, found in Manheim township by W. F. II. Amwake. A peculiar fish found in an oyster by Geo. H. Miller. This fish differed very materially from former specimens found under similar circumstances. Mr. Stauffer determined approximately as *Pholis carolinus*, or *chasmodes*, of the family Blanaidae. A peculiarly infected specimen of the common mouse—*Mus musculus*—by Chas. A. Heinrich. The mice in certain parts of Lancaster city become affected with a whitish, scrofulous excrescence on the upper part of the cranium, which is calcareous in its character. Two spherical silken cocoons of the garden spider (*Epeorus riparia*), by William G. Thackara. A fine specimen of the "True Snow Bunting" (*Plectrophenax nivalis*), by Hon. J. J. Libhart, of Marietta, where this bird was obtained. Although occasionally found in this county it is rather rare, and its presence is usually accompanied by a cold wintry storm. The common "Snow Bunting" (*Junco hyemalis*) as its name implies, is quite a different bird. The region about Hudson's Bay is the breeding place of the true Snow Bunting, and when it leaves that region and comes southward it generally indicates that the northern winter has fully set in. It seldom goes farther south than Pennsylvania. A young tortoise and an egg, by Wilmer P. Bolton, of Liberty Square. The animal is too young to determine its species accurately; it has the appearance of a young "Painted Turtle"—*Chrysemys picta*—but from the fact that Mr. B. found these specimens on high ground in a wood, they probably belong to the "Wood Tortoise"—*Glyptemys insculpta*.

To the Historical Section.

Master Wm. A. Marshall, of the United States navy, donated a "specimen brick" from the "Great Chinese Wall." Chas. C. Frailey, esq., donated a bunch of keys (five in number) that formerly belonged to the old Lancaster prison. Three of these keys are numerically marked iii., viii. and xxvi., and the one received from Squire Evans is marked xxviii., which would imply that there are, or were, still others. S. S. Rathvon donated seven envelopes containing 85 historical and biographical scraps, and a copy of the Lancaster *Intelligencer*, published by Mrs. Dickinson, and dated October, 1826.

Additions to the Library.

The November number of THE LANCASTER FARMER and five catalogues of valuable standard books, one of which had over 150 pages.

Dr. Rathvon read a paper (506) descriptive of the different specimens donated, to be filed among the records of the society for future reference.

A cordial and unanimous vote of thanks was passed to the different persons for their valuable donations. The treasurer reported three new subscribers to the museum stock since the last stated meeting, and that he hoped to be able to report all the obligations of the society canceled at the annual meeting, December 28, 1878. It is also expected that the secretary and curators will make a full report of the society for the year. Professor Dubbs exhibited specimens of historical tiles from the Baron Siegle mansion, at Manheim, which are now becoming rare and valuable. Also a handsome painting by Mr. David McN. Stauffer, of a family seal, which he obtained on his late visit to Europe. The meeting was not large, but it was interesting, and the wonder is that so few take an interest in matters relating to science and history. Much as the society needs pecuniary means it needs active working members more. Adjourned to the date mentioned above.

SHEEP-GROWERS in England claim that a feed consisting of cotton seed and turnips is not only the safest for fattening sheep, but will put on the most fat and make the best mutton at the least cost. It also produces the strongest manure.

AGRICULTURAL.

Table Showing Quantity of Seed to Acre.

Table showing the quantity of seed necessary for an acre, and the number of pounds in a bushel, as established by law:

