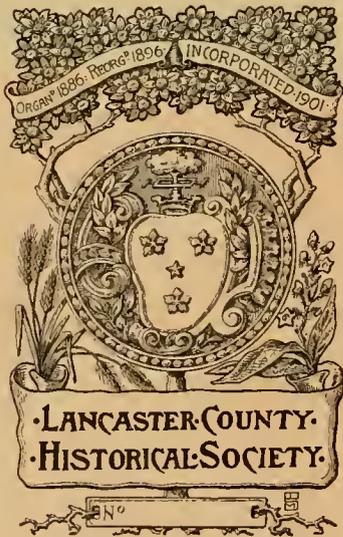


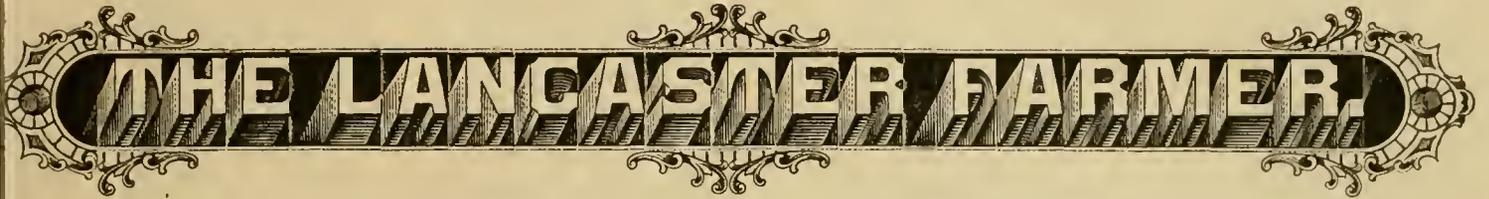


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"THE FARMER IS THE FOUNDER OF CIVILIZATION."—WEBSTER.



THE LANCASTER FARMER

A MONTHLY NEWSPAPER:

DEVOTED TO

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

EDITED BY PROF. S. S. RATHVON.

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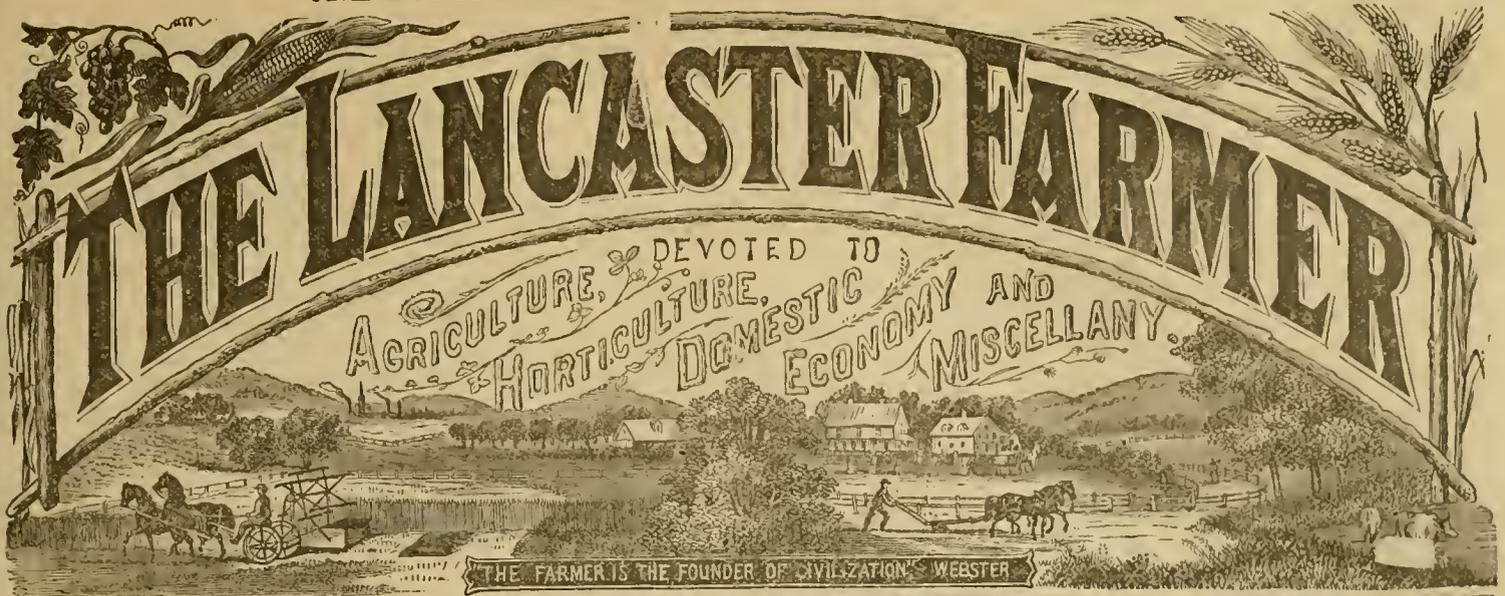
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Dr. S. S. RATHVON, Editor.

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 Blanc Mange..... 15

LIVE STOCK.

Sheep Farming..... 16
 How to Feed Cornstalks..... 16
 Literary and Personal..... 61

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jan-3m]

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jan-3m]



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jan-4m]

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July-3m]

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

	Leave	Arrive
WE TWARD.	Lancaster.	Harrisburg.
Pacific Express*	2:40 a. m.	4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express	7:00 a. m.	11:20 a. m.
Hanover Accommodation.	11:05 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy.....	10:20 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:25 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:40 p. m.
Fast Line*	2:30 p. m.	3:25 p. m.
Frederick Accommodation.	2:35 p. m.	Col. 2:45 p. m.
Harrisburg Accommod.	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express.....	7:30 p. m.	8:40 p. m.
Pittsburg Express.....	8:50 p. m.	10:10 p. m.
Cincinnati Express*.....	11:30 p. m.	12:45 a. m.
EASTWARD.	Lancaster.	Philadelphia
Cincinnati Express.....	2:55 a. m.	3:00 a. m.
Fast Line*	5:08 a. m.	7:40 a. m.
Harrisburg Express.....	8:05 a. m.	10:00 a. m.
Columbia Accommodation..	9:10 p. m.	12:0 p. m.
Pacific Express*.....	9:40 p. m.	3:40 p. m.
Sunday Mail.....	2:00 p. m.	5:00 p. m.
Johantown Express.....	3:05 p. m.	5:30 p. m.
Day Express*.....	5:35 p. m.	7:20 p. m.
Harrisburg Accommod.....	6:25 p. m.	9:30 p. m.

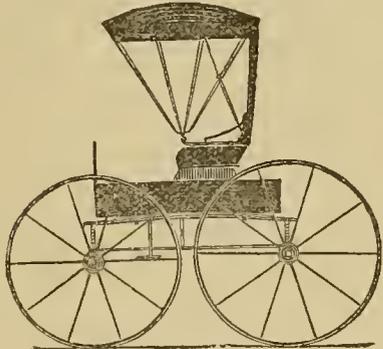
The Hanover Accommodation, west, connects at Lancaster with Niagara Express, west, at 9:35 a. m., and will run through to Hanover.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 2:10 p. m., and runs to Frederick.

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

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

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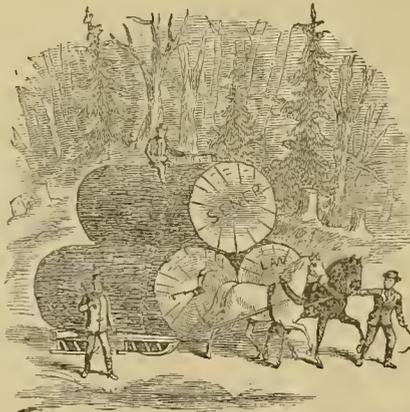
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Jan-3m]

THE

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No. 9 North Queen St.,

LANCASTER, PA.

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., JANUARY, 1883

Vol. XV. No. 1.

EDITORIAL.

OUR GREETINGS FOR 1883.

We congratulate our patrons and the public on the advent of another NEW YEAR. *Time* is no respecter of persons, places, or things, and when he "goes a mowing," human intelligence alone cannot divine who or what may be exempt from the fell swoop of his relentless scythe. Looking abroad upon the visible aspect of things, socially, politically, and materially, we find it difficult to realize the philosophical dogma that only the "fittest survive." Abstractly considered, it may be true that *infinite wisdom* always permits the "survival of the fittest," but to mortal vision the appearance may be very different, simply because mortal vision is circumscribed, very often by lax perception by prejudices and partialities, or by an overweening selfhood that confesses no faith in anything that conflicts with the dominancy of self.

During the past year many individuals, both in humble and exalted positions, have passed away. Many enterprises have failed of material realization—many journalistic experiments have succumbed for lack of support. Others of apparently less prominence, less patronage, and less prestige, have drawn their slow and feeble length along, and, under this conflict in current events, who is able to affirm that, in *material* results, only the fittest have survived? There is a *moral* ruling, however, in the affairs of the world, which we are both to see, because it is not in harmony with that self-ascription which constitutes such a prominent standpoint in the category of human reasoning. But, let no man, no institution, and no enterprise boast that *they* have survived because they are the fittest; for, under any circumstances, they may only survive so long as Infinite Wisdom sees it is best they should. We would inculcate no fatalistic dogma, but rather that all things are amenable to law and rules of inflexible order; nevertheless, no man of observation can fail to see that animals, trees, shrubs, and plants frequently survive and flourish, under the most studied acts of deprivation, violence, and neglect, whilst others with and perish under the most elaborate patronage, sympathy and culture. Since these things are so, the fatalistic conclusion would be that effort is useless, "what is to be, will be." This is a monstrous fallacy. No farmer can expect to reap if he does not sow; or to gather fruit, if he plants no trees.

We are rather admonished by all this to persevere, to do all that is in our power, under the direction of our highest intelligence; to deal justly, love mercy and walk humbly and whatever our hands find for us to do, to do it with our might, and leave the rest in the keeping of *Him* who rules the universe. Sooner or later it comes to that in any event, notwithstanding in the pride of temporary—or only apparent—success, one may claim that human sagacity alone has accomplished the

end. Although the gathered crops of 1882 in all our land, seem to be the greatest ever gathered before, evincing unprecedented *agricultural* success at least, yet between result and the monetary realization—which is the great motor power of all human effort—there is sometimes a vast area of contingencies never contemplated by our most profound cogitations. The delvers in the great staples of our country are at this very moment unusually exercised about a matter that never entered their minds at the beginning of the old year. And yet, there is a way out of this, and perhaps when we pass through it, we may realize that it was not our own individual wisdom that led us through. Whatever may occur through intermediate agencies we cannot ignore the fact that the past year has been agriculturally prosperous. The soil and human industry have yielded an ample return. Our abundance, if not rightly used, may be transmuted to ashes. But, under all the evolutions of production and traffic, of finance and finesse, the fittest things may survive in the end. A new and a hopeful year has just opened to us, that will wait for no man, but will rush on as have all that preceded it. It behooves us then to take a new "tack," if our previous course has not been the right one. It behooves us to regard, in all our efforts, the public good, and not merely self-aggrandizement alone. We need no special admonition to take care of No. 1; all are doing that without admonition, although many may blunder in their manner of doing it. The year 1883 is now initiated; it expects mankind to be healthier, happier, richer, and wiser at its ending, than they were at its beginning. If this does not transpire it will not be the fault of *time*. We commit the interests and the destinies of our patrons to the keeping of that Being who existed before the birth of *Time*, and who, from the throne of His "*Eterna[ll]Now*," has power to proclaim that "*Time shall be no longer*."

To that ordeal we also commit the destinies of our *Fifteenth Volume*, and confidently lean upon the sustaining influence of the public.

AMENDE HONORABLE.

The extracts headed "The Coming Fence," p. 152, "Stable Cleaning," p. 153, and "Wheat Growing," p. 156, in the October number of the FARMER, it appears, should have been credited to the *Germantown Telegraph*. We are unable to say now how this omission occurred, but we suppose we will have to shoulder the responsibility. The fact is, we value the *Telegraph* so highly that we refrain from mutilating it whenever we can, and hence we cut out of other papers, which we do not specially value, articles of merit, which we subsequently discover have been taken from the *Telegraph* without crediting that paper. Or, a slip may be taken from the *Telegraph* containing two or three articles belonging to different departments of our journal, and these may be severed and dis-

tributed to different compositors, and hence, through a neglect or otherwise, one portion may be credited and the others not. But we never willfully or premeditatedly perpetrate such an omission, and we do not think our compositors do. On one notable occasion at least, we approached a reporter of a daily paper and asked him if he knew that the whole column which he quoted from a city daily as original, had been written by us and published in a Lancaster county paper three years previously, and that we could show it to him *verbatim et literatim et punctatim*, in our Scrap-book of that date? He merely replied, "Is that so! well, there is no use in making any ado about it now, it is a common occurrence; you have the consolation of knowing that your article has sufficient merit to be appropriated by a first-class city paper." Editing the FARMER is not a special occupation with us, it is only an incidental. All the bread we eat is earned in the exercise of a secular calling that is almost incompatible with the editorial function, or scientific pursuits, and the labor pertaining to these is performed during those hours when the "world is in solemn darkness hung," and the masses of mankind are buried in sleep.

No, we would not be a plagiarist, a literary pilferer—and if, inadvertently, we happen to pick up a man's hoe, on other premises than his own, we will not hesitate a moment in restoring it.

EXCERPTS.

*SEVERAL patent cabinet creameries from Vermont have recently been shipped to Chili, South America.

MEN who change from farming to some petty public position are often delighted to change back again.

THE census shows that the average of wheat production in Georgia is less than seven bushels per acre. The State produced 3,159,771 bushels on 475,684 acres.

THE Montreal Horticultural Society has some 700 members at \$2 a member. This indicates an interest in horticulture in that cold country which one in this region could hardly expect.

THE "visible supply" of corn at Chicago about October 27 was about thirty million bushels, which is about twice as much as the average at this season. This is caused by the high prices.

FEED for stock in some parts of Ohio is reported to be as good as in June. But if it should be mostly pastured off before snow comes the rains will not be of much benefit after all to next year's crop.

A MAINE railroad man "gathered" a ripe strawberry in his garden on Friday, October 21. It was of the Sharpless variety, and the plant which bore it had green strawberries in various stages of growth and one blossom.

PROFESSOR J. B. LAWES says that the

results of analyses show "that the amount of nitrogen within the range of the deepest roots of our agricultural crops amounts to 10,000 pounds per acre." They ought to thrive on that amount.

CANADA is reported to have a good crop of potatoes, and that will aid to keep down extravagant prices this winter. A decreased consumption, which always attends high prices, will also have the same effect. Potatoes are popular, but not particularly nutritious.

SAND is excellent to make good loam out of heavy clay soil, and will last if not exposed to washing. It would cost a good deal for a hundred-acre lot, but for a garden or a flower-bed, or a lawn even, it will often pay well. And so clay mixed with a sandy soil will greatly improve it.

THE growth of grass on a narrow strip of land thirty-three years ago still shows a marked good effect on land cultivated by Mr. J. B. Lawes, the famous English farmer. He says that his experiments also show that the effects of mineral manures can be seen for twenty-five years in succession.

EDWARD MUNGER, in speaking of the time when he was a boy, says it was the custom of school children as you pass a school-house to make a bow, but in these latter days, as you pass a school-house, you must keep your eye peeled, or you will get a brick bat at the side of your head.

THE one great principal of success in preparing cattle, fowls or swine for slaughter, is to keep them growing as rapidly as possible from the start.

DAYS OF WORSHIP.—The following days of the week are set apart for public worship in different nations: Sunday, or Lord's day, by Christians; Monday, by the Grecians; Tuesday, by the Persians; Wednesday, by the Assyrians; Thursday, by the Egyptians; Friday, by the Turks; Saturday, by the Jews.

WHO IS OLD?—A wise man will never rust out. As long as he can move and breathe, he will do something for himself, for his neighbor or for his posterity. Almost to the last hour of his life, Wellington was at work. So were Newton, Bacon, Milton and Franklin. The vigor of their lives never decayed. No rust marred their spirits. It is a foolish idea to suppose that we must lie down because we are old. Who is old? Not the man of energy; not the day-laborer in science, art or benevolence; but he only suffers his energies to waste time, and the spring of life to become motionless, on whose hands the hours drag heavily.