	No. of lbs. per bushel.	Quantity com- monly sown to the acre.
Timothy Seed,.....	45	8 to 12 qts.
R-d Clover,.....	60	8 to 10 qts.
White Clover,.....	60	6 to 8 lbs.
Lucerne Clover,.....	60	8 to 10 lbs.
Alese Clover,.....	60	8 to 10 lbs.
Hungarian Grass Seed,.....	48	½ to 1 bus.
Millet,.....	48	¾ to 1 bus.
Hemp Seed,.....	40	1 to 1½ bus.
Buckwheat,.....	48	1 bus.
Rye Grass,.....	1	to 1½ bus.
Kentucky Blue Grass,.....	14	1 to 2 bus.
Red Top or Herd Grass,.....	12	1 to 2 bus.
Orchard Grass,.....	14	1 to 2 bus.
Sweet Seeded Ver. Grass,.....	11	6 to 10 bus.
Bailey,.....	48	to 2 bus.
Beans,.....	60	1 to 2 bus.
Flaxseed,.....	56	½ bus.
Rape Seed,.....	50	2 to 6 lbs.
Wheat,.....	60	1½ to 2 bus.
Rye,.....	56	1 to 2 bus.
Peas,.....	60	1½ to 2 bus.
Tares, or Vetches,.....	60	2 bus.
Osts,.....	30	2 to 3 bus.
Corn, shelled,.....	56	4 to 6 qts.
Corn, cob,.....	70	
Potatoes,.....	60	10 to 10 bus.
Carrot Seed,.....	2	to 3 lbs.
Beet Seed,.....	4	to 6 lbs.
Parsnip Seed,.....	3	to 5 lbs.
Onion Seed,.....	4	to 6 lbs.
Rutabaga Seed,.....	1	to 1½ lbs.
Turnips,.....	56	1 to 1½ lbs.
Top Onion Sets,.....	28	1 to 1½ bus.

Clover Aftergrowth.

"What is the best course to pursue with the aftergrowth of clover where, as in my case, there is not sufficient stock to feed it down? If the clover is allowed to seed and to stand through the winter, will the crop next year be satisfactory? When the clover comes in luxuriant bunches, crowding out the red-top and other grasses, is it well to pass the scythe over them?" Mowing and feeding down are similar in their effect. As much of the clover crop consists in the roots, a second mowing does not exhaust it; and if it prevents the ripening of seed it may prove a positive advantage by preventing the exhaustion of maturing seed. If the land is not rich, an autumn top-dressing would be well repaid by the increased crop. Some excellent farmers neither mow nor feed down the second crop, but allow it to fall and rot on the ground in autumn, or else mow it to prevent seed forming, when it serves both as manure and as a mulch for the protection of the roots. It is well to pass a reaper a foot over pastures, cutting the seedy tops of the ripe grass, and giving the animals more ready access to the green herbage below.

Home-Made Superphosphate.

I place side by side two old flour barrels, in one of which I put whatever bones come to hand. In the other I put a bucketful of wood ashes from the house stoves, moisten them well and scatter a few bones on top. The process is repeated as the bones and ashes are produced, and at the end of the year some five or six barrels are the result. The mixture should be kept well moistened without being wet enough to allow any drainage, and in about eighteen months the small bones will have disappeared altogether, and the large ones will have become soft enough to be easily crushed with the shovel while mixing the compost. The result is a manure which is far too powerful to use without mixing it with at least ten times its bulk of muck, or some fertilizing earth, and which can then be applied with excellent effect, especially with turnip land. I am of the opinion that it is almost, if not quite, as valuable as many of the purchased superphosphates and the plan is worth adopting if it is only to get rid of dangerous ashes and unsightly bones.

Golden Millet.

The golden millet must be sown every spring after the danger of frost is over, broadcast or in drills, in the same manner as oats, three pecks to one bushel of seed to the acre. It is a very rapid-growing grass, and matures in about ten weeks time. Its yield is enormous—often as much as five tons of hay and one hundred bushels of seed to the acre. It takes much labor to save it, and a good force is necessary to follow the machine when cutting as grain. It is eagerly eaten by all stock, even hogs live and thrive on it, and it is a crop of which the farmer is sure to raise a fair yield every time he sows, one rain insuring a good crop. I have seen good hay from it when the season was too poor to make hay from anything else, and I am sure that when any farmer once gets into the seed he will not want to get out. It will grow in almost any climate, having been successfully grown in some part of nearly every latitude from Maine to Florida.—Country Gentleman.

HORTICULTURAL.**The Snyder Blackberry.**

A correspondent of the *Fruit Recorder*, living in Bureau county, Ill., has been growing this berry for five years, and gives it the following character: It is a strong, thrifty, sturdy grower, but strong as it is, it is none too much so to hold up the great burden of fruit it bears, even when not pinched in. Even when neglected during growing time and afterward shortened in full one-half, they bear such enormous crops that frequently the plants will lie on the ground. In vigor and stockiness and hardiness of plant, unfailing and unequalled fruitfulness, it stands first. In an experience of over twenty years with all the popular kinds of blackberries I have never seen any that would produce one half as much, even after a mild winter, when the more tender kinds were in good condition. It has now been before the public twenty-six years, and when persons are fortunate enough to get the genuine Snyder it receives only praise. No one speaks ill of it, and I have no doubt that it is more important and profitable as a blackberry than the Richmond as a cherry, the Wilson's Albany as a strawberry, the Concord as a grape, or any other leading representative fruit whatever, to its family, to my knowledge. I think it would be well for every one first to try the Snyder before trying any unknown kind, whatever its pretensions.

White Willow for Hedges.

A farmer in LaSalle county, Illinois, gives the following description of the white willow as used by him for hedges. A cutting was planted by me in 1846, which is now over four and a half feet in diameter. It is steadily growing in favor in this vicinity, where the first hedges of it were made before 1850, being especially adapted for use on wet soils, and by using stakes five and a half feet long, from one to three inches in diameter, set 18 inches deep, a fence is ready for use. True the yield of other crops grown under the hedge is lessened, but the value of a fence, shelter afforded to growing crops, and the great amount of poles furnished every few years make these hedges to a considerable extent on every prairie farm here a paying investment. They are being very generally planted as shelter belts around orchards and stock yards, giving good satisfaction. As a people it seems to me we are apt to grudge trees and hedges the use of land for healthy growth; many feel dissatisfied if they cannot grow full crops of grain in an orchard. The white willow is one of the most valuable soft-wooded trees to plant for timber, especially on wet soils, being comparatively durable, even for fence posts, if seasoned before setting.

Care of Fruit Trees.

Young fruit trees, for the first two or three years after transplanting, should before hard winter sets in be protected against *any undue quantity of water*, especially in low situations. This can be best done by making a small hillock of dirt around the stems sufficient to throw off the water and not let it settle about the roots. We have known young trees to be killed by constant immersion in water through most of the winter, and have frequently known them to be stunted, from which many of them never entirely recovered. On the other hand, in summer these trees should have the soil slightly bowled out around them, in order that they may have a more abundant supply of water than they would otherwise obtain.

Pear Blight.

As soon as I discover pear blight, the leaves turning dark, I take a pocketknife and slit the outer bark on all the limbs as high as I can well reach, and thus down the trunk. The first time I tried this remedy was ten years ago. Every limb recovered, and I have repeated it as often as the limbs have been affected. My trees are fine and healthy now. The theory is, poisoned sap escapes where the slit is made; but the slit must be made as soon as there is any appearance of blight.

Covering Strawberries.

Protect your vines in winter by covering the ground between the rows with cornstalks, bringing them close to the vines, and laying bean-poles across, to keep the stalks in place. This has long been followed in some of the Western States, and we give it now to remind those who have not other material at hand that cornstalks will answer the purpose.

ONE method by which the value of hops is ascertained, is by rubbing a few of the pods in the palm of the hands and observing whether by this friction a small yellow dust is produced, while a clammy, resinous substance, exhaling a most fragrant odor, is perceptible, and at the same time whether the hops are of a fine, bright yellowish olive-green color.

ROOTS, says the *Practical Farmer*, have become a necessity. Even the owners of work and driving horses in the large cities annually buy hundreds of bushels of carrots, mangold wurtzels, turnips, etc., to be fed in connection with grain food to their horses, and they are assured of the profitableness of using them.

DOMESTIC ECONOMY.**New Mode of Making Butter.**

Adam S. Loewen, of Reading, has a machine for making butter which is of novel construction and works wonderful results. His machine is an ordinary egg beater, holding about two quarts, and he uses a powder which he calls the "magic butter maker." The powder resembles white flour, and he colors the butter with a harmless coloring matter, so that when the butter is made it is of a beautiful yellow color, resembling the best Lancaster or Chester county butter. In three minutes from a pint of milk and a pound of butter, by the use of the egg beater, he makes two pounds of choice yellow butter, which in sweetness of taste is equal to any offered for sale in the Reading markets. Mr. Loewen says that the process which he has will reduce the cost of butter fully forty per cent., which is a considerable saving when butter is selling at sixty cents a pound.