WHEN two cows are kept [which give together 300 pounds of butter a year, it is a fair question to consider if one cow couldn't be obtained somewhere that would give as much as both. At the same time it might be well to try whether better treatment of the two cows—full and regular feeding all the year round, soiling and careful milking, will not change the two into the value of four such cows as they were at first.

THE Pennsylvania Board of Agriculture has received reports from its 450 official reporters, and makes the following estimate of the crops of 1882: Wheat, 22,425,000 bush-

els; corn, 39,875,000 bushels; oats, 34,580,000 bushels; rye, 5,805,000; potatoes, 13,760,000 bushels; tobacco, 28,750,000 pounds. The trouble is that these reports are very loosely gathered. But their errors may balance themselves, and leave reasonably accurate results.

A LETTER from Russell, Kan., says that sheep in that part of the country look well, and are going into the winter in good flesh.

THE quotations of gilt-edge butter at 80 cents and \$1.00 per pound are merely nominal and misleading. It means that certain makers of really fine fresh dairy butter have succeeded in securing a limited class of wealthy customers who like the flavor of their dairy product, and who are willing to pay a fancy price for the gratification of their palate. No one of the very few butter makers who receive these fancy prices in Boston market could double his present sales without materially reducing his prices. There is but a limited circle of consumers who will pay over 40 to 45 cents for even a choice article of butter.—*American Cultivator*.

A MAMMOTH TREE.—A friend has handed us a description of a mammoth water-pitch tree, which stands in front of the dwelling of Mr. Jacob Sener, near this city, which may be designated as the mammoth of the county. It is one hundred and ten years old, about one hundred and fifty feet high, and measures twenty-three feet around the trunk. One of the lower limbs measures sixty-one feet in length, and five and a half feet in circumference. This tree was planted by Mr. Baer more than a century ago. He had been out riding on horse-back, and used a twig as a riding whip; when he returned home he stuck it in the ground, and the present tree is the product. It looks as though it might live another century, and is a striking illustration of what great results may grow from apparent trifles.

A PAIL of milk standing ten minutes where it is exposed to the scent of a strong smelling stable, or any other offensive odor will imbibe a taint that will never leave it.

THE BANEFUL EFFECTS OF NICOTINE PREVENTED.—M. Melsens has found that tobaccos from various countries contain nicotine in very different proportions. In tobacco from some parts of France (e. g. the department of Lot) there is nearly eight or 7.96 per cent. of nicotine, whilst Havana tobacco contains only two per cent. He proposes to smokers a way of preserving them from the effects of the alkaloid, and advises them to put into the tube of the pipe or cigar-holder a little ball of cotton, impregnated with citric and tannic acids; as the smoke passes through the cotton it will deposit the nicotine therein in the shape of tannate and citrate. M. Melsens has made very ingenious experiments which go a great way to show that he is correct.

THE average life of a railroad sleeper is seven years. There are 2,211 in a mile. The average cost is 50 cents each. Thus our sleepers are costing us \$150 a mile every year for each of the 40,000 miles in the Union. The sleepers on the English roads last on an average fourteen years, and when properly treated with preserving substances, they last

for a century. The wooden structures on the farms of this country cost \$3,000,000,000 every thirty years, or \$100,000,000 each year. By the use of simple and cheap preservatives, the duration of all this wood could at least be doubled.

DURING leisure hours this month make a simple hot-bed, even if it is no longer than a dry-goods box from which the bottom and top have been removed. This, if sawed in a diagonal direction, will make two frames one foot in height on the front side and twenty to twenty-four inches on the rear side when placed in position at the south side of a building or high plank fence. If no old sash are at hand, cotton cloth, saturated with boiled linseed oil, will answer a very good purpose. No manure will be needed within the frames, but fresh stable manure should extend one foot beyond the frames on each side.

As part of the fall work gather up all the vegetable rubbish about the farm and make stock bedding of it, or put it into the chicken-yard for the poultry to pulverize and scratch over. Throw grain among it frequently, and the fowls will pulverize it in due time into an infinity of atoms.

THE late Provincial Fair at London, Ontario, was a great success. On some days 40,000 people were present, and that without the aid of any side-shows, horse-races, beer-guzzling stands, or gambling contrivances. If Canada can sustain good fairs without such immoral aids, why cannot "the States" do as much?

THE *Bucks-county Intelligencer* says that "the thinking farmers of this (that) part of the country are beginning to more and more clearly recognize the necessity for better farming than we have yet reached." We suggest that "thinking farmers" have always thought that way, and that the possible change is that more farmers are beginning to think that way than was formerly the case.

AN exclusive vegetable diet, no matter how unvarying, seems to answer well for some of the hardiest nations and tribes of the world. In the matter of eating generally there are undoubtedly some very crude notions extant founded on artificial necessities. The fasts of Dr. Tanner and others show quite clearly that starvation is not at all imminent on abstinence from a few "square" meals.

A SWEET-CORN canning factory at Norway, Maine, turns out 20,000 cans a day in the height of the season. This factory takes the product of 300 acres, and the net return to the corn-growers is about \$37.50 per acre. J. Winslow Jones & Co., are the leading canners of this article. The *Maine Farmer* thinks this business is a great boon to Maine, and that it has come to stay. One county has six of these factories.

THERE is a chance for a "corner" in peanuts if the speculators choose to take hold of that crop. The supply available for consumption for the year commencing October 1, 1881, is estimated by the Cincinnati *Price Current* at 1,233,000 bushels, against 2,608,000 bushels for the previous year. A falling off of more than fifty per cent. ought to have an effect at circuses, minstrel concerts, and camp-meetings.

THE improved plows at the West will plow from two and a-half to three acres a day with two 1,400-pound horses. The draft is light and the furrows wide. The driver rides. And yet another writer thinks that plows may be entirely superseded in time by screw pulverizers, disc-harrows, curve-bladed scarifiers, and some other contrivances for making soils mellow. The next generation will know more about it perhaps.

BARBED wire fences are becoming wonderfully popular at the West, and promise soon to supersede all other kinds. The howl made against them in certain quarters is evidently the same sort of alarm which attends most new inventions. How many people have cursed the steam engine because of its explosions and faults, and friction matches because they caused so many fires, and yet each are more and more popular. The barbed wire fence has probably come to stay until fences are no longer wanted—and that time, except for special purposes, cannot come too soon in the interests of farmers.

HENRY STEWART, of Bergen county, N. J., who is a regular contributor to the *New York Weekly Times*, and frequently to the *Country Gentleman*, writes in the latter in favor of improving run-down land by green crops of rye and corn. Both are good, no doubt, but those proposing to try them should not be impatient about immediate results. Corn planted on rye freshly turned under will not be largely benefited in its seed yield. The rye must have time to decay and become incorporated with the soil. And then again, if it is proposed to feed green rye to cattle as part of the improving process, the rye should not be allowed to head out before being fed, as Mr. Stewart recommends. To make milk and be relished by stock, green rye should be fed just before it heads. Experiments in milk production with rye have shown this beyond question.

CANADA has become an important competitor with the United States in supplying England with cheese.

THE Fairmount Creamery Association of Upper Uwchlan, Chester County, paid 4½ cents a quart for milk in September.

PROF. Willard thinks American cheese-makers are studying the English market for cheese to the neglect of the American, which is vastly more important.

WHO will say that balky horses, like balky children, are not oftener made so by bad treatment than by inherent viciousness, which is another name for original sin?

SOMEBODY is stated to have lately hauled 9,600 pounds of manure over a hilly road from Doylestown to Plumstead with four horses. This is not mentioned as a worthy achievement, but instead one to be condemned. It is cruelty to animals.

THE condition of the corn stalks in the Mississippi Valley is much as they are in the spring after a winter's exposure, and much stock abortion, it is believed, must result from it. But blue grass there is reported to be growing of late under the influence of recent rules.

MANY of the farmers of the upper part of Bucks county are obliged to haul all the

water they use from some neighboring stream or spring, and in some cases are obliged to drive cattle from one to two miles for water. Much work of this sort will soon equal the cost of a windmill and its fixtures.

THE manufacture of oleomargarine on an extensive scale injures the soap and candle business by making tallow prices high, at least the soap men so claim. They say that the bogus butter people buy up pretty much all kinds of fat—including hog fat, dog fat, and 'possum fat, and they would buy "printers' fat" if they could melt it.

Mr. Clarkson Lippincott, of Mannington, Salem county, New Jersey, recently lost three cows which were in apparent good health up to the day of death. A post-mortem showed that the ears were full of maggots, supposed to be the larvæ of the bott-fly, which usually infest the legs of horses in August and September. But why the maggots were supposed to have originated from that source is not stated.

Oxen used to be very common in Maine, more especially as the poor man's team, but now they are reported to be growing scarce, caused by the supposed necessity of using horses in connection with farm machinery. But a writer in the *Maine Farmer* argues against the change and thinks it not economical at all, as the ox costs less and grows in value all the time, while the horse depreciates and at last ends his career on the dunghill.

THERE is a cattle disease in Salem county, New Jersey, which the State agent is unable to identify, though he says it is not pleuro-pneumonia. Michael Hogan, near Acton Station, has lost eight head, and the V. S. who made the post-mortem, pronounces the disease a sort of typhus fever, and thinks it must spread. The State authorities ought to look into this matter at once.

THE value of corn-fodder depends, as is the case with hay, in its manner of growth and the manner and success in curing. Simply to state that corn-fodder is very valuable as stock feed is not enough; if you think you have proved it by trial it is worth more to the public to know how it was grown and cured than to know that any certain person thinks well of it.

A TENNESSEE shopkeeper reports in the *Country Gentleman* that on September 1, 1882, he bought 16 ewes for \$70, and from them has since sold lambs and wool to the value of \$138.24, and has eight of his best old ewes left. His first year's experience must be very satisfactory.

THE Wassaic Milk Company, a milk-purchasing company near Amenia, N. Y., had a contract with the neighboring farmers to take their milk for six months from October 1 at three and a-half cents a quart. But recently, for some honorable cause, we presume, they have volunteered to break their contract and to pay four cents instead of three and a-half. Such extraordinary conduct merits—well, a notice at any rate. It looks almost as if the age of miracles was about to return.

AN Illinois farmer who keeps twenty horses, some of them worth \$1,500 each, writes that he pastures them all at times in fields fenced with barbed wire, has done it

for four years, and had no harm result from it. Before turning them out he first leads them to the fence, and lets them rub their noses against the barbs, and the hint is sufficient. They know enough after that to keep away from the fences. It is much the same with his Jersey cattle. Instead of making paths close to the fence, as they often do with other fences, they keep five feet away.

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.

MR. EDITOR: I have no desire to prolong the discussion on "The Balance of Trade" beyond reasonable limits, but there seems to be some points in J. P.'s last article that tempt criticism. I wish, however, to disclaim any intention to come at him with a "meat-axe." I tried to be very careful not to say any thing "unparliamentary," or use any expression at which he could reasonably take offense. I feel like the lawyer, who, when being reprimanded by the judge for contempt of court, said he had expressed no contempt, but on the contrary, had been very careful all through his speech, to conceal his feelings. I think it is only J. P.'s overwrought and exceedingly sensitive imagination that could discover any attempt to "meat-axe" him in my article.

He seems to have about yielded the point in regard to the statistics, thinks he may have "added up wrongly," or something else, and at any rate, it makes no difference, though when he thought the figures were on his side, he tried to make a strong point against "J. S. T.," because the exports (as he then thought) were greater than the imports from 1860 to 1870, during those years of civil war, extravagance, and admitted loss, and says, "The balance is decidedly on the other side of the book, as it decidedly ought not to be, if the Balance of Trade theorists are correct." Well, when we came to investigate, the balance was not on the side he thought it was, but about \$1,200,000,000 on the other side. Then, by inference, the "Balance of Trade Theorists" must be correct, as the balance is just where it ought to be, according to him, to support their side.

But J. P. has made the astounding discovery, that consumption is gain and production is loss, or would be were it not for consumption coming in just the nick of time to save it.

"To this complexion have we come at last." All our manufacturers then, should try to use up as much fuel and machinery supplies as possible, for that is the road to wealth. Our old book-keepers always put down, all mill expenses and everything consumed, on the Dr. side of "Profits and Loss," and all production on the Cr. side. J. P. has reversed all that, and all our Commercial Colleges and business houses will have to teach their pupils and clerks an entirely new style of book-keeping. This discovery is certainly destined to become immortal, and rank along side of the "Philosopher's stone" and "The Elixir of Life." As though every one didn't know that grain or coal consumed for food or fuel, is just as much lost as when sunk in the sea, or burned up in a destructive conflagration. In one case we may

be able to produce something of value while the destruction is going on that makes up, or more than makes up for the loss, and in the other case not; but the loss is precisely the same in both cases. It is the production that makes the gain in one case and the want of it, leaves us the total loss in the other. How about old buildings and articles of furniture that have been in valuable use for centuries, without any consumption going on, and are as good now as when first produced? J. P. will say we can not get all the value out of them, till they are entirely worn out or destroyed. Then break them to pieces or trim them up and get it, the sooner the better. Among Noah Webster's definitions of consumption, I find—"waste, decay, destruction, loss." Who can give a better one?

But Daniel Webster is quoted to prove that an excess of imports does not necessarily prove a loss. Who said it did? It is hardly necessary to repeat here, what I said in my last article, that we should buy all necessaries where we can get them the cheapest, even though we go in debt for them; and that the more of such imports we get for a given amount of exports the better. But because it may be better for a farmer to buy many articles of consumption than to make them at a greater expense of time and labor than they would cost in the open market, it does not follow, that if he can only sell (export) five hundred dollars worth of produce annually from his farm and buys (imports) and consumes one thousand dollars worth of dry goods and groceries, he is not going behind hand. It is very true, that gold is not the only, or even the most valuable thing in the world. But it is also true, that gold, as money, is unconsumable and will purchase, at any time, any article of value, and therefore stands as real wealth, and proves its possessor, either as an individual or a nation, to have been a greater producer than consumer and therefore to have been growing richer instead of poorer.

But J. P. thinks "decoration and ornamentation" of as great value as wealth, and therefore the consumption of luxuries are as beneficial as that of necessaries. That has nothing to do with the question. We are not discussing the spiritual benefit of Oscar Wilde's theory of aesthetics. It is only the money value of our possessions with which we have anything to do in this discussion, and if he can show that paintings and articles of sculpture tend indirectly to produce material wealth, as they may to some extent, then, so far, it may be advantageous to import them. But we have nothing whatever to do with the enjoyment or the mental or spiritual improvement we get from them, apart from the money value they directly or indirectly produce. I deny that there is any material wealth, directly or indirectly produced from the importation and consumption of foreign liquors and millions of dollars' worth of other luxuries that are not produced in this country and could not be consumed, were they not imported. Will J. P. pretend to say, that we buy nothing from abroad, but what is either wealth producing or is made in this country, and therefore would be consumed anyhow? As well might he say that all the alcoholic liquors drunk in Lancaster, would be consumed all the same, if there was

no place for their sale in the city. All our political economists tell us, and I never heard their assertions disputed, that it was our great extravagance in buying and consuming high priced luxuries from abroad in times of our real or imaginary prosperity, that has been the prime cause of nearly all our financial reverses. In fact nothing else could cause them, except a lack of production at home, and that, J. P. thinks of little consequence, as production is loss anyhow, till consumption comes in to save it. He says, "our exports represent consumption, the same as corn fed to the hogs." Of course then, our imports represent production, but consumption is gain and production loss by his axiom; and yet he tells us that when our imports (production, alias loss) exceed our exports (consumption, alias gain) we are gaining in wealth and prosperity. That is, when our loss exceeds our gains we are growing rich. Was there ever such a medley of absurdities? I forbear to pursue them further.—S. P., *Lincoln, Del.*, January 6, 1883.

FOR THE LANCASTER FARMER.
PERSIMMONS.

Mr. Editor: This fruit has been discussed pretty freely in your columns heretofore, but I believe it will not be amiss to touch on the subject a little more. Many have an idea that a persimmon is a persimmon, all astringent and unfit to eat until ripe, and that it requires frost to ripen them; and that they are about alike good.

There is just as much difference in the quality of this fruit as in any other, and they also differ in size and form, as well as time of ripening. Some are small and at least not fit to eat. Some commence ripening here in September, while others hang upon the trees until February. Some are formed like an acorn while others are flat. Some not larger than a common hickory nut, while others are two inches in diameter. The size of even the larger ones is governed considerably by the number on the tree.

I have now three varieties in bearing, that are large, moderately productive, and of excellent quality. I have also two varieties that are to be seedless, but they have not yet borne fruit. The one is from your city, and belonged to a Mr. Rogers, if I remember correctly. Some of the fruit was sent to me a year or two ago, but there were some that had seeds, and the quality did not impress me very favorably. They are small in size also.

A season like this when apples are very abundant, it does not make so much difference, but some seasons when these fail, the persimmon is quite a treat. I have some in the house just now, as yellow as gold, with flesh melting and almost equal to a green gage. Towards spring I may give you the best mode to graft them successfully. Any of your subscribers can have grafts by sending stamps to prepay postage. Yours truly—*Samuel Miller, Bluffton, Mo.*

THE President is quoted as having declared long ago that he would not live to be older than fifty years. He always seemed to be superstitious about the matter.

ESSAYS.

THE CODLING MOTH.*

Carpocapsa pomonella.

The literature on the "Codling Moth" is voluminous and conflicting; possibly it may be viewed from conflicting standpoints. There may already be a superabundance of literature, and not enough of practical observation, nor do I know that I shall be able to throw any new light upon the subject. I cannot recollect a time when there were no Codling Moths—or, at least, "codling worms"—or when people did not know there were. I remember them away back from the period when "small boys" were wont to "beg a bite" of each others' apples; and that bite, on many occasions, would reveal the repulsive little white, or pink colored worm. I did not know, however, that these worms were transformed to moths. Nor did anybody else seem to know anything about it, and perhaps cared but little. The case of this moth is the same as that of many noxious insects; their proliferation and development is facilitated by the improvement of their plant, and fruit-wood. Would I discourage the cultivation and the improvement of fruit-trees? Not at all; keep on increasing the quantity and quality, until there is sufficient to satisfy the demands of the human family, and the Codling Moths too, as it was in the "long, long ago." A great difficulty in the way of studying the habits of the Codling Moth is the irregularity of its periods, and its operations within the fruit, the greater part of which is beyond the range of minute observation. It may once have had its regular periods, when its broods were well defined, but these periods have been broken, and the insect has become demoralized through human progress and improved cultivation. I have found the worm, or larva of the moth in midsummer, in mid-winter, in the spring and in the autumn. This is not the case with those insects that infest the grape, the peach, and the plum, which only obtain for a short and regular season. Old crops of apples may be kept until the new crops are ready for market, and this facilitates the multiplication and development of the Moth. I feel confident that if we hadn't a Codling Moth in Lancaster county to-day, we soon would have them imported from elsewhere—judging from the great quantity of apples brought into the county annually from other States and neighborhoods. I have placed the worms, with portions of apples, in a tight box from which they could not escape, and in due time they left the apple, and spun themselves in flat cocoons around the edge of the bottom, in a white paper box almost invisible. Can it be doubted that they would do the same thing, confined in boxes and barrels for transportation?

Notwithstanding the "conflict" of views there is among practical entomologists no difficulty in relation to the general history of the insect, allowing for climatic modifications and local contingencies.

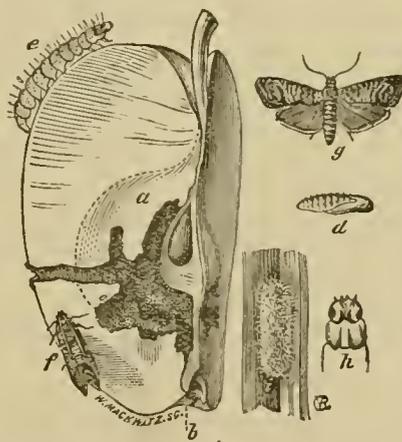
The "Apple Worm" or "Codling Moth" (*Carpocapsa pomonella*) is not a native of the United States, nor yet of the American Con-

*Read before the State Horticultural Society at Harrisburg, January 18th, 1883, by Dr. S. S. Rathvon.

finent, and like nearly all foreign species acclimated and localized in this country, it seems to be more destructive here than it is in the country from which it was imported, although it has occasionally been known to have been very destructive even there. It is said to have been introduced into America about the beginning of the present century, and may have been here much earlier—I can remember it sixty years at least, in Lancaster county. In the Western States it was not noticed so early—perhaps because sixty years ago many of the Western (new) States were not settled up, and had no apple trees to work upon. There is one aspect of its history upon which there appears to be a general agreement, and that is, where there are no apples, pears and quinces you will find no Codling Moths, for so far as known they confine themselves to what is termed “pip-fruit.” There is certainly some consolation in this, because if it ever becomes necessary to sacrifice the apple on account of the moth, we may have some hope of exterminating it. This is not the case with many other insects, especially the “Curculio,” and the “Colorado Potato Beetle,” insects that although having a choice of food, yet can “make a living” on a great variety. It is also pretty generally conceded that in the Middle States there are generally two broods, and in the Southern States perhaps three, if not more. In the north there is probably only one brood, except under extraordinary circumstances, at least Dr. Harris thought this was the case in Massachusetts. It is difficult to define and limit broods under artificial breeding. The first moths of the season make their appearance about the end of May or beginning of June, or when the young apples are the size of an ox-heart cherry; of course there periods will differ according to temperature and latitude. The brood that hibernates during the winter is not transformed to a chrysalis until the advent of genial spring, but remains a worm under its silken covering all winter, and in that state it forms a “toothsome” morsel for “Sapsuckers” and other birds of the woodpecker family. As every female moth is capable of depositing two hundred eggs or more, we can easily imagine their destruction if all survived the winter. Those that are boxed and barreled up in the apples all winter have no enemies to contend with, but are protected, and of course when their season arrives they issue forth on their pernicious mission among the apple, pear and quince trees.

Although the first brood is not as numerous as the second, it is perhaps more destructive, inasmuch as it attacks the fruit when it is too young to bear the effects of the attack. One worm is almost a sure extinguisher of a young apple, whereas, later in the season, a nearly grown, or fully developed apple, may survive its attacks with comparative impunity. Summer or early apples usually suffer most from the codling moth; only because they furnish an earlier *nidus* for the egg of the parent; for when the period arrives for the discharge of her “egg-battery,” the female cannot resist the impulse to “fire,” and therefore cannot wait for a later crop. These eggs are usually deposited during the month of June—earlier or later according to temperature—in the *calyx*, at the lower end of the apple, and rarely in the

stem cavity at the upper end. The male is supposed to die, very soon after fertilizing the female, and she does not long survive the deposition of her eggs, hence, not one sufferer out of twenty has ever seen the moth, or would recognize it if he *did* see it; although the *worm* may be as familiar to him as a common “house-fly.” Usually also, but one egg is deposited on an apple—at least it is usual for only one worm to enter it—especially when the apples are small, whereas in later and larger apples two, or even three, are occasionally found. Prof. Riley records a case that came under his own observation, where a female, confined in a breeding cage, deposited her whole brood on a single apple, and they all hatched and penetrated it, of course, making short work of it, as well as of themselves. An unrestrained female would not make such a mistake, for it would defeat her end in perpetuating a family. The codling moth belongs to the *TORTRIX* family, allied to the *TINIA* family, and although differing very materially in their habits and transformations, yet I think they agree in one thing, and that is they do not seem to feed on any substance, as a moth. After proliferation the females are restless until they have oviposited, and then they die of their own accord. On one occasion I received over a thousand insects captured in wide mouthed bottles, containing sweetened water hung on apple, cherry and plum trees, the larger number of which were moths of different species; but the codling moth and the curculio were



conspicuously absent—at least there were none that I could distinctly identify as such. From this it will become manifest that there is little hope to be based upon the capturing of the moth: and there is still less in attempting to destroying the worm after it has entered the fruit, without also destroying the fruit; and yet, with all this, the case is not an entirely hopeless one.

The accompanying cuts, illustrating this insect in its various stages of development, will convey a better idea of its size, form and structure, than the most elaborate description could possibly convey. They represent the insect as nearly as any uncolored illustrations possibly could. This, from the monogram near the lower end of the figure *i* will show that they were drawn by Prof. Riley, perhaps the best delineator of insects that our country has yet produced. *a* shows the inside of the apple and the burrow which the worm excavates: from which it will be noticed that wherever it may enter or exit, its operations are mainly about the seed cavities. *b* is the

point where the female deposits her egg or eggs. Several eggs have been noticed on this part of the apple at one time, but, as a rule, but one worm enters the fruit, and after two weeks or fifteen days the worm makes its exit through a gallery constructed for that purpose, at the side of the apple, which, although not specifically referred to by letter, yet is sufficiently apparent at the left side. *d* represents the pupa or chrysalis, which is of a light brown color, and barbed along the transverse margins of the segments, by means of which it pushes itself out of the cocoon. *e* illustrates the worm on the outside of the apple, apparently on the “look out” for a proper place of pupation. This is a regular caterpillar, and when first excluded from the egg it is very small, and of a whitish color. It is sparsely covered with white bristling hairs, which become less conspicuous the older and larger it grows. The white color also gradually changes to a flesh color, and from that to a deep pink when it has matured. The head, first segment, and also the caudal segment, are dark colored or nearly black, until after the last moult, when they change to a light brown. *f* represents the moth in repose, and *g* the same with the wings expanded. The colors of the moth are made up of bronze, gray and brown, with a conspicuous spot near the ends of the anterior wings, surrounded by a reddish or coppery margin. *h* represents the head and first segment of the worm very much enlarged, *i* illustrates the cocoon in a cavity. All these figures except *h* are of the natural size, although there may be some variations from these. Perhaps I should also have stated that the worm, except after the last moult, is regularly covered with small black dots; but this is not a permanent characteristic. The moth of the first brood is usually evolved in July and August, from which it will be seen it must have a short pupal period—only a few days—and the singularity in the insect is that the caterpillar of the second brood remains such, wrapped up in its cocoon for many months—indeed, the first brood, under favorable circumstances has been known to remain in that condition until the following spring, a period of ten months.

The damage to the fruit crop, annually, and the losses sustained by fruit-growers and others by this delicate little insect, is almost beyond calculation; therefore, we need not be surprised, nor yet impatient, at their utterances of complaint, however unavailable such complaints may be. As the codling moth, however abundant it may be, is, perhaps, known in its moth state to proportionally but few of those who ought to be well acquainted with it, it may be well to state, that it belongs to the great “moth family,” all of which, including the “Butterfly group,” are injurious to vegetation, woolen fabrics, coach trimmings, grain, bees-wax, and other substances; there will be therefore no harm in destroying all insects of this character, wherever they may be found, whether codling or other species: and, if in the general destruction, the codling moth is included, it will be all the better. This admonition may be apparent from the very necessities of the case. Many orders and families of insects embrace both noxious and innoxious species—the latter destroying and devouring the for-

mer—illustrating that the entire order, or family, are not condemnable, but have redeeming qualities. This fact may prevent some people from destroying certain insects, because they do not know to which class they belong. No such exception can be made to the order LEPIDOPTERA, which includes the codling moth. They are all perfectly innocent, as a moth, or as a butterfly; but they are all destructive as a larva, or caterpillar; there is no exception. True, many of them live upon wild plants, forest foliage, and other vegetable substances, that do not materially affect the interests of the human family: but there is no knowing what they may do when their natural food, and their natural haunts are displaced by the march of improvement, and a higher state of agricultural manipulation. When a minute insect is destructive, it is a worse foe to contend against than larger species of similar habits, because of their numbers, and their increased proliferation. The western "chinch-bug" is a more formidable enemy to the wheat and corn crops than any other individual belonging to its natural order: and because of its small size and immense numbers, it is more difficult to fight against successfully. We have an immense number of minute species of LEPIDOPTERA, one group of which are termed *micro-lepidoptera*, because they cannot be examined by the naked eye alone, but through the magnifying power of a microscope; but they are feeders on vegetation—many of them "leafminers"—and hence must be incorporated with the destructive species. The codlings seem to be a link between these and the larger species, less numerous, less destructive.

As to remedies against the destructions of the codling moth, I know nothing that is new. All the remedies are nearly as old as the moth itself. No known remedy now can be effective without a simultaneous effort. Prof. Kedzie, of Michigan, a year or two ago, read a paper before one of our national scientific associations, in which he related his experiments on the moth, eggs and larva, by an application of liquid Paris Green, administered through a force pump, or syringe. He also detailed the beneficial results, but I have not heard that his remedy has had any following at all.

There are, however, other remedies more certain in their results, but they are old, and unsatisfactory if all do not join in them; for, even if one man succeeded in destroying every moth, and worm and egg on his premises, it would amount to little, if his neighbors did not do the same. Young fruit infested by the worm of this moth, is almost certain to prematurely fall; and if it does not fall, it should be picked before the worm leaves it; and all, both that which is picked off, and that which falls of its own accord, should be thrown into scalding water, or fed to pigs and cattle or anything else that will eat them. It has been recommended to let pigs, sheep, and poultry, run at large in orchards infested by the codling, but this practice should also be general in order to be effective.

Those who have experimented with "traps" to catch the insect after pupation, recommend a hay band around the trunk and larger limbs of the tree, or old rags hung in the forks of

the branches; but later experience suggests that these rags should be wrapped entirely around the trunk or branch in order to be successful. These bands are to be taken off and thoroughly examined every ten or twelve days, and the cocoons collected and destroyed.

In order to facilitate this manipulation, and to save labor, one experimenter confidently recommends the wrappings to be strong linen or cotton fabric; and every two weeks these bands should be removed and run through a good clothes wringer, which, of course would "smash," effectually, everything within its folds. Pieces of light board laid on the ground under the trees, will attract those worms that leave the fruit after it falls to the ground, as a proper place for pupation. Shingles and laths nailed together with small spaces between, and hung on trees, will form pupating shelters for those that leave the fruit whilst it is yet hanging on the trees—to be examined every ten days or two weeks; but even this device may be deprived of its effects by an indifferent neighbor.

All barrels and boxes used for shipping apples from one locality to another, and in which the apples sometimes remain for months, should be "blazed" as soon as they become empty, especially if they have been in the possession of the last holder any length of time. It is true, many of them may harbor no pupas or moths, but then it is equally true that many of them may—indeed there are several records of moths having issued from old apple barrels in the spring; and, I myself, have made at least one such observation. Codling moths have quite frequently been noticed, prematurely, on the windows of warm rooms in the spring, and there is every reason to believe that these were bred from apples kept in the house during winter. They could not have come from without the house at that season of the year, and therefore must have come from within. It would perhaps be too late to blaze the barrels or boxes if we waited until spring—it certainly would be too late after the moths had all escaped from their cocoons.

Apple bins or apple silos, wherein apples have been stored for winter keeping should undergo a thorough examination when they are emptied—at least before the first of May—or before the evolutions of the moth, but in "looking them up" you must not expect to find anything very large or conspicuous. Sometimes the cocoon is a little flat oblong, spun in the angle formed by the side and bottom of the box in which they were kept, or in the upright angles at the corners.

The moth does not spin out on an open plane, but in an angle, in a crevice, or in a cavity. Its silk is white, or dirty white, and where the surroundings are of a darker color it is not difficult to find them, but on a white surface they may be very easily overlooked. But the greater number of them without a doubt pupate in crevices, or under scales of bark on the trees. Scraping off all the loose scales of bark would doubtless carry with it many of the cocoons and pupæ; for those that have not been reached, but remain in the fissures, perhaps an alkalinous liquid, or a strong solution of soap would be necessary

to dislodge and destroy them. I have seen it somewhere stated that pieces of strong soap, tied in the forks of the branches of the trees, and left there to slowly dissolve under descending rains, and trickle down over the surface, has been successful as a remedy against those insects that lodge in the bark crevices of trees. It is a very simple and inexpensive remedy and cannot do any harm, but may do some good, whether it destroys codling moths or not. The fact is, *something must be done*; and nothing can be done without labor and expense.

It seems hardly necessary to state that codling moths are subject to the attacks of parasites. This fact has been barely observed, but they certainly have not been much depleted by parasites. A small species of "Ichneumon-fly" (*Pimpla gnudipes*) deposits its eggs in the worm, either while it is yet in the apple, or after it comes out of the apple, or perhaps, while it is in the cocoon. There would be no difficulty in the way of the *Pimpla* depositing its eggs in the body of a codling worm, if that were all, for there are species of them with ovipositors long enough to reach the body of a wood worm, two or three inches beneath the outer surface of the wood. But then this could have very little effect upon the late brood of the moth, and especially those that are packed with the apples and sent to remote markets. A coleopterous insect, belonging to the *Lampyrus* or "Fire-fly" family, (*Chantognathus pennsylvanicus*) is said also to have attacked it in its larva state. The larvæ of these Lampyrans are generally carnivorous, and some of the mature beetles are exceedingly so. I have known the garden snail (*Helix*) to be attacked by large numbers of *Telephorus collaris*, and allied species, and they never desisted until they had the shell completely cleaned out. They no doubt would destroy a codling worm if they had an opportunity, but all things considered, I do not think the opportunity would be frequent enough to be felt by the fruit-grower, in a diminished number of codlings. In conclusion, from all the observations that have been made, and from all that has been written and published on this subject, little more has been developed than mere experimentation. No quick, effective, and unfailing remedy has yet been discovered, and the patient fruit grower is still remanded to manual effort, assisted by common strategy.