Mr. Loewen exhibited the effect of his powder in the production of butter at the *Eagle* office, and his representations were found to be correct. The milk Mr. Loewen used was taken fresh from a cow owned by Mr. Dietrich, in Elm street. Mr. Loewen says the butter will keep just like other butter, losing none of its weight. In less than two minutes and a half he made the butter in his experiment.

A Household Fruit Dryer.

A Michigan man has invented a fruit evaporator, which is a simple addition to the household stove. It is said to do its work rapidly and skillfully, and to be readily handled. The dryer is a long tin pan, which may be from three to six, eight or ten feet long, as may suit the convenience of the room in which is the kitchen stove; in width it is made so that it covers one end of the surface top of an ordinary cook stove, as it rests on and operates by the heat of the stove. The machine may be kept at work all the time the cooking or baking is going on, as it occupies but two holes. This long tin pan, as it may be named, has a tight compartment or chamber, which is partly filled with water, and on the top surface of this compartment is placed the fruit or vegetables prepared for drying. The hot water and steam in the lower compartment dries the fruit without danger of burning or crisping. A peck or half bushel of fruit may be dried in from one to two hours. The fruit when dried and packed is then in perfect condition to put away beyond the reach of anything that will injure it.

Receipt for Curing Meat.

To one gallon of water take 1½ lbs. of salt, ½ lb. of sugar, ½ oz. of saltpetre, and ½ oz. of potash. In this ratio the pickle can be increased to any quantity desired. Let these be boiled together until all the dirt from the sugar rises to the top and is skimmed off. Then throw it into a tub to cool, and when cool pour it over your beef or pork. The meat must be well covered with pickle, and should not be put down for at least two days after killing, during which time it should be slightly sprinkled with powdered saltpetre, which removes all the surface blood, etc., leaving the meat fresh and clean. Some omit boiling the pickle and find it to answer well, though the operation of boiling purifies the pickle by throwing off the dirt always to be found in salt and sugar. If this receipt is strictly followed it will require only a single trial to prove its superiority over the common way or most ways of putting down meat, and will not soon be abandoned for any other. The meat is unsurpassed for sweetness, delicacy and freshness of color.

Oatmeal in the Household.

In Great Britain children of all ranks are raised on an oatmeal diet alone, because it causes them to grow strong and healthful, and no better food can possibly be found for them. It is also quite as desirable for the student as the laborer, and for the delicate lady as for the hard-working sister; indeed all classes would be greatly benefited by its use, and dyspepsia, with all its manifold annoyances, can be kept at a safe distance. Oatmeal is most substantial food; it is equal to beef or mutton, giving as much or more mental vigor, while its great desideratum consists of one's not becoming weary of it, for it is as welcome for breakfast or tea as is wheat or Graham bread. It can be eaten with syrup and butter or hasty pudding, or with cream and sugar, like rice. It is especially good for young mothers upon whose nervous forces too great a demand has been made, when they lose the equilibrium of the system and become depressed and dispirited. Oatmeal requires to be cooked slowly, and the water should be boiling hot when it is stirred in.

Household Receipts.

MAY BE WORTH PRESERVING.—The *Medical Home* has the following recipes, which may be of value:

A tea made of peach leaves is a sure remedy for kidney difficulty.

A tea made of chestnut leaves, and drank in the

place of water, will cure the most obstinate case of dropsy in a few days.

A tea made of ripe and dried whortleberries, and drank in the place of water, is a sure and speedy cure for a serofulmus diffidence, however bad.

A plaster made of fresh slaked lime and fresh tar, is a sure cure for a cancer, which, with all its roots, will soon come out.

LOBSTER SAUCE.—Pound the spawn and two anchovies; pour on them two spoonfuls of gravy; strain all into some melted butter; then put in the meat of the lobster, cut up; give it all one boil, and add a squeeze of a lemon.

TO MAKE A PUNCH.—Take a quart of lemon ice, add the white of three eggs, well beaten, with rum, brandy (in the proportion of three parts of rum to one of brandy), and water to taste till the ice liquefies; then add a small teacupful of infusion of strong green tea strained, and half a pint of champagne.