It is not a bold and open enemy, but in all its operations, and in all its stages of development, it works under cover. It is more conspicuous for where it has been, and what it has done, than for where it is, and what it is doing. We only recognize its presence after the fruit has fallen from trees infested, or by its excretal voidings, either around its aperture of entrance, or where it makes its exit. The recommendations and suggestions that from time to time have been made in regard to it, are good only so far as they go, and none of them even approaches a finality. It has passed out of the category of contingencies and has become a permanent fixture, and must be provided for as such. A time may come when it will have run its course, but judging from its antecedents, it would not be wise to prematurely anticipate that time.

OUR INSECT FRIENDS.*

The long persistent and continuous annihilation of our *insect enemies* may have led many people to suppose that all insects were the special enemies of the human family, and all that related to its welfare. This, however, is a very grave error, and the sooner, and more thoroughly we apprehend the length, depth and breadth of that error, the sooner and more effectually we will be able to reconcile ourselves to their presence, and the injuries we sustain through their occasional depredations. Can it be possible that the teeming millions of insects, and their almost endless varieties, in habit, form and local occupation would have been permitted by creative wisdom, had they been an entirely useless factor in the economy of nature? The importance and the power of a factor in the economy of creation, is not to be measured by its size and the simplicity of its organic form, but the accumulation and the tangibility of its visible results. Even in cases where results are not immediately and distinctly apprehended, we may be able to judge of their character and extent, by virtue of those analogous phenomena, through which we approximately reason from the known to the unknown. Admitting for the sake of illustration that the simple *poly* whose massed millions are instrumental in laying the solid foundations and building up the vast superstructures of shoals, reefs, islands and peninsulas, are *insects*, we are compelled to recognize their accumulated labors as ends that could not be accomplished by any other means; and although their submarine habitations may culminate in hidden obstructions that are occasionally disastrous to human interest, and even to human life, still on the whole, we are compelled to acknowledge them as benefactors of the human family.

We are not to contemplate an *insect* or any other animal, no matter how insignificant it may appear, as an atom isolated from the general plan of creation, but as an integral part of a whole, and as being more or less intimately related to some other part or parts for which it has a natural affinity. In discussing the subject of our *insect friends*, I do not mean a friendship based on those affinities which are the outbirths of fraternal sympathy, but rather those which are impelled by carnal proclivity, for the insects that are the most friendly to the human family are those which are *carnivorous* in their habits, and especially those which prey upon the bodies of their fellow insects, and hence are incidentally the friends of humanity.

It is true that among insects as a whole, there are but few comparatively that are a direct benefit to the human family, and if we were altogether ignorant of the manner of utilizing these, they might become a positive evil. For instance, there is no insect in the long catalogue of these animals that is a more voracious devourer of certain kinds of vegetation than the *Sciricaria mori*, or common "Silkworm," and yet the aggregate product of this animal constitutes one of the greatest factors in the commercial, manufacturing and domestic interests of our country; and, it is just possible that amongst our most de-

structive species, there would be more than a compensation for all the evil they do, if we knew how to utilize them. Whether the *Apis mellifica*, or "Honey-bee," is guilty of the charges brought against it in recent years or not, it is very certain that the production of honey and wax by these industrious little animals compensates in a single year ten thousand times the value of all the fruit they destroy. No man owning a graperly could concentrate the fruit thereof into a more valuable product than honey and wax, and none the uses of which are involved in less doubt. In its very worst aspect after all, the only legitimate basis of complaint is that one man may be involuntarily compelled to feed another man's bees. If the same man owns both the fruit and the bees, he could not well make more out of it than the bees can.

The insects that produce "Cochineal," "Gum-lac," "Cantharides," and "Nutmalls," are no benefit to the plants and trees upon which they live and thrive, and yet they themselves, or the substances they produce or cause to be produced, are of great commercial value, and hence a direct benefit to the human family. The first two named of these products are exclusively foreign, but within the limits of the United States, the last two named are quite abundant in special localities.

Of the cantharides, especially, we have species whose vesicatorial power is equal, or nearly equal, to the foreign species, and that they have not become an article of commercial traffic is, perhaps, because they are not foreign, or, because among the abundance of other more profitable occupations, the business of gathering them would not pay. Even the destructive Locusts—the allies of our Rocky Mountain species—are often considered a God-send to the people where they most plentifully abound—at least to those tribes who value the insects more than they do the plants upon which they feed. It would not be surprising if the next hundred years would develop some use for the much despised "Colorado potato beetle," but speculation aside, real instances of insect utility exist abundantly.

In the economy of nature there are a large number of species consisting of millions of individuals, in the insect world, that are more than merely *indirectly* beneficial to the human family, if they are not *directly* so; and these are more or less identified with the sanitary conditions of the country they inhabit; and these may appropriately be termed *insect Scavengers*. The Carrion-Beetles, Burying-Beetles, Bone-Beetles, Blow-Flies, House-Flies, and even the Mosquitoes, are entitled to more consideration than is ever accorded to them by those who only view them from a noxious, or pestiferous stand-point. It is true that in communities where dead carcasses and putrescent substances are required to be removed, buried, or deodorized, through municipal regulations, the services of these insect friends may not be as apparent as in those districts where such regulations do not exist; but under any circumstances, there is always an abundance of decomposing animal and vegetable substances, which the eye of official vigilance either overlooks or does not detect, that become the prey of scavenging insects.

There are districts of country, especially in

some parts of South America, where the atmosphere is so pure, and the sun so hot, that animal carcasses not devoured by carnivorous birds, rapidly dry up, and, as it were become mummyized; and hence, the scavenger insects of those districts are correspondingly limited in number and species. The reason is, that the period required for the development of their larvæ is too brief, preventing them from maturing and undergoing their pupal transformations. Many insects in our own country are defeated in their development, during a protracted hot and dry season. No one has more practical evidence of this than the amateur who attempts to rear insects from the eggs or the larva to their perfect maturity. He will often find himself defeated through drought, resulting from neglect to preserve the proper conditions.

Much as people may feel themselves annoyed by the presence of domestic flies, flesh-flies, or even the common horse-fly, the functions these animals have performed before they become flies at all, far transcends any possible injury they are capable of inflicting as mere flies. Even the dreaded female mosquito, as a purifier of stagnant ponds and pools, and thus preventing putrid odors that might arise from them, confers an undoubted benefit to those who live in proximity to such localities, which compensates a thousand times the portion of human blood she appropriates.

Take for instance the order COLEOPTERA which includes the Shield-winged or Beetle tribes—and although it also includes the notorious "Curculio," the Apple-tree borer, the Elm-leaf beetle, the various Flea-beetles, etc., yet it includes in a special sense, many of our most conspicuous insect friends, and friends too that are not among the minute and almost invisible tribes. At the head and front of this order in classification at least, are usually placed the *Cicindelans*, commonly called "Tiger Beetles," and not nearly so well known, even by this name as they ought to be. Considering them as both fliers and runners—independent of their anatomical structure, they stand at the head of their class. They feed altogether on other insects, both in their larvæ and mature states, and like a tiger, they are constantly "watching and waiting" for the approach of their insect prey, and when it don't approach they go in pursuit of it. The larvæ occupies a perpendicular burrow, its head even with the surface of the ground, and there it secures its prey by strategy, being a poor runner. The *Calosomans*, large and brilliant ground beetles, mainly nocturnal in their habits. Both the mature beetle and its larva are voracious destroyers of noxious and other insects, prowling at night, and even climbing trees and shrubs in pursuit of them. The *Carabidans* generally, the type of which is the genus *Carabus* are of a similar character. These are the insects of which it has been recorded that they have been colonized by some French gardeners, with good results. Many of the *Coccinellans*, or Lady-birds, both as larva and imago, are well-known destroyers of other insects, especially the *Aphids*, or plant-lice, and have been grouped together under the name of *Aphidiphagans*.

The order NEUROPTERA also contains many

*Read before the State Horticultural Society at Harrisburg, January 18th, 1883, by Dr. S. S. Rathvon.

insect friends, and conspicuously amongst them are the Dragon-flies. These insects are very perfect in their flight, and usually capture their prey "on the wing"—butterflies, day-flying moths, grasshoppers, etc., being their victims. Their larvæ inhabit the water, and are voracious feeders on small water insects. The *Hemerobians* or Lace-wings, are vigilant *Aphis* destroyers, while they are in the larva state. The *Perlans* and *Panor-pans* of this order are also predaceous, especially in the larva state—inhabiting the water. In a limited paper on this subject, it would be impossible to enumerate many of our insect friends, or even to describe the few we have cited by way of illustration. Their name is "legion"—enough at all events to preserve an *equilibrio*, if it were not that the destructive species seem to be more prolific than our friends; the effect perhaps of improved cultivation—we have improved the plant food—they appreciate it and thrive. We must balance this by fostering our friends.

But, far outnumbering all the foregoing, both in genera and species, are the great families of insect friends usually denominated *parasites*. Many of these are solitary in their habits, but perhaps as great a number are gregarious. It would perhaps be quite safe to assert that every single species has an insect parasite that preys upon it, and it is quite certain that even the *parasites* have other and smaller parasites that prey on them. Few of these parasites have received common, or English names, and to give their Latin names would only complicate the subject, and leave the common reader little the wiser. These parasites are in no wise vegetable feeders, nor do they feed on tainted or putrid flesh. The *larva*, the *pupa* or the *imago* of a living insect is their chosen prey, and their offspring feed alone on that kind of food. As soon as they emerge from their own pupal condition, they are brisk, active, and intelligent, and know exactly what to do and how to do it. Sometimes the most casual observer recognizes the presence of some species of these parasites, although he or she may be entirely ignorant of what they are, or their modes of operation. Perhaps the most familiar example of the good works of these little parasites, is the development of those that infest the common green "Horn-worm of the tobacco plant, and the tomato and potato vines. As an illustration of the possibilities of the parasites that infest this worm, I have only to mention that in the month of August last I bred over three hundred of these parasites (*Microgaster congregata*) from one horn-worm. Whether the eggs that produced these parasites were all deposited by one female is more than I am able to affirm, but probably they were. This parasite is in the form of a very small fly—hardly as large as a mosquito—with four rounded "clear-wings," with a dark body, sometimes tinged with green or blue. The little parasite, after its evolution from the pupa state, as a perfect fly, seeks a naked caterpillar of some kind—for they do not confine themselves to the "Horn-worm alone; the large grape-worms are also infested by them, and also many other smaller naked species. Having found its host it very adroitly but deliberately proceeds to deposit its eggs

in or on the body of the worm, and these eggs when hatched exclude a minute whitish worm which burrows into the body of said caterpillar and feeds on its substance, but touches no vital part. Perhaps the horn-worm would survive the attack if there were only a very small number of the parasites present, but they usually number from fifty to three hundred or more, and the physical depletion caused by these usually destroys the horn-worm, at least none that came under my observation ever survived.

When these parasites have completed their larva development, they issue from the body of their host, and each one spins a separate cocoon about the size of a grain of rice, and attached by one end to the skin of the horn; or other worm. In these little cocoons they pass their pupal period, at the end of which each occupant of a cocoon cuts squarely off the upper end and emerges forth a perfect four-winged fly, in all respects like the parent that deposited the eggs. There is nothing spasmodic, nothing contingent or inconstant in the characteristics of these little parasites; they have been going through this developmental process ever since their first advent into the material world, and they will continue in it from generation to generation as long as the conditions necessary to their development endure. There is no poisonous application, no artificial remedy, no human device or invention that can possibly supersede this balancing provision in the economy of nature. The history of this one species, under various modifications is the history of hundreds or thousands of others belonging to the parasitic tribes. Night and day during the whole summer season these little friends are working in the interest of the human family by restricting the multiplication of noxious insects. Then again, there is a vast family of solitary parasites, known under the names of "Cuckoo-flies," "Ichneumon-flies," "Chalcies-flies," &c., some of which, however are not strictly solitary. These never construct a nest or cell for themselves, but prowl about watching those who do engage in these provident labors, and cuckoo-like as soon as they find the proprietors absent, they stealthily deposit an egg or more in each cell and when the young grub is hatched out, it very deliberately appropriates the larva of the original proprietor. Some of these parasites are as large as the common wasp and are provided with a long ovipositor, by means of which they are enabled to reach the bodies of wood-worms, several inches from the surface, into which they deposit one or more eggs, and by that means arrest their progress in the destruction of trees and timbers. The white "Cabbage-butterfly," and the black "swallow-tail," are very liable to parasitic infestation. The latter has a parasite as large as the common wasp, and the entomological novice has often been confused in finding a *Trogus fulvus* in his breeding cage, instead of a *Papilio asterias*, bred from the black, yellow and green-worms which feeds upon umbelliferous plants. The little *Pteromalus puparum* will eventually curtail or destroy the green-cabbage-worms, more effectually than any artificial remedy. On one occasion I had chrysalids of the latter insect sent to me, and out of a score of them I only was able to get three but-

terflies; the other seventeen evolved about fifty of the little "chalcis-flies," named. It only needs the diffusion of this fly as extensively as its host to totally exterminate the latter.

The "Fossorial Wasps" or "Mason Wasps," constitute another family of insect friends. These make deep burrows in the ground, which are divided off into a number of cells. Then the parent wasp—usually the provident mother—captures a naked caterpillar or cut-worm, paralyzes it, and crams it into her cell. She then deposits an egg on it and closes the cell, and when the young grub is excluded from the egg it commences to feast on the caterpillar, and when the last of it is consumed the grub is mature and is transformed to a *pupa*, and in due time comes forth a perfect wasp, endowed with all the instincts and abilities to "go and do likewise."

Of course, some insects are enemies, in one sense, to the human family, particularly when they occur in great numbers: but even these have been known to confer a benefit by their fruit-pruning, twig-pruning and leaf-pruning, and when, through vigorous cultivation fruit-trees can be brought to yield crops as they are said once to have yielded—that is, enough for the human family (provided that family ever discovers when it has enough) and the insects also—their usefulness as pruners may be recognized and even desired. But for every single species that any sufferer can point out as really destructive to vegetation or to any other human interest, any intelligent entomologist could point out a species that is absolutely and unqualifiedly a friend to human interests. Nearly the whole question impinges upon their redundancy, ignorance of their development, and how to utilize them. Suppose the uses of silk had never been discovered? Can any one doubt that a war of extermination would have been waged against the silkworm where it was a native, as one of the greatest defoliators in the class to which it belongs?

But not alone by their overt and covert actions are insects the friends of humanity—not alone by their direct and indirect manipulations, but also incidentally, and without design on their part at all. It is not only ascertained that insects assist the fertilization of a vast number of trees, shrubs and plants, but it is also pretty certain that some plants could not become fertilized at all, if it were not for the intervention of insects. These beneficial works—parallel with their injurious works, perhaps—are constantly going on throughout the entire realm of nature, wherever and whenever there is sufficient warmth and moisture to vitalize them; and when their labors cease, it is only because the necessary conditions have ceased to exist.

Now, the object of this essay is not to illustrate that insects, without qualification, are the friends of the human family, and therefore that it is useless to attempt to subordinate them to human interests. Even admitting that they are friends *per se*, we may still have occasion to pray for a "deliverance from our friends," as earnestly as such an invocation is often made in the domestic, the social, and the political world. It is, perhaps, most eminently a question founded upon use and abuse. Save the atmosphere that a human

being breathes, there are no elements in the catalogue of nature that are more friendly to the human family than fire and water, and yet from the very foundation of human society, through all the changing cycles of ages, down to the present time, there are no two elements that have been more destructive to human life and human property. They have long since been denominated "good servants, but bad masters." This state of things has its parallel in the insect world. If we could keep them within legitimate bounds, as we do fire and water in their ordinary uses, and avoid a redundancy of them, as we would avoid a conflagration or a flood, it would be all that we could rationally hope to achieve. Their total extinction is quite out of the question, and on the whole, not at all necessary, or perhaps not at all desirable. Essays and treatises on destructive insects are as old as Aristotle and Pliny, and Xenophon and Columella. They regarded them as enemies, and treated them as such. Possibly they may have known nothing about them as friends, but under any circumstances, we have the insects still with us, and are likely to have them until the millennium. The conditions of the earth's surface have become changed through what we term improvement and progress, and in making these changes we have had only regard to pleasure and profit, and if insects were thought of at all, it was only as objects beneath our notice. We must learn to practically know them by the same intelligence and energy that we bring to bear upon any other subject of human knowledge. We must provide for them as we do for any other contingency within the sphere of human effort. And above all, we must learn to what extent they are our friends, and in what manner they befriend us. Of course, when they come in direct conflict with our material interests we must learn how to "fight" them; but this warfare must not be indiscriminate, and perhaps no men in the world have better opportunities to make this discrimination than those whose occupation and whose interest is immediately connected with the cultivation of the soil.