TO CLEAN WHITE FUR.—Take a clean piece of flannel, and with some heated bran rub the fur well, when it will be quite renewed. The bran should be heated in a moderate oven, for a hot oven will scorch the bran and will brown the fur. Oatmeal is preferable to bran, if procurable with no husks. Dried flour will also answer the purpose.

TO KEEP MOTHS AWAY.—Moisten a piece of paper or linen with spirits of camphor, and put it into a bureau or wardrobe. Repeat two or three times during a fortnight, and moths will keep away. So says a good housekeeper.

ANTIDOTE FOR POISON.—Hundreds of lives might be saved by a knowledge of this single recipe. A large teaspoonful of mustard mixed in a tumbler of warm water, and swallowed as soon as possible, acts as an instant emetic, sufficiently powerful to remove all that is in the stomach.

WHITEWASH THAT WILL NOT RUB OFF.—Mix up half a pailful of lime and water, ready to put on the wall; then take one-quarter of a pint of flour, mix it up with water, then pour boiling water on it sufficient to thicken it; then pour it, while hot, into the whitewash, stir all well together, and it is ready for use.

TO WASH SILK.—Silk will wash as follows: Mix quarter of a pound of honey, quarter of a pound of soft soap, and a gill of gin; lay each breadth of silk on a wooden table, scrub it well with a brush and this mixture, then dip it successively in two pails of soft water; do not wring it, but hang it thus to dry, and iron between paper when sufficiently dry.

BEEFSTEAK A LA PARISIENNE.—Take a piece of steak about three-quarters of an inch thick. Trim it neatly, sprinkle it with pepper, dip it in oil and broil it over a clear fire. Turn it after it has been on the fire a minute or two, and keep turning it until done; eight or ten minutes will do it. Sprinkle with salt and serve with a small quantity of finely-minced parsley and a piece of butter mixed together, and placed over or under the steak. Garnish with fried potatoes.

APPLE CUSTARD.—Take half a dozen tart, mellow apples, and quarter them, and take out the cores; put them in a pan, with half a teacup of water; set them on a few coals; when they begin to grow soft turn them into a pudding dish and sprinkle sugar on them; beat eight eggs with rolled brown sugar; mix them with three pints of milk; grate in half a nutmeg, and turn the whole over the apples; bake the custard between twenty and thirty minutes.

HOUSEKEEPERS, when putting away your jellies, cover them with finely-pulverized sugar. It will prevent them from moulding.

If your flat irons are rough, rub them with fine salt. Scorch small put in holes where crickets come out will destroy them.

To preserve the polished surface of implements laid aside until spring from rusting, make a paint of boiled oil and whiting, and place them in a dry shed. When brought out for use the next spring no rust will be found on them.

The best remedy for bleeding at the nose, as given by Dr. Gleason, is the vigorous motion of the jaws, as if in the act of mastication. In the case of a child, a small wad of paper should be put in the mouth, and the child instructed to chew it hard. It is the motion of the jaws that stops the flow of blood. This remedy is simple but it has never been known to fail.

A GOOD PLAIN PIE CRUST.—Sift one quart of flour into a bowl; chop into the flour (using a chopping knife) one-half pound of good, firm lard; chop until very fine; pour in enough ice water to make a stiff dough, and work it in with your hands; flour your hands; work your dough into shape; handle it quickly and as little as possible; flour your pastry board; and roll out your dough very thin; always roll from you; have ready one-half pound of good butter that has been washed in two or three old waters to rid it of salt; spread the dough with butter; fold it up, then roll it out thin again; spread again with butter; fold again and repeat the operation until the butter is all used up.

LIVE STOCK.

How to Cure a Kicking Cow.

The following remedy to prevent a cow from kicking, is communicated by Mr. Henry Kurtz, of Mount Joy, and is recommended by him as practical and reliable in its results. It is so simple in application that any one who has an animal addicted to the pernicious habit of kicking, especially when it is being milked, can make the application for himself, and if successful it will be of very trifling labor and expense, and will be of more value to him than the cost of half a dozen subscriptions to THE FARMER.

Have constantly, at a convenient place in the cow-stable, a stout strap and buckle, sufficiently long to girth the animal, and about as broad as a common "belly-band." This strap may be made either of leather or heavy "webbing." When the cow becomes vicious and manifests a determination to kick draw the strap around her loins or waist and buckle it up tight, the more vicious the tighter, and it will be impossible for her to kick. Repeat this every time she shows a disposition to kick, and in a short time she will be entirely subdued. In her first attempts to kick she may throw herself, but after that her kicking spirit will be broken and she will become gentle. The strap paralyzes the kicking muscles.

Cooked Food for Cattle.

Professor Wilkinson, of Baltimore, says: "I conducted an agricultural school and experimental farm for eight years, and experimented with feeding cooked and uncooked food of every description used for cows, horses, swine, working and fattening cattle and poultry, and carefully noted the result, which was in all cases very remunerative; so much so that even with defective, inconvenient and expensive apparatus used—for want of better—in steaming, manipulation and feeding, I found there was an average profit of at least twenty-five per centum, that is, in feeding the variety of animals named; but in feeding milch cows in cold weather with warm steamed food of every description, there was a profit of over thirty per centum when the animals were kept at proper temperature, and fed with proper proportions of nutritious food."

Live Stock in Colorado.

Probably none of the industries of the State have progressed so favorably, and returned such a percentage of profit as has the rearing of cattle and sheep, and we might add, also, horses and hogs, although the latter interests are indifferently developed. The returns for cattle have been fully 33 per cent. net, taking the business as a whole. The losses for the past year have been very light, though in a certain limit the losses were very heavy last spring, but the grand results of the whole State were very favorable. Prices the past season were good. The crop of calves has been extra large, and consequently the cattle men are happy. To sum up the whole business in a word, it is satisfactory.—*Colorado Farmer.*

The Cow.

If civilized people were ever to lapse into the worship of animals, the cow would certainly be their chief goddess. What a fountain of blessing is a cow! She is the mother of beef, the source of butter, the original cause of cheese, to say nothing of shoe horns, hair combs, and upper leather. A gentle, amiable, over-yielding creature, who has no joy in her family affairs which she does not share with man. We rob her of her children, that we may rob her of her milk, and we only care for her that the robbery may be perpetuated.—*Household Words.*

Calves.

The Country Gentleman gives the following method of raising calves without milk: "Boil as much clover hay as can be crowded into the kettle used, for half an hour. Strain the tea, and while hot add a large handful of linseed meal to what is to be fed to each calf. Give about as much in quantity of the tea as would be given if milk were fed. After a few days the quantity of oil-meal may be doubled. Also feed the calf all the green grass, freshly cut, that it will eat, twice a day."

Weaning Colts.

Colts may be weaned at six months old. They require oats and good grass or hay, to make up for their mother's milk. If they are starved at this time they may never recover from its pernicious effects in their future growth. Starvation of young colts will sometimes cause malformation by diminishing the growth of some part of the frame and leaving the body out of all proportion.

Sheep

fed upon dry upland pasture are, beyond all question, the best for table, though, for the farmer's profit, the luxuriant grass of the fields pushes them along more rapidly. Feeding them for the market with turnips is highly profitable, as practiced in England, though the flesh is very inferior in flavor to that of sheep fed on dry pasture.

POULTRY.

Winter Treatment of Poultry.

A correspondent, in addressing us on the subject, says in brief, that each fowl ought to produce 160 eggs a year; that in winter warmth is indispensable; that the fowls must have some of the food they find at other seasons when at large; that they must have plenty of room in their house, and it and the laying boxes kept clean; that they must be fed with corn, barley, oats, have a box of sand, oyster or clam shells pounded up, or old mortar, or bones dried and pounded fine; that mashed boiled potatoes and corn-meal are excellent; that fatty matter of any kind, fresh beef, or pork scraps, &c., must form a portion of their diet; that hens are fond of vegetable matter during winter and will eat cabbage, &c.; and that they must be kept free from vermin, which nearly always follows entire cleanliness. In case, however, vermin should still make their appearance there is nothing so effective in removing them as rubbing the top of the head, under the wings and upon the back with lard. These suggestions we have made time and again; and have only to add now, that all who desire complete success, and of course satisfactory profit from poultry raising, must adopt them.—*Germantown Telegraph.*

Composition for Hen Roosts.