The acquisition of *practical* entomological knowledge is, however, incompatible with many secular occupations, and the process, slow, tedious and perplexing, in many cases. It seems to be experimentally developed, and in the field rather than in the closet. The scientific description of species and their classification according to their organic structures, is quite a different study from that of their life-habits, and the benefits or injuries to human interests that may be connected with those habits. But the successful pursuit of either branch of entomology requires more time than can be devoted to it by one who is compelled to depend upon the precarious profits of a secular occupation. What it really requires to pursue it, and the progress of that pursuit, perhaps, cannot be made manifest, even to a mind that may be intelligent on ordinary subjects; and through this non-appreciation it mainly occurs that those who make it a specialty are so reluctantly and so sparingly compensated, both by governments and people. An experiment may, through unforeseen contingencies, be suddenly interrupted, frustrated, or entirely

defeated; and thus the same experiment may be for months, or years, or forever, suspended. A well paid monthly or weekly journal needs to be sustained for the diffusion of entomological knowledge, just as other journalistic interests are sustained. As long as we grow wheat, or corn, or cotton, or fruit, we need journals that are the representatives of those interests, and entomological literature is no more an exception than are those of dairying, cheesemaking, and tobacco culture. As every man *cannot* be a minute observer of nature, and is not likely to be any farther than he can recognize his immediate interest in observation, it therefore becomes necessary for him to "read up" the observations of others, but this knowledge should come before him frequently, and in such portions as he may be able to understand, appropriate, and digest. Perhaps a knowledge of his insect friends obtained in this way, would be as great a benefit to him as any he could derive from a knowledge of his insect enemies. One great difficulty in the way of obtaining a practical knowledge of our insect friends arises from the fact that the greater number are too small to elicit special observation, and magnified illustrations are often misleading to the masses, because they never recognize such things through natural sight, in the realms of nature. This magnifying power is proper, however, for the sake of illustration, but it cannot make as indelible an impression upon the mind, as seeing, handling and studying the character of the insect in its normal form and size, and under the circumstances in which it is usually found.

SELECTIONS.

THE "JAMES VICK STRAWBERRY."

Originated by Samuel Miller, Bluffton, Mo.

A few Rochester horticulturists were invited to see the new strawberry James Vick, in bearing. The day being rainy we gave up hopes of their coming, but the noon train brought W. C. Barry, late president of the Nurserymen's Association, P. C. Reynolds, long secretary of Western New York Horticultural society and horticultural editor of the "American Rural Home," the Vick Brothers, representing the firm of James Vick, John Charlton, the disseminator of the Pocklington grape, and the veteran fruit grower and propagator, Josiah Salter.

They were first shown rows of the new strawberry from plants set late the previous fall growing in the same bed with Manchester and Bidwell. The new berry showed twice the fruit of either Bidwell or Manchester, and more vigor of plant. The party were next shown a plat of about one-fourth acre, not manured for many years, common farm soil in the midst of a field of twenty acres of fruit, on which the new strawberry had been permitted to form wide and thick matted rows for the purpose of multiplying plants, from the whole of which plants had been dug a few months previous, tearing and loosening the roots of those remaining. The soil was packed hard and very weedy, showing evidence of neglect, yet under such adverse circumstances, which would lead one to expect no fruit worth gathering, the plants

were thickly studded, and the rows fairly ablaze with large, beautifully and evenly colored, firm and shapely berries of superior quality, and from the bed was subsequently picked the largest yield of fruit ever gathered from any variety on our fruit farm. Mr. W. C. Barry said that of all the new strawberries he had tested this was the most promising. He described the color as bright scarlet turning to crimson, surface glazed, seeds on surface, season medium, quality good. All the party expressed themselves as highly pleased with the display of fruit, and ate it with a good relish. We heard no criticism, and indeed, there could be none. The plant was vigorous, with large glossy dark green foliage, the blossoms hermaphrodite (or perfect), the fruit handsome, large luscious, firm, and in great abundance. We tested them under this rough treatment purposely. A nursed plant in a manure heap is no test of a variety—place it under hardships and see what it will accomplish has been my theory.

A Surprise.

The party returned to Rochester and were invited to visit a small plantation there of the "James Vick" fruiting under hill culture, the rows lying between bearing grape vines, not the most desirable position as the grape roots must have occupied the entire soil. Here a sight met their eyes that they could not have anticipated, and such a display as probably was never before made by any strawberry on earth. The stools were large and vigorous, and around each was a pyramid of ripe berries piled one on another like a walled fort, and so thickly together a bug could hardly have crawled into the enclosure made by the fruit without climbing the barricade. Berries on every plant were "uniformly of good size," as was remarked by Secretary P. C. Reynolds. The fruit stems were long and stout, but could not sustain the great burden imposed upon them, (often 12 to 18 ripe berries on one fruit stem) thus the fruit rested one berry on another in a circle about the plant, as is shown in the engraving made by a careful artist.

The news soon spread among the lovers of fruit of the city of nurseries, and early next morning our leading pomologists, men whom we all delight to honor, came to inspect the newest wonder. After these came the younger enthusiasts, the foremen, and others who desired to see for themselves if half were true that had been told them. It was known that we intended to introduce the "James Vick" this season, but a gentleman who has charge of one of the largest nurseries of the country said we would not have enough plants to supply the demand, as he thought the large firms could sell 100,000 plants of the "James Vick." Mr. Vick and Mr. Charlton also thought the supply of plants would be wholly inadequate, and advised holding the "James Vick" over until another season. Mr. Charlton said that as soon as the Norfolk (Va.) and other large strawberry planters learned of the value of the "James Vick" for market, and shipment, the demand would be something wonderful. But as our plans had been made we thought it not best to change them.

We received the following from the Geo. A. Stone nursery, Rochester, N. Y.:—"Dear Sir: I saw the "James Vick" to-day at

Rochester. It would certainly seem to possess all desirable qualities. It is very prolific, firm of texture, and of fine flavor.

Geo. S. Wales, the Bannockburn nurseryman, said he had seen nothing equal to the "James Vick."

Secretary P. C. Reynolds, of Rochester, N. Y., considers the quality of "James Vick" very good, and well suited to his taste, which I will add, is exceedingly critical. With possibly one exception he has not seen anything to equal it in productiveness. He considers it more productive, larger and of better quality than the Manchester.

The roots indicate great vigor, the largest we have seen on any variety. Mr. Peter B. Mead remarked that they were something unusual. We sent fruit of the "James Vick" to Mr. J. T. Lovett, over 300 miles distant, and he reports that it came in fine condition. As a shipping variety it is particularly desirable.

Marshall P. Wilder writes: "You will be pleased to learn that Mr. Benj. G. Smith, of Cambridge, has succeeded famously with the James Vick." Mr. Wilder sent an order for the "James Vick" by telegraph.

Mr. Peter B. Mead says he has seen enough of the "James Vick," from spring set plants to warrant placing it among the very promising varieties, and that it endures drouth remarkably well.

Vick's Magazine says: "Its merits as a prolific and profitable strawberry are now pretty well established.

The Points of Merit

of the "James Vick" are briefly:

- (1) Fine quality, unusual vigor, and hermaphrodite (or perfect) blossoms.
- (2) Color, form and firmness of berry, which approach the ideal. No white tips, no coxcombs.
- (3) Ability to stand on the vines a week after ripening, without becoming soft, or rotting, or losing quality or much lustre. Instead of softening it shrinks a trifle, and becomes firmer than when first ripe.
- (4) Uniformly large size, and productiveness unequalled by any other variety. Two hundred and eighty berries were counted on one average plant, and from one row about 100 feet long nearly two bushels of berries were gathered.

The prices for the "James Vick" are \$2.00 per dozen, \$10 per 100.

For sale by Samuel Miller, Bluffton, Mo.

THE BEST SEASON FOR CUTTING WOOD.

Farmers are usually too busy to cut wood when it is in the best state to season well. When the cold weather comes and the ground is covered with snow, most of the out-door work on the farm is over, excepting that of cutting wood; so it is during the winter season that the principal portion of the wood is cut, but unfortunately this is not the best season. One cord of wood cut in September, is worth one quarter more than a cord cut in September, is worth one quarter more than a cord cut in March. If cut in September, it is comparatively free from sap, and will dry much quicker and at the same time dry harder.

They grey birch, if cut early in September, will dry hard and keep well through the next summer, while if it be cut in March, it will not dry unless sawed in short pieces and split. If left four feet long in the woods over summer, it becomes comparatively worthless. Even maple and oak, is of much less value when cut after the first of January, and before the first of May; it does not dry as quick, nor as hard as if cut early in autumn.

Pine wood cut between the first of January and the first of May, is not only not as good for firewood, but is sure to be badly eaten by worms if left in the woods over summer, while if cut early in the autumn, it dries harder and is rarely injured much by worms.

Another advantage of cutting wood early in the autumn, if the land is to be kept in wood is, the stumps sprout better, and the growth is larger than if cut late in the winter. When it is desired to clear up the land, it is best to cut the wood in the spring, then the stumps are full of sap which flows from them, in large quantities, thus keeping the stump wet and causing it to decay in much less time, than if cut when the roots are comparatively free from sap, and if cut at this season, it is much less trouble to keep the sprouts down; thus if the land is to be cleared, the gain in keeping the sprouts down partially makes up for the loss in the quality of the wood.

When land is to be kept in wood, an effort should be made to cut the wood before the first of January, and it would be better to cut it in October.—*Massachusetts Plowman.*

EARLY TOMATO PLANTS.

Those who desire only a few plants without wishing to incur the expense and labor of preparing a hotbed, should select boxes for the purpose, into which place good light loam or wood mould. Sow the seeds in March, and when they are six inches high either thin them out or transplant them to other boxes, in order to get room. It is not generally known, however, that tomatoes will sometimes grow from cuttings, and that a large-sized plant will produce several smaller ones. They will grow well from cutting when once rooted, but such a course is not safe in inexperienced hands. Probably the best way to procure plants early is to save all the fruit cans and cut off their tops. Prepare the loam that it to be placed in them by rendering it very fine and light. Let it be rich, but if manure is used it must be fine and well settled. If the weather is extremely cold some fresh manure may be placed near the bottom for the purpose of generating heat, but care must be taken not to use too much. Place the cans on a shelf near a window which faces the South, and have as a covering for each a large paper bag, which should be used at night. Now plant about one-half of an inch deep a dozen tomato seeds, gently pressing the earth on the seeds. Moisten them every morning with tepid water, but do not saturate the earth. As soon as the plants are an inch in height draw out very gently all but the largest, which leaves a single plant to each can. Having the entire can to itself the plant will have room to grow, and will push forward rapidly. If it begins to shoot

up faster than desired pinch off the growing tip. This forces the plant to extend itself by way of its branches and laterals instead of growing tall and slender. It will become stout, strong, well rooted and vigorous, and when afterward placed in the open ground will be almost ready to do its duty of production. If the season is late and the plants very large the want of space in the can may prompt the growers to transplant them before the danger of frost is over, but the lack of nourishment in the can may be supplied in this manner. To every quart of water add a tablespoonful of saltpetre, a teaspoonful of saleratus (be sure and get the right article), and a good heaping teaspoonful of superphosphate. Water the plants in the evening with this by pouring it around the roots (not too liberally), but not on the plants. After transplanting this fertilizing may be continued, as it will cause them to push ahead rapidly.

The above gives an essay and simple method of getting early plants for a small garden, and opens a way for utilizing old fruit cans. Now, a word about the plants after they are in the ground. When the season is dry water them occasionally very profusely, but not by pouring the water around them, but by first removing the top earth a little, putting in the water, and placing back the dry earth. This prevents scalding from the hot sun and avoids baking. Do not work them deeply, but keep the surface clean. The best fertilizer for tomatoes is well-rooted manure, but a spoonful of guano and a small quantity of superphosphate from time to time, dissolved in water, if preferred to the above, are valuable assistants. On light soils the potash salts should be used more than where the ground is heavy. Always keep the plants well pinched back and carefully tied to stakes.

Of the varieties the Acme is very popular, but more subject to rot than the others. The Conqueror is the earliest, but small. The Hathaway Excelsior is superb. It may not be as large as some others, but it is solid smooth, free from disease, hardy and of a beautiful color, ripening down to the stem. The General Grant and Paragon are also good varieties, the former a very good keeper. They must be watched for the worm, as a single day or night is sufficient for a worm to seriously injure a vine. This worm and the tobacco worm are identical. On sandy soils a mulch will be very serviceable. Always let the tomatoes ripen on the vines, instead of pulling them partially green. The tomato is very productive, and, like the orange, it blossoms while the fruit is ripening, continuing to bear right along until frost. The vines also are able to repair damage from loss of limbs, etc.

THE Duke of Argyle is enjoying his bridal trip with his young wife on board his steam yacht, in company also with his son, who has recently married Victoria Woodhull's daughter.

A PEAR tree that has born fruit for two hundred years is still standing in Everett, Mass., on the Swiss farm.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular monthly meeting of the Lancaster County Agricultural and Horticultural Society was held in their room Monday afternoon, January 5th, with the following persons present: M. D. Kendig, Creswell; Casper Miller, Conestoga; Johnson Miller, Litz; J. C. Linville, Gap; H. M. Engle, Marietta; J. H. Landis, Millersville; F. R. Diefenderfer, city; Calvin Cooper, Bird-in-Hand; W. W. Griest, city; C. A. Gast, city; A. H. Linville, Urbana, Ohio; James Wood, Little Britain; Cyrus Neff, Mountville; C. L. Hunsecker, Manheim; J. M. Johnston, city; Jacob Landis, Millersville; Peter Hershey, city; Wash. L. Hershey, Chickies.

In the absence of the president, the meeting was called to order by Henry M. Engle, vice president.

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

The secretary read a letter from Mr. John I. Carter, of Chatham, Pa., accepting an invitation to deliver an address before the Society on the subject of "Creameries," at the February meeting.

On motion the committee was continued in order to make the necessary arrangements with Mr. Carter.

Corn and Its Cultivation.

Casper Miller exhibited several ears of corn, and in explanation read the following essay:

I show here a few ears of corn, a variety that was said to have originated in Russia, for which extreme earliness and great productiveness were claimed. It was afterwards said that the "fellar" that sold the corn at 25 cents an ounce was a brother to the tree agent, that he was a sharper, that he sold to us Pennsylvania Dutch the product of our own fields at a slight advance in price. Be that as it may, the corn is not noted for especial earliness, and I think will not excel some of our choice varieties in productiveness; but it is nevertheless a nice corn, and besides I do not recognize a Pennsylvania variety in it. But my object in writing is not the merits or demerits of this variety.

I want to say something, briefly, about the mode of planting and cultivating this plot of ground. It contained one-fourth acre, and as the seed was scarce, the drills were made four feet apart, and the seeds were dropped singly also four feet apart. The plot was cultivated (level culture) at frequent intervals until the corn was in tassel.

Result—about fifty bushels to the acre. Fifty bushels is not much of a crop, but when we contrast this crop, raised on less than 3,000 stalks per acre, with the crop usually raised on 10,000 stalks per acre in our ordinary farming, it is somewhat remarkable.

It becomes very evident that the small number of plants mentioned produce nearly as many bushels per acre as the larger number; that there is a right mean somewhere between, to produce best results. From my own observation I am led to think that if the plants had been set two feet apart in the drills (twice the number of plants) the average result per plant would have been but little changed.

A vote of thanks was tendered Mr. Miller for his essay.

The Secretary read an article from the *Rural New Yorker*, on "Some Unpalatable Truths," written by Charles A. Green. The article took the ground that most farmers pay too much attention to the cultivation of their pocket books, neglecting at the same time the acquisition of knowledge.

Choosing an Occupation.

Mr. C. L. Hunsecker read the following paper:

It is but seldom that men are so well acquainted with themselves, or disposed to judge impartially concerning their own qualifications, as to choose that station in which they may appear to the most advantage.

If we but knew at an early age what our capacities were, and inclinations for business, suitable to our station in life, there would be fewer lamentable failures to chronicle.

In a country like ours, the various pursuits in which men are engaged, open up occupations for all classes and conditions. Thus the most stupid person may find employment suited to his capacity. Parents, if observant, would have great opportunities to see what inclination their sons exhibit at an early age, and encourage them in an occupation for which they show a partiality.

It is right that parents should take very great interest in their sons, and should like to see them succeed in whatever they undertake to do. But as

few are born great, a few become great, and many more fail entirely, and and are unknown to fame, the next best thing for parents to do is not to try to make a Webster of a physically and mentally weak son, but let him choose an occupation for which he is fitted by nature, habits and education.

Pennsylvania Dutch.

Mr Hunsecker read the following pertinent answer to an article which appeared in the *Buffalo Courier*:

I have had my attention called to an article from the *Buffalo Courier* entitled the "Pennsylvania Dutch." This term Pennsylvania Dutch is a misnomer. Very few of the 300,000 people in central Pennsylvania who are stigmatized as "Dutch" trace their ancestry to Holland, but to Switzerland and Germany, and are more properly Pennsylvania Germans.

It is, no doubt, news to the inhabitants of Lancaster, York, Berks, Lebanon, Lehigh, Bucks and Dauphin counties to be told that they live in the very heart of its oldest and highest civilization, and yet are almost entire strangers to the English language. Four-fifths of the people, this profound observer alleges entirely ignore the English language among themselves, and further that in many communities the English speaking traveler will scarcely find any one to whom he can make himself understood, certainly no woman. Poor benighted travelers can't find even a woman to talk with. This is really too bad. But hear him out. These people are what are known as Pennsylvania Dutch. They have no written language, their speech being simply a dialect. Wonderful discovery.

A great number of the people, he says, are bitterly opposed to their children learning to speak English and if allowed to go to school at all, it is to a private one, with a Dutch teacher. Any one who knows anything of the Pennsylvania school system, must brand these assertions as absurd.

Again, he says an English traveler—we take the writer to be, for no German speaking person would make the remark—will find that he is looked upon with half suspicious curiosity as an interloper from a foreign country.

This is not the case. The hospitality of this Pennsylvania German is well known and appreciated. The only persons who come amongst them that are treated with suspicion and contempt are bummers, egotists and fault finders.

The article from the *Courier* closes as follows: "The native Hollander be he either of high or low Dutch origin, can no more understand the people here than can the ordinary American. As a rule, they are not an agreeable people to mingle with, either in business dealings, or in social intercourse. Ignorance, selfishness and greed are their governing traits." Not a very complimentary picture. A very unfair criticism of a class of people who are noted for their industry and worth as citizens of the great State of Pennsylvania.

A vote of thanks was extended to Mr. Hunsecker for his essays.

Mr. Cooper said he was glad that a sharp answer had been given to the writer of the article, because he was of the impression that it did great injustice to our farmers.

The Subject of Cattle Powders.

Mr. Engle, to whom had been referred the question—"Is it advisable to use constantly the so-called cattle powders?" answered by saying he was a firm believer in the use of powder for cattle. There were some made by our home grist and flour mills, which he had used constantly with very good results.

Questions Continued.

Mr. Miller, to whom had been referred the question, "What crop would be most profitable to substitute for oats on corn stubble?" replied that he was not prepared to answer it at present, and asked that the question be continued until next meeting. On motion his request was granted.

Mr. Miller read a circular from the United States Board of Agriculture, stating that a convention would be held in Washington on the 23d inst., and asking that this society send representatives to the convention.

Mr. Diefenderfer moved that delegates be sent from this society. Carried. Johnson Miller, M. D. Kendig and J. C. Linville were named as the committee.

Election of Officers.

The following persons were unanimously elected officers to serve the society during the ensuing year. President—Henry G. Rauh, of New Danville.

Vice Presidents—Jacob B. Garber, Columbia; Henry M. Engle, Marietta.

Recording Secretary—J. C. Linville, Gap.

Corresponding Secretary—Calvin Cooper, Bird-in-Hand.

Treasurer—M. D. Kendig, Creswell.

Managers—W. H. Brosius, Drumore; Calvin Cooper, Bird-in-Hand; E. H. Weaver, East Lampeter; Casper Miller, Conestoga; Cyrus Neff, Manor.

On motion, Mr. H. M. Engle, of Marietta, was elected to represent the society in the State Board of Agriculture, for the three years next ensuing.

Mr. Engle presented a number of reports, quarterly and annual, of agricultural societies.

On motion, the following persons were elected delegates to the next meeting of the State Horticultural Society, which meets in Harrisburg on the 18th inst.: Messrs. Linville, Diefenderfer and Woods.

Mr. Kendig, treasurer, presented his annual report, showing the receipts to have been \$212.31, and expenditures \$17.25, leaving a balance in his hands of \$195.06.

Messrs. Cooper and Miller were appointed an auditing committee, and reported that they found the accounts correct.

Adjourned.

THE FULTON FAEMERS' CLUB.

The Farmers' Club, of Fulton township, met on Saturday, January 6, at the residence of Grace A. King.

Montillion Brown exhibited a sample of White Russian oats, raised by himself last season, and also a sample of common white oats he raised in 1881. The two were shown together, in order that their quality might be compared. The common oats was much the better of the two, and shows that the high-priced Russian has been a failure.

Questions and Answers.

M. Brown said he had been requested to ask for a remedy for a failure to get butter from cream by churning. A neighbor had failed twice when he ought to have had ten pounds each time. After failing once he was advised to put vinegar in the cream, and he did so at the next churning and obtained butter, but at the second trial the vinegar remedy failed, and now he appeals to the club for help. In the discussion on the subject it was stated that this is a trouble that often occurs when the milk and cream are kept in too cool a place. One remedy proposed was to get a fresh cow, and another was to heat the fresh milk before setting it for the cream to rise to about 150°. It was also proposed to heat the cream to 70° before commencing to churn.

J. R. Blackburn wished to know if the waste water from a pump was conducted in a covered drain to a sink from 10 to 13 feet deep, would it be a satisfactory arrangement? Day Wood said he had two sinks at his house, one of which had been in use longer than he could mind, and the other several years, and both had given entire satisfaction. The waste water was conducted to them by means of drains made of slates for the tops and bottoms and bricks for the sides. Some instances were cited where waste water was conducted into old wells which made very good sinks.

Gilpin Reynolds asked which is it better to feed fattening cattle with meal two or three times a day. M. Brown said he had never made any tests to try the matter but had always fed his three times each day, supposing that to be the better way. Day Wood feeds his cattle meal only morning and evening but divides a feed into two parts giving half at first and when this is eaten up clean, he gives them the balance.

Josiah Brown feeds meal only twice a day, but gives the cattle hay oftener. Lindley King feeds three times giving about half the quantity at noon as at morning or evening. J. R. Blackburn and Jos. P. Griest feed three times, and the same amount each time, but feed no more in a day than those who feed only twice, believing that it is better not to give so much at once.

Emma King read an essay on "Intemperance in Drinking, Eating and Talking," which was well re-

ceived and some favorable comments made thereon. After the reading of several selections and some discussion on the question of a duty on foreign fertilizers, the club adjourned to meet at the residence of Josiah Brown, at the regular time next month.

POULTRY ASSOCIATION.

The Lancaster Country Poultry Society met statedly Monday morning, Jan. 1, 1883, with the following members present: Geo. A. Geyer, Florin; J. B. Long, city; G. H. Witmer, Neffsville; J. B. Lichty, city; F. R. Diffenderfer, city; C. A. Gast, city; J. A. Stober, Schœneck; J. L. Bruner, Mount Joy; H. S. Garber, Mount Joy; Chas. Lippold, city; J. E. Schum, city; T. Frank Evans, Litzitz; John Seldomridge, Ephrata; J. R. Trissler, city; J. M. Johnston, city; D. M. Brosey, Manheim.

The minutes of the previous meeting were read and approved.

T. Frank Evans, the former treasurer, made a report, which was accepted.

J. B. Markley, city, was nominated and elected to membership in the society.

Mr. Schum moved that any person attempting to influence the judge at the next show, be excluded from competition in any of the prizes. The motion was unanimously adopted.

Mr. Long said that in order to aid the judges, he would move that a committee be appointed to weigh all the fowls.

Mr. Evans seconded the motion and suggested that the persons appointed be not allowed to weigh their own birds. The motion was adopted and Messrs. John E. Schum, Charles Lippold and J. L. Bruner were appointed.

Mr. Long moved that the members of the society relinquish all claims to premiums until after the foreign exhibitors had been paid. Carried.

J. B. Long declined to be a candidate for president, and J. A. Stober declined being a candidate for the executive committee.

Mr. Lichty stated that inasmuch as the indications pointed to a larger show than the society had ever held before, he had made arrangements to partition off about one half of the barroom for the use of the society.

On motion the executive committee was instructed to make the arrangements necessary.

On motion, Mr. William Schoenberger was elected doorkeeper for the show.

It being determined to sell birds at the show by auction, it was resolved that 10 per cent. of the amount realized go into the treasury of the society.

Adjourned.

AGRICULTURE.

Classification of Soil.

Prof. Johnson classifies soils, according to their clayey or sandy proportions, thus:

First. Pure clay from which no sand can be washed.

Second. Strong clay or brick clay, which contains from five to twenty per cent. of sand.

Third. Clay loam, which contains from twenty to forty per cent. of sand.

Fourth. Loam, which has from forty to seventy per cent. of sand.

Fifth. Sandy loam, which has from seventy to ninety per cent. of sand.

Sixth. Light sand, which has less than ten per cent. of clay.

Sandy soils, then, are those which consist mainly of grains of sand, or silica, or flint, and is called a silicious soil. Nature never bestowed upon man a soil of greater capability of being made lastingly fertile than the sandy light soil of New England.

Gravelly soils need no description, though there are rich gravels and poor gravels, depending upon the rocks of which they are composed, and the substances which are mixed among them. Clay soils consist largely of alumina; that is, having such an

abundance of clay that it is called the "clay metal." Clay itself is a compound of silica (sand), acid, alumina, and water. It also contains potash, soda, and lime. It forms a compact, fatty earth, soft to the touch, sticky in a moist state and very hard when dry.

Chalky soils have been formed from rocks in which lime was abundant.

Peaty soils need no description, although they differ very widely.

Alluvial soils are formed by deposits of sand, loam, and gravel brought down by rivers. They are often very rich, being composed of a multitude of thin layers of mud, in which all sorts of fertilizing material is mixed. Loamy soils contain a large portion of decayed matter, humus or muck, as it is called. Woolly fibre in a state of decay acquires a dark color, and ultimately becomes mould. Loam contains a variety of ingredients, as clay, sand, lime, in addition to humus. It is a loose, friable description of soil, easy to cultivate, and as a texture, is the most desirable description of land for purposes of tillage.

Seeding to Clover.

James Clizbe, of Quincy, Mich., gives his opinion as follows in *The Farmer and Manufacturer* in regard to seeding land with clover. As Mr. Clizbe is perfectly at home in this matter his views will be read with interest by the farmers in the West. He says:

I have been farming for 42 years, and will tell my experience in securing a good field of clover every time. If I want to seed down a field of wheat, I wait until the ground is settled in the spring and the hard frosts have passed, then I sow six quarts of clover seed and four quarts of timothy well mixed. I follow by harrowing it in and then roll the ground. Then I sow 100 pounds of plaster to the acre. If I seed with oats I sow the same amount of seed, but after the seed oats are dragged in I omit the dragging after the clover seed is sown, but immediately put on the roller, which is beneficial to both oats and clover. I then sow heavily of plaster—no light soil 150 pounds per acre is not too much. The plaster helps the oats on dry land five times its cost, and is what saves clover in dry weather. I sow my seed mixed, so that if the clover does kill out, the timothy will take its place. To get a good catch on sandy land that is badly run, I have observed the above rules and always get a splendid stand of clover.

Big Farms.

Daniel Murphy, of San Jose, Cal., who recently died at Halleck, Nevada, is said to have been the largest land owner in the world. He was a native of Quebec, and went to California in 1864. At the time of his death he owned 200,000 acres in Nevada, 6,000,000 in the state of Durango, Mexico, and large tracts in Arizona and California, all of which were devoted to the cattle business. Only a few weeks ago, with another man, he purchased the great Don Juan Foster rancho, paying therefore \$450,000, and he had almost completed the arrangements to buy the entire vast cattle interests of William Dumphy, of San Francisco. He was the discoverer of Lake Tahoe, and only 56 years old.—*Exchange*

We think the policy which allows any one man to hold such an enormous amount of land as this a very wrong one. Of course a share of it is undoubtedly useless except for grazing purposes; but nevertheless we do not believe in any one man's controlling such an amount. He cannot possibly utilize it, and in whatever section it may be situated it will be a great drawback to other settlers. While the ordinary farmer, with his few hundred acres, not only improves its fertility and adds to its value, he at the same time adds to the value of the property of his neighbors. But the big farmer monopolizes a large piece of land, neglects a greater portion of it, and actually decreases the value of the small farms in his vicinity. The land, in place of supporting a thousand or so of families, gives a home to perhaps

a hundred men, who have degenerated so that they have lost all enterprise, and spend their days in watching a flock of sheep or a herd of cattle. The small farmer is the man who brings up the average of a State in production, and adds to its value per acre. He is the man who will aid in the development of a section, not retard it. Big farms have been a curse to California and other Western states, and the sooner they are cut up and divided among farmers who will improve them, the better it will be for the country. The government should have a limit beyond which one man cannot purchase wild land. Make that limit, whatever it is, large enough to give every chance for enterprise to develop itself, and refuse to sell another acre. It is contrary to the spirit of the Republic to allow any one man to monopolize a quarter or half a State. Newspapers are eternally bragging about the big farm of this or that man, but we cannot see any thing to brag over because a man owns a number of thousands of acres of land, the greater part of which is useless to himself or the country. Big farms we regard as big frauds on the small farmer, who is really the basis of the prosperity of the country.—*Michigan Farmer, Detroit.*

Useful Hints from the Germantown Telegraph.

An anonymous article we notice is being reprinted in many of our contemporaries, relative to the value of liquid manure, the way to gather and save it, and the method of hauling it out over the farm. Among the arrangements are the solid built, water tight cistern, the drains leading into it, the drawing-out apparatus, the filling of a large tank upon a drag built especially to carry it out, and the manner of sprinkling it over the land. The expense of all this is not given, nor the value of the application after it is made. But if the one should be, and the latter could be, the folly of the whole business would soon be apparent. Some years ago we gave some statistics in regard to liquid manure, and predicted for Mr. Mechi, the great farmer of "Triptree Hall" at that time, the very result which followed his extensive and expensive experiments with this description of fertilizer. In fact, these experiments, with others equally wild and ruinous, caused his bankruptcy, having squandered a large estate upon his steam-plowing, sub-soil plowing, liquid manuring with various products, costly live stock, &c.

Liquid manure from a barnyard, used upon a garden close at hand, where it might be applied on vegetable beds at a very little expense, would give good results; but we are clearly of the opinion, fortified by extensive experiments, particularly of wealthy English farmers, as we have already referred to, that it would prove a leak to the purse that nothing except its abandonment would ever close up.

HORTICULTURE.

Buy Small Trees.

The average American is in a great hurry to realize on his investments. If he orders a few garden seeds in January, he is anxious to have them sent immediately; and if he forwards six cents for a copy of some paper which contains a story of which he has read or heard he does not forget to request the publisher to send it "by return mail." Patience, which takes the place of quiet waiting, is a virtue of which he seems to be totally ignorant. He cannot wait the progress of events, but must constantly hurry and fret in order to make nature move a little faster than her wonted pace.

This tendency crops out very plainly when he purchases trees. He finds them described in the catalogue as "second-class," "medium," "first-class," and "extra." The difference in these classes is principally, if not wholly, in the size and height of the trees. The larger the tree the higher the price; but the farmer "don't care anything about that." He wants good trees or none, and

gives his order for those of extra size, and which are four or five years old. In so doing he thinks that he is acting wisely, but the nurseryman knows and the farmer will find before long, that, with equal care, the small tree will grow faster and (if a fruit tree) come into bearing condition sooner than the large one.

In half a dozen years the tree that was small when planted will be larger and finer than the other. The reason for this is obvious. The larger the tree the larger the roots which it has, and the larger the roots the less fibres there will be upon them. A tree that has plenty of fibrous roots will grow readily if proper care is used in transplanting; but no amount of skill can coax a tree to live and flourish which is destitute of these little fibres. The roots of large trees are always more or less mutilated in the process of taking up, while the small trees sustain little injury from this source. Dealers in trees assert that experienced men buy small, thrifty trees, while those who are just starting are anxious for the largest to be had. Those who are to set trees the coming season will do well to learn from the experience of those who, at considerable loss to themselves, have demonstrated that small trees are the ones to buy.—*New England Homestead.*

"Setting Trees."

In the *Ploughman* of October 7th, Mr. Daniel T. Curtis gave the readers his method of "Setting Trees," and as his ideas very somewhat from mine, would like to give my plan of planting, etc.

1st. Dig for large trees (say two inches in diameter and twelve feet high) a hole ten feet in diameter, instead of four to five feet—for the reason that the roots should be laid straight and at least four feet in length from the trunk—then the other foot all around would give the workman an opportunity to stand in the hole and do his work to advantage, and when filled with good rich loam would give the tree food to live on (if in gravelly land) for a year or more or until it had gained strength enough to force its roots into the harder soil.

2d. I like the idea of depositing in the bottom of the hole stones for bottom drainage if the land is clayey or wet. And I also practice putting flat stones over the roots after being covered an inch or two with loam, the stones then covered with loam; they steady the tree and prevent the wind from getting them out of position; they also retain moisture in the summer season.

3d. Always take up as large a proportion of roots as possible and see that all bruises are removed with a sharp knife, but my experience has taught me that we cannot cut back the tops to advantage, as we injure the form and take away the lungs, thereby weakening the tree.

I believe it is very necessary for the first two years at least after transplanting to keep the ground thoroughly mulched, as it retains the moisture and keeps the ground light to let in the air and rain when it is most needed in the summer season—the past summer I have seen the beneficial effects of heavy and wide mulching.

If trees are planted on the streets or sidewalks, they should always be protected to keep horses from biting them and children for swaying them or cutting them with hatchets or knives.

The Malden Improvement Association has adopted directions for digging and transplanting trees which meets with my approbation, and herewith please find a copy which if you can afford the space I hope you will print for the benefit of your numerous readers.—*James F. Eaton, in Massachusetts Ploughman.*

Keeping Squashes.

A very large proportion of winter squashes decay before the first of February; in fact under the usual management, they begin to rot badly by the middle of December.

Farmers who raise a few squashes for family use, give them but little thought and have no particular place to keep them; they often leave them in the

garden until the weather gets cold and frosty, so that a portion of them get chilled on one side. If the farmer is very fond of squash pies, he may be thoughtful enough, the evening before a cold night, to go out and gather them, the work being done in the dark and in haste; they are loaded into the cart with as little care as would be taken in loading rocks; thus bruised they are piled in a heap on the south side of a building, where the sun will shine on them, and where they can be covered up cold nights. In such location there is a great change in the temperature every twenty-four hours, even if it is remembered to cover them up, but if this is forgotten, as is often the case, some of them are pretty sure to get chilled, if not frozen. When the weather gets very cold the squashes are removed to a damp cellar where they soon decay. With such treatment it would be very strange if they did not.

To have squashes keep well, they should be gathered before there is any danger of a frost, and in gathering them they should be handled with as much care as if they were eggs. It is better to store them in a dry light building, spreading them on the floor, never in large heaps; here they should lie undisturbed until there is some danger of freezing when they should be carefully removed to some dry place where there is no danger of freezing during the winter; a dry room above ground is much better than a cellar. Squashes, to keep well, need a dry, even temperature; it is the sudden changes from hot to cold, that causes premature decay, therefore if put in a cool room, it is important that the room should be kept cool all the time, and if in a warm room, it should not be permitted to get cold. Squashes are often kept until a year old, in a room where the temperature is 70 degrees, but if kept in such place it is important that the atmosphere should be free from moisture.—*Mass. Plowman.*

Preparing Plant Beds.

Hot beds are usually employed for starting early vegetable plants, but beds in the open air answer as well for late kinds, as well as for tobacco. In preparing such beds plenty of fine, rich old manure should be used, thoroughly mixed with the surface soil. When the bed is completed, cover the entire surface with dry straw, hay, brush, or some similar material, and set it on fire. The burning of these materials on the bed will warm the ground, destroy insects and weed seeds, besides adding a fine coating of ashes and coal to the surface, both of which will increase the fertility of the bed, and act as a preventive against the attacks of many plant-eating insects. Where the common flea beetles are troublesome to tobacco, cabbage and similar plants, this firing of the bed previous to sowing the seed will prove very beneficial, if not a certain preventive. This is but a modification of the old and common practice of American farmers of making their tobacco and cabbage plant bed on some spot where a brush heap had been recently burned.

Look to Last Year's Grafts.

Now is the time to examine the grafts set last year. In many cases it will be found that the stocks, by the growing of the grafts, have split open, exposing the inner wood, and admitting air and water. This should at once be tied tightly with strong twine, and surrounded with fresh wax, removing any hard substance that may have got into the split. This will frequently repair the mischief, otherwise the work will be an eyesore and the parts never become firmly attached and make a good connection, and of course a perfect union.

Frequently double the number of colons are set that the stock will sustain. These should be carefully gone over and the excess removed, leaving those that spread somewhat from the stock. Unless the stock is stout—say from two to four inches in diameter—not more than two grafts should be left, and they should be as nearly as possible opposite to each other. When the growth has been rapid the

graft should be shortened. This will of course increase the number of branches and give the tree a more compact form.—*Germantown Telegraph.*

Manuring Trees.

We notice frequently outlandish recommendations, agriculturally and horticulturally, which must lead to failure and discouragement. We have never before us one of these for stimulating the growth of trees, *by boring holes in the ground and pouring in liquid manure about the roots!* How the roots are generally to be got at in this way we cannot see. What better can be desired than applying the same liquid uniformly over the ground and let it soak in? If the surface is very hard it should be loosened. Or, what we contend is still better, top dress the surface as far as the branches extend with good manure, and the substance will soon find its way uniformly to the roots with the assistance of the rains. Our own judgment and practice has always been to treat the soil in which the trees, fruit and ornamental, grow, as far as can be done, the same as soil that is cultivated for vegetables or general farm crops, and we have always been satisfied with the result. As some evidence of the effect of such application we will mention this instance: Some years ago a hemlock spruce had a rusty appearance and at last fell much behind the others in depth of color. It was about twelve feet in height, and must have been set out at a spot where the soil was not as affluent as that where others were planted. At any rate two wheelbarrow loads of good manure, spread out as far as the extremity of the branches, restored it perfectly the first year, and it was among one of our handsomest trees.—*Germantown Telegraph.*

DOMESTIC ECONOMY.

How To Tell Good Butter.

When butter is properly churned; both as to the time and temperature, it becomes firm with very little working, and it is tenacious; but its most desirable state is waxy, when it is easily moulded into any shape, and may be drawn out a considerable length without breaking. It is then styled gilt edged. It is only in this state that butter possesses that rich golden yellow color, which imparts so high a degree of pleasure in eating it, and which increases its value manifold. It is not always necessary, when it smells sweet, to taste butter in judging it. The smooth unctuous feeling in rubbing a little between the finger and thumb expresses at once its rich quality; the nutty smell and rich aroma indicates a similar taste; and the bright golden, glistening, cream-colored surface shows its height of cleanliness. It may be necessary at times to use the trier, or even use it until you become an expert in testing by taste, smell and rubbing.—*Exchange.*

Something about Sassafras.

The sassafras shrub or small tree grows from New England to Mexico. In some places, writes Professor Darby to the *American Grocer*, it could not be rightly called a small tree, for it sometimes attains a height of sixty to seventy feet and ten to twelve inches in diameter. It is the *Laurus sassafras*, closely related to the cinnamon tree and the spice bush. It is the bark of the root that gives it most importance. To this genus belongs the classic laurel, and from which the name of the genus was derived. That is the *Laurus nobilis*. It grows on the borders of the Mediterranean in Europe, Asia and Africa. Its branches were used to form the crowns awarded to the victors in the Olympic games and for crowning poets. In the middle ages it was used to crown the successful students in the universities, but with the berries on the branches, hence we have our word *baccalaurate* (*bacca*, a berry. All parts of this tree yield an abundance of essential oil, which gives it a delightful aromatic odor. This oil, especially from the berries, is used medicinally in Europe, for its tonic and stimulating properties. It is esteemed highly in favoring digestion. The fruit yields from

its pericarp a volatile oil and the seed a fixed oil of the consistency of butter, which is employed in medicinal plasters. The volatile oil of the laurel is said to be fatal to all insects.

The order Lauraceæ, as we have seen, affords us some of the most important of active aromatic agents which we employ. Camphor, cinnamon, sassafras oil and the oils of classic laurel. It is pleasing to contemplate vegetables agreeing closely in their structure and constitution, producing materials so widely different in character and properties. We can only refer it to the expression of the will of the Creator. He speaks, and it is done.

The oil of sassafras is obtained by distilling the roots of the tree. They yield from one to two per cent. of oil. Oil of sassafras, unlike most other oils, is heavier than water, is of a yellowish color, becoming reddish by age. It has a pungent, agreeable, aromatic taste. It is used medicinally as a stimulant and carminative and diaphoretic, and is often used in the family. For domestic uses the root itself is more commonly employed. In "giving sweats" it is considered highly useful. It is a frequent article in the composition of small beer, and in some sections the "sassafras tea" runs a sharp competition with the "store tea." It forms a healthful beverage, especially in the spring of the year. Much boiling should always be avoided in the use of sassafras, as the oil might all evaporate. The pith of sassafras is sometimes used as a mucilage, but it is weak, and much less effective than the other gums. Sassafras loses its properties by long keeping.

Curing Bacon.

There are two ways of curing bacon—by the dry, and the picking process. The former is the most trouble, but does away with the necessity of a barrel. The bacon should be weighed out into lots of 100 pounds, and six pounds of salt, one ounce of saltpetre and two quarts of molasses should be set apart as the quantity required for curing it. If it is to be pickled, after the ingredients are thoroughly mixed a small quantity should be sprinkled on the bottom of the barrel, and a layer of meat placed upon it; more of the mixture should be sprinkled on this, to be followed by another course of meat, until the whole is firmly and snugly packed, when well water enough should be put in to cover it. After remaining for six weeks the meat should be taken out and smoked, and then each piece sewed up in a muslin bag and hung up in a dry place, or if it is designed to keep the bacon for a considerable length of time, it may be packed in dry salt and the barrel headed up. To cure by the dry process the meat should be spread upon the table, and the mixture rubbed in on the flesh-side, with as much adhering to the meat as possible, after which it should be piled up snugly with the flesh side up and allowed to remain in this condition for three days, when it should again be rubbed and piled up as before. This process should be followed up until the whole amount of the mixture set apart for the curing is exhausted. After remaining in the pile until the salt is absorbed—which may be known by the appearance of the meat—it may be smoked and treated as mentioned above. The above recipe is intended for light bacon; heavy bacon will require a pound or more of salt per 100 pounds of meat, and a longer time for the salt to be absorbed when cured in the dry state.

Cooking Beef.

A scientific writer in the *Mark Lane Express* says: "The flavor of beef is due to the juices, and if during the cooking these be allowed to escape, the beef loses much of its taste. Hence, in broiling, it should from the outset be exposed to a bright, quick fire, which by causing the superficial fibres to at once contract and the albuminous juice near the surface to coagulate, leads to the plugging up of the surface pores, and consequent retention of the juices. Similarly, in boiling, beef should be plunged into

almost boiling water. On the other hand, in making beef tea, cold water is poured on chopped beef and gradually heated to draw the nutriment of the beef into the water."

The Medical Uses of Eggs.

For burns and scalds there is nothing more soothing than the white of an egg, which may be poured over the wound. It is softer as a varnish for a burn than collodion, and being always on hand, can be applied immediately. It is also more cooling than the "sweet oil and cotton," which was formerly supposed to be the surest application to allay the smarting pain. It is the contact with the air which gives the extreme discomfort experienced from ordinary accidents of this kind; and anything which excludes air and prevents inflammation is the thing to be at once applied. The egg is also considered one of the very best remedies for dysentery. Beaten up lightly, with or without sugar, and swallowed at a gulp, it tends, by its emollient qualities, to lessen the inflammation of the stomach and intestines, and by forming a transient coating on these organs to enable nature to assume her healthful sway over the diseased body. Two, or at the most three, eggs per day would be all that would be required in ordinary cases; and, since the egg is not merely a medicine, but food as well, the lighter the diet otherwise, and the quieter the patient is kept, the more certain and rapid is the recovery.—*American Stockman and Farmer.*

Putting Saws in Cutting Order.

The grand secret of putting any saw in the best possible cutting order, consists in filing the teeth at a given angle to cut rapidly, and of a uniform length, so that the points will all touch a straight-edged rule without showing a variation of a hundredth part of an inch. Besides this, there should be just enough set in the teeth to cut a kerf as narrow as it can be made, and at the same time allow the blade to work freely without pinching. On the contrary, the kerf must not be so wide as to permit the blade to rattle when in motion. The very points of the teeth do the cutting. If one tooth is a twentieth of an inch longer than two or three on each side of it, the long tooth will be required to do so much more cutting than it should that the sawing can not be done well. Hence the saw goes jumping along, working hard and cutting slowly. If one tooth is longer than those on either side of it, the short ones do not cut, although the points may be sharp. When putting a cross-cut saw in order it will pay well to dress the points with an old file, and afterward sharpen them with a fine whetstone. Much mechanical skill is requisite to put a saw in order. One careless thrust with a file will shorten a tooth so that it will be utterly useless, so far as cutting is concerned. The teeth should be set with much care, and the filing should be done with great accuracy. If the teeth are uneven at the points a large flat file should be secured to a block of wood, in such a manner that the very points only may be jointed, so that the cutting edge may be in a complete line for circle. Every tooth should cut a little as the saw is worked. The teeth of a handsaw, for all sorts of work, should be filed fleaming, or at an angle on the front edge, while the back edges may be filed fleaming, or square across the blade. The best way to file a circular saw for cutting wood across the grain is to dress every fifth tooth square across and about one-twentieth of an inch shorter than the others, which should be filed fleaming at an angle of about forty degrees.—*Mechanical News.*

Hard and Soft Water.

All housewives may not know how materially the effects of hard and soft water differ in the cooking of various vegetables; while one species of vegetables requires hard or soft water, as the case may be, another species becomes sensibly deteriorated by it. For instance peas and beans cooked in hard water, containing lime or gypsum, will not boil ten-

der because these substances harden vegetable caseine. In soft water they boil tender, and lose a certain raw, rank taste which they retain in hard water. Many vegetables (as onions) boil nearly tasteless in soft water, because all the flavor is dissolved out. The addition of salt often checks this, as in the case of onions, causing the vegetables to retain their peculiar flavoring principles, besides their nutritious matter which might be lost in soft water. Thus it appears that the salt hardens the water a degree.

Cheshire Cheese.

In Cheshire, England, milk is set for cheese at a temperature of about 80 degrees Fahr. The rennet is commonly made fresh daily, a sufficient quantity added to the milk to cause the curd to set in an hour, or less. The curd is cut with a breaker, great care being taken not to mix the curd up with the whey. Heating the curd to a temperature of from 90 to 100 degrees is practiced by some makers. The curd is piled up in the cheese, tubs, cut and turned over, and allowed to remain for half an hour, when a certain degree of activity is developed. The whey is drained away, and the curd left to get firm. When sufficiently firm, it is cut into cubes of about one pound weight, and lifted on to a drainer or rack covered with a cloth, where it remains for three quarters of an hour, or more. When dry enough, it is broken up by hand, and from three to four pounds of salt to the 100 pounds well mixed with the curd. It is afterwards twice poured through the curd mill and put in a vat, with a weight upon it, for from one to two hours. It is then put in an oven or warm chamber provided for the purpose close to the fire of the dairy room, where it remains until the following morning. The warmth of the oven—say 80° to 90°, promotes the separation of the whey, and skewers are used to pierce the curd through the holes of the vat, to cause the escape of the whey. Some degree of acidity is developed in the curd, and it settles down into a compact mass. The cheeses are turned upside down in the vat with a fresh, dry cloth, and put in the press for about three days, being turned and dry-clothed once or twice daily, afterward less frequently, until ready for sale. As a rule, Cheshire cheese ripens quickly, and is sold for consumption from one to three months after it is made.

HOUSEHOLD RECIPES.

SOUP A L'ITALIENNE.—The stock of Sunday's soup strained from the carrots; half a cup of grated cheese and a cup of milk; two tablespoonfuls of corn-starch wet up with water; two eggs beaten light.

Put the soup on fifteen minutes before dinner, where it will heat quickly. The moment it boils, draw it to one side, stir in the corn starch and milk and heat anew, stirring constantly until it begins to thicken. Set it again upon the side of the range, and add the beaten eggs. Cover and leave it where it will keep hot, but not cook, while you scald the tureen and put the grated cheese in the bottom. In five minutes pour the soup upon the cheese, stir all up well, and it is ready for the table.

This is a delicious soup and easily made.

BREADED MUTTON CHOPS—BAKED.—Trim the chops neatly and put aside the bones and bits of skin for the sauce for macaroni. Pour a little melted butter over the meat. Do this as early in the day as convenient, cover them, and let them stand until an hour before they are to be served. Then, roll each in beaten egg, next, in fine cracker dust, (you can buy it ready powdered) and lay them in your dripping pan with a very little water in the bottom—just enough to keep them from burning. Bake quickly—covering the dripping-pan with another—for half an hour. Then remove the upper, baste the chops with butter and hot water, and let them brown. When done, lay them upon a hot dish and set in the open oven to keep warm. Add to the

gravy in the dripping-pan a little hot water, a teaspoonful of browned flour, a tablespoonful of catsup, a small quantity of minced onion, pepper and salt. Boil up once, strain, and pour over the chops.

MACARONI WITH TOMATO SAUCE.—Break the macaroni into short pieces and set over the fire with enough boiling water to cover it well, as it swells to treble its original dimensions. In twenty minutes it should be tender. Drain off the water carefully, not to break the macaroni, and stir lightly into it pepper salt, and a tablespoonful of butter. Turn it into a deep dish and pour over it a sauce made as follows: To the bones and refuse bits left from trimming the chops, add a pint of cold water, and stew slowly upon the back of the range, (lest Bridget should be inconvenienced thereby,) until you have less than a cupful of good gravy. Strain out the bones, etc., season to taste, and add what was left from the stewed tomatoes of yesterday. Having had the provision for to day's dinner in mind, you will have acted wisely in seeing for yourself that it did not go into the swill-pail under the head of "scraps." Cook tomatoes and gravy together for three minutes after they begin to simmer, and pour, smoking hot, over the macaroni. Let it stand covered a few minutes before serving.

POTATO PUFF.—To two cupfuls of cold potato (more of yesterday's leavings), add a tablespoonful of melted butter, and beat to a cream. Put with this two eggs whipped light, and a cupful of milk, salting to taste. Beat all well; pour into a greased baking-dish, and bake quickly to a light brown. Serve in the dish in which it was cooked.

CORN-STARCH HASTY PUDDING.—One quart of fresh milk; one tablespoonful of butter; four tablespoonfuls of corn-starch wet up with water; one teaspoonful of salt. Heat the milk to scalding, and stir into it the corn-starch until it has boiled ten minutes and is thick and smooth throughout. Add salt and butter, let the pudding stand in the farina-kettle in which it has been boiled—the hot water around it—for three minutes before turning it into a deep open dish. Eat with butter and sugar, or with powdered sugar and cream, with nutmeg grated over it.

COFFEE.—A French coffee-pot is a convenience on Monday. If you have one, you know how to use it. If not, put a quart of boiling water into your coffee-pot; wet up a cupful of ground coffee with the white of an egg, adding the egg-shell and a little cold water. Put this into the boiling hot water, and boil fast ten minutes. Then, add half a cup of cold water, and set it upon the hearth or table to "settle" for five minutes. Pour it off carefully into your metal or china coffee-pot or urn.

ROLLED BEEFSTEAKS.—Two good sirloin steaks; bread crumbs; a slice of fat salt pork. Seasoning, a little minced onion, pepper and salt.

Take out the bones from the steak and throw them into the soup-pot. If your butcher has not already done so, beat the meat flat with the broad side of a hatchet, and cover it with a force-meat made of bread-crumbs, minced pork, and half an onion. Moisten this slightly with water, and season to taste. Roll each steak up, closely enclosing the stuffing; bind with twine into two compact bundles and lay in a dripping-pan. Dash a cupful of boiling water over each, cover with an inverted pan, and bake about three-quarters of an hour, in their own steam. At the end of this time remove the cover, baste with butter and dredge with flour to brown the meat. When they are of a fine color, lay up a hot dish. Thicken the gravy with a little browned flour, boil up and send to table in a boat. In removing the strings from the rolled beef prior to serving, clip them in several places, that the form of the meat may not be disturbed.

CABBAGE SALAD.—One small head of cabbage, chopped fine, or cut into shreds; 1 cup of boiling milk; three-quarters of a cup of vinegar; 1 tablespoonful of butter; 1 tablespoonful of white sugar; 3 eggs well beaten; 1 teaspoonful essence of celery; pepper and salt.

Heat milk and vinegar in separate vessels. To the boiling vinegar add butter, sugar, and seasoning, lastly the chopped cabbage. Heat the scalding, but do not let it boil. Stir the beaten eggs into the hot milk. Cook one minute together after they begin to boil. Turn the hot cabbage into a bowl; pour the custard over it; toss up and about with a wooden or silver fork, until all the ingredients are well mixed. Cover and set in a very cold place for some hours.

BEEF SOUP.—Three lbs. of lean beef, with a marrow-bone; $\frac{1}{2}$ lb. of lean ham (or a ham-bone, if you have it); 1 turnip; 1 onion; 1 carrot; $\frac{1}{4}$ of a cabbage; 3 stalks of celery; 3 quarts of water—cold of course; salt and pepper to taste.

Cut the meat very fine, and crack the bones well. Put these on in a pot with a close top; cover with a quart of water, and set where they will come very slowly to a boil. If they do not reach this point in less than an hour, so much the better. When the contents of the pot begin to bubble, add the remaining two quarts of cold water, and let all boil slowly for three hours; for two hours with the top closed during the last with it slightly lifted. Wash and peel the turnip, carrot, and onion, scrape the celery, and wash with the cabbage. Cut all into dice and lay in cold water, a little salted, for half an hour. Put the carrot on to stew in a small vessel by itself; the others altogether, with enough water to cover them. Some think the carrot keeps color and shape better if hot instead of cold water be used for it. Let it stew until tender, then drain off the water and set it aside to cool. The other vegetables should be boiled to pieces. Half an hour before the soup is to be taken up, strain the water from the cabbage, etc., pressing them to a pulp to extract all the strength. Return this to the saucepan, throw in a little salt, let it boil up once to clear it; skim and add to the soup. Put in pepper and salt—unless the ham has salted it sufficiently—and boil, covered, twenty minutes. Strain into an earthenware basin; let it get cool enough for the fat to rise to the surface, when take off all that will come away. Return to the pot, which should have been previously rinsed with hot water, boil briskly for one minute, and throw in the carrot. Skim and serve.

BROWNED POTATOES.—Boil large potatoes with their skins on; peel them, and when you uncover your beef for browning, lay the potatoes in the dripping-pan about the meat. Dredge and baste them as well as the beef. If not quite brown when the meat is ready, leave them in the gravy for awhile, before thickening the latter. Drain in a hot colander, and arrange neatly around the steaks in the dish.

BAKED BEANS.—Soak dried beans all night in soft water, exchanging this in the morning for lukewarm, and this, two hours later, for still warmer. Let them lie an hour in this, before putting them on to boil in cold water. When they are soft, drain and turn them into a bake-dish. Season with pepper and salt, with a liberal spoonful of butter. Add enough boiling water to prevent them from scorching, and bake, covered, until they smoke and bubble. Remove the cover and brown. Serve in the bake-dish.

APPLE AND TAPIOCA PUDDING.—One teacupful tapioca, soaked for five hours in three teacupfuls of warm (not hot) water; 8 juicy plppins, pared and cored; 3 tablespoonfuls of sugar and a saltspoonful of salt, with a few cloves.

Arrange the apples to a deep dish; add a cup of cold water; cover and steam in a moderate oven until tender all through, turning them once or twice. Turn off half the liquid and pour the tapioca, which should have been soaked in a warm place, over the apples, when you have filled the hollows left by the cores with sugar and put a clove in each. The tapioca should be slightly salted. Bake one hour, or until the tapioca is clear and crusted on top. Serve in pudding dish.

HARD SAUCE.—To two cups of powdered sugar add half a cup of butter, slightly warmed, so that

the two can be worked up together. When they are well mixed, beat in half a teaspoonful of nutmeg and the juice of a lemon. Whip smooth and light, mound neatly upon a butter-plate, and set in the cold to harden.

SCOTCH BROTH.—Three pounds of veal and bones from neck or knuckle; 3 quarts of water; 1 onion; 1 turnip; 3 stalks of celery; 1 cupful pearl barley. Salt and pepper to taste.

Crack the bones and infuse the meat early in the day, if you dine near midday, and put on with the cold water. Soak the barley in lukewarm water, after washing it well, and when it has lain in the tepid bath for two hours, put it in the same over the fire to cook slowly, keeping it covered fully by adding hot water from the kettle. Wash, scrape and chop the vegetables; cover with cold water, and stew in a saucepan by themselves. When they are very soft, rub them through a colander; add the water in which they were cooked, and keep hot until the meat in the soup-kettle has boiled to rags. For this purpose four hours are better than three. Strain out bones and meat; put soup stock, barley (with the water in which it has boiled) vegetable broth, pepper and salt, into one kettle and boil slowly for thirty minutes. A little chopped parsley is an improvement.

CHICKENS SMOTHERED WITH OYSTERS.—One full-grown, tender chicken; 1 pint of oysters; 2 tablespoonfuls of butter; 3 tablespoonfuls of cream; 1 tablespoonful of corn starch; yolks of 3 hard-boiled eggs; 1 scant cup bread-crumbs; pepper, salt and chopped parsley.

Prepare the chicken as for roasting. Stuff with a dressing of the oysters chopped pretty fine, and mixed with the bread-crumbs, seasoned to taste with pepper and salt. Tie up the neck securely. (This can be done on Saturday, if the fowl be afterwards kept in a very cold place).

Put the chicken thus stuffed and trussed, with legs and wings tied close to the body with soft tape, into a tin pail with a tight top. Cover closely and set, with a weight on top, in a pot of cold water. Bring gradually to a boil, that fowl may be heated evenly and thoroughly. Stew steadily—never fast—for an hour and a-half after the water in the outer kettle begins to boil. Then open the pail and test with a fork to see if the chicken be tender. If not, recover at once, and stew for half or three-quarters of an hour longer. When the chicken is tender throughout, take it out and lay upon a hot dish, covering immediately. Turn the juices left in the pail into a saucepan; thicken with the cornstarch, which should first be wet up with a little cold milk, then the chopped parsley, butter, pepper, and salt, and the yolks of the hard-boiled eggs chopped fine. Boil up once; stir in the cream, and take from the fire before it can boil again. Pour a few spoonfuls over the chicken, and serve the rest in a sauce tureen.

MASHED POTATOES.—Pare the potatoes very thin; lay in cold water for an hour and cover well with boiling water. ("Peach-blows" are better put down in cold water.) Boil quickly, and when done drain off every drop of water; throw in a little salt; set back on the range for two or three minutes. Mash soft with a potato-beetle, or whip to a cream with a fork, adding a little butter and enough milk to make a soft paste. Heap in a smooth mound upon a vegetable dish.

STEWED TOMATOES.—Open a can of tomatoes an hour before cooking them. Leave out the cores and uripe parts. Cook always in tin or porcelain saucepans. Iron injures color and flavor. Stew gently for half an hour. Season to taste with salt, pepper, a little sugar, and a teaspoonful of butter. Cook gently, uncovered ten minutes longer, and turn into a deep dish.

BLANC MANGE.—One liberal quart of milk; 1 oz Cooper's gelatine; $\frac{1}{2}$ of a cup of white sugar; 2 teaspoonfuls of vanilla.

Soak the gelatine for two hours in a breakfast cup of cold water. Heat the milk to boiling in a farina kettle, or in a tin pail set in a pot of hot water.

Add the soaked gelatine and sugar; stir for ten minutes over the fire, and strain through a thin muslin bag into a mold wet with cold water. Flavor and set in a cold place to form. To loosen it, dip the mold for one instant in hot water; detach the surface from the sides by a light pressure of the fingers, and reverse over a glass or china dish. Serve with powdered sugar and cream.

LIVE STOCK.

Sheep Farming.

Dairy farming is more difficult and laborious than sheep farming. Sheep culture has many advantages over cattle-raising, as also over dairying. There is a necessity of sheep-husbandry for meat production. The rapid increase of population, the scarcity and increasing price of beef, the inferiority of pork in healthfulness and nutrition, tend to the increase of mutton eating. And it is not the results in the economy of meat and wool alone, we may add, but from an economical standpoint in feeding the soil; no factor in its wealth occupies a more prominent position than sheep. This has been tested and will be found to be most valuable in its application to all the economies of farm establishment and development.

How to Feed Cornstalks.

The rearing and feeding of animals are receiving, as they should, from farmers and herdsmen in all parts of the country greater attention every year; and especially is this true of dairymen, whose only hope of gain rests in their obtaining paying yields from their cows. Cornstalks enter largely into the fall feed of dairy cows, and how to feed them is the important question. The common practice is to feed them in the bundle, as but few farmers feel able or willing to use a cutting-machine. This feeding in a bundle without any preparation, I am fully satisfied, is very wasteful, as not only are the butts left, but frequently near the whole stalk.

I have learned from experience that a little brine sprinkled upon stalks once every day before feeding is of material advantage in many respects. The weak brine will cause the cows to consume nearly all, even when fed whole, the flow of milk increases, the condition of the cows improves, and they show greater contentment. Especially is this last remark true on cold, windy and rainy days. I find it much better, as a general rule, when it can be done, to feed salt on food instead of feeding it alone. In no case should more than one day be permitted to pass without bringing the morning's feed. The brine should not be strong, only enough to furnish sufficient salt to the cows. Of course the cows should have access to plenty of water: this brine food will cause them to drink more and thus increase the flow of milk. Let my brothers try this and they will hereafter place a greater value on cornstalks.

LITERARY AND PERSONAL.

WIDE AWAKE.—An illustrated Magazine for young folks. Published by Lothrop & Co., Boston, Mass. A square octavo, in embellished paper covers. The Christmas number of this publication, which reached our table too late for notice in our December number, is certainly the best of its kind in the country, and is adapted to all conditions, from childhood to old age. Indeed, it is very probable that as many of the aged will receive instruction from it as of the young. In perusing its pages the old and the middle-aged can live over again the better part of their youthful days, without the obtrusion of those "worse" parts, which every progressive soul would gladly have expunged from memory. Although there is a great deal of trashy juvenile literature in the world, and liberally patronized too, *Wide Awake* cannot be legitimately included in that category—its tone is moral, plain, and practical.

BABYLAND, by the same publishing house, is a more infantile production, and, like the preceding, is gotten up in the most perfect style of the printers' and engravers' art. It is a fresh, innocent, and jubilant younger sister. A few, at least, in the world, are beginning to have a truer conception of baby-

hood and youthhood than they had when we were a baby and a boy. Babes and Boys and Girls, are being approached with some regard to the fundamental manhood and womanhood, latent in the boy or girl. The years between boyhood and manhood—girlhood and womanhood—and even between manhood and old age—are comparatively so very short, that the world certainly must indulge in many regrets that the true relations between youth and age had not been earlier apprehended. It is feared that in our attitudes towards our children we are, or have been, influenced more by our own personal ease, our selfish aspirations, than by their ultimate good. Even in impressing our undoubted authority, there is more in the manner of asserting it than in the authority itself in order to insure its effectivity. The juvenile publications seem to be on that track, or nearly so, and hence they deserve the patronage of the public. The germs of manhood are embryotic in the bosom of the boy—do not desecrate it, but foster and develop it.

AGRICULTURAL REVIEW, and Journal of the "American Agricultural Association," terms \$3.00 a year. Edited by Joseph H. Reall, and published quarterly by the Agricultural Review Co. New