A correspondent of the *Poultry Yard* recommends the following method of making perches for fowls: Make a trough for the roosts by nailing lath on both edges of a piece of scantling or board three inches wide, projecting upward half an inch or more. Fill this trough with mortar, into which has been put to one pail of mortar half a pound of sulphur, half a pint of crude carbolic acid (liquid) and half pint of kerosene. If you want the mortar to set quickly, add one pound calcined plaster, such as dentists use for casts. Mix thoroughly. The mortar can be knocked out easily, and removed once or twice a year. Have these roosts loose, so they may be turned over bottom side up in very cold weather, to guard against freezing the fowls' feet by contact with the cold mortar. Poultrymen will find this much more effective than patent eggs, etc., as the whole flock sit on the roost ten or twelve hours every day, instead of a part of them a few minutes, when they are laying. The above is neither expensive nor troublesome to make, and should be used by everybody who keeps fowls.

Good Fowls for Laying.

A noted writer on fowls says: "For laying hens select large, strong, healthy birds of the Leghorn varieties; with large, square bodies, without regard to fine points, such as pure white flat ear-lobes, or very yellow legs, or combs with just five points, or plumage that is perfectly white in the white variety, or without a white speck in the brown. It is not that these points are any detriment to the health or the vigor of the birds, but that constitution has been too often sacrificed to them, which often results in a strain of enfeebled though handsome fowls. The Leghorns are acclimated American breeds, which originated from birds brought from the Mediterranean, and they have been improved in this country by circumstances that have given them a pre-eminent position for the farmer, when birds, such as are above recommended, are selected."

Charcoal in Turkey-Feeding.

An old turkey-raiser narrates the following experiment: Four turkeys were confined in a pen, and fed on meal, boiled potatoes and oats. Four others, of the same brood, were also at the same time confined in another pen, and fed daily on the same articles, but with one pint of very finely pulverized charcoal mixed with their food—mixed meal and boiled potatoes. They had also a plentiful supply of broken charcoal in their pen. The eight were killed on the same day, and there was a difference of one and a half pounds each in favor of the fowls which had been supplied with charcoal, they being much the fattest and the meat greatly superior in point of tenderness and flavor.—*The Cultivator.*

Poultry Hints.

A hen may be calculated to consume one bushel of corn yearly, and to lay twelve dozen or eighteen pounds of eggs. This is equivalent to saying that 3.1 pounds of corn will produce, when fed to this hen, one pound of eggs. A pound of pork, on the contrary, requires about five and one-third pounds corn for its production. When eggs are twenty-four cents a dozen, and pork is ten cents a pound, we have the bushel of corn fed, producing \$2.88 worth of eggs, and but \$1.05 worth of pork.

DRYNESS during the spring, when we oftentimes have heavy showers, is an important requirement in the poultry-house. Diseases often originate through dampness produced by a leaky roof. When fowls are confined in a close, wet apartment it is impossible to keep them in a healthy condition.

LITERARY AND PERSONAL.

THE LABOR SIDE OF THE GREAT SUGAR QUESTION.—By a workingman. New York, 1878. It appears that the Cuban sugar kings, and the American middlemen, agents and importers, are desirous of Congress placing a specific tariff of $\frac{1}{2}$ cents per pound on all sugars up to the sixteenth grade of quality; and they have formed an organization and created a large fund to carry the measure through. To give color to the necessity for such a measure a part of the policy is to raise the cry of "fraud," "extortion," "adulteration," "protection," &c., &c., against the sugar refiners of the country, who give employment to a large number of laboring men, and upon whose industry 150,000 of all ages and sexes depend for support. Such a specific tariff would enable the Cubans to erect refineries on that island, and by the aid of their slave labor to throw out of employ all engaged in the refining business in this country and close up their establishments. Of course we know practically little or nothing about the matter, but the very fact that foreigners, backed by immense wealth, are so very anxious for such legislation, evinces that there is much "milk in the coconut," which they desire to tap. We commend the perusal of the above 8vo. pamphlet of 26 pp. to the reading public as a very cleverly stated "labor side" of the question, *anyhow*, whatever may be the final result.

BUTTERFLIES AND MOTHS OF NORTH AMERICA, with full instructions for collecting, preparing, classifying, packing for shipment, etc. A complete synomymical catalogue of MACROLEPIDOPTERA, with full bibliography, to which is added a glossary of terms, and an alphabetical and descriptive list of localities. By HERMAN STRECKER, life member of the Academy of Natural Sciences of Philadelphia; member of the American Entomological Society, and various other scientific associations. "Time at last sets all things even." Press of B. F. Owen, Reading, Pa., 1878. 283 pages royal octavo, and sent by mail for \$2.00. Address the author, box 111, Reading P. O. We regret exceedingly that we have unavoidably omitted to notice this excellent work before, for we think it worthy the patronage of amateurs and students in entomology, as well as those who may be deemed veterans in this branch of natural science, and especially *Lepidopterists*. Mr. Strecker has devoted his life's best energies, and a large amount of his pecuniary means to this specialty, and we believe there is not a man in the country that is better qualified to get up such work in all its practical details than he. He possesses the largest collection of butterflies and moths in America, numbering 40,000 specimens, and makes this branch of entomology his exclusive study.

HOW TO DESTROY INSECTS, on plants and flowers, in the garden and the house. Published by Henry T. Williams, N. Y., 1878. Price thirty cents. A square 12mo. of 100 pp. This seems to be a compilation of "good, bad and indifferent" remedies for the destruction of insects injurious to green and succulent vegetation mainly, such as usually infest greenhouses, window plants and gardens—remedies that have been floating around in the newspapers of the country for longer or shorter periods, during the past dozen years or so. We recognize in it many good things, some new things, and perhaps none that are bad, in the ordinary sense; but certainly many that may be only indifferent. The good things alone, however, are worth more than the price of the book. There is, however, one feature that stands out very prominently throughout the whole work, and that is an apparently mawkish ignoring of all scientific names, in many instances involving us in doubt as to what species of insects, or other animals, are meant. This, in the present relations between horticulture and entomology, we deem important. The scientific names should by all means be there (in brackets), no matter for whom the book has been written, or how popular it is intended to be.

THE MONTHLY FLORAL AND FRUIT MAGAZINE, a demi 8vo. of 16 pages. D. S. Cunis, editor and proprietor, No. 1012 Pennsylvania avenue, Washington, D. C. This is a standard journal, neatly printed, compactly formed, and for "its inches" contains a large amount of excellent reading matter pertaining to fruit and flowers, and only costs \$1.00 a year. The 8th number of volume 1 is before us, from which it will be seen that it is comparatively a new enterprise. We sincerely wish its success, and from the contents of the November number, we do not hesitate in saying it richly deserves it.

SOLID SILVER PLATED TABLE WARE.—The card of Douglas Silver Plating Company in another column will attract the attention of every reader, and we take pleasure in saying the silverware sold by this firm is a superior quality and gives every one full satisfaction. We can suggest for a Christmas present nothing more agreeable or gratifying.—*American Christian Review.*

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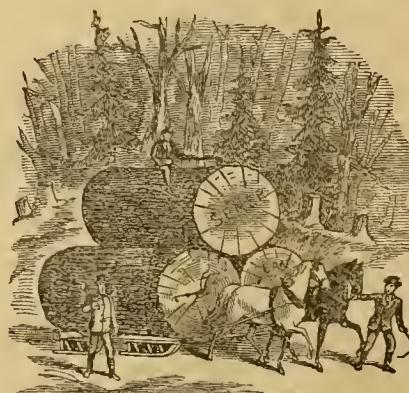
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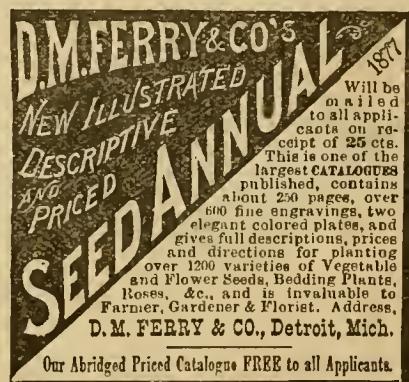
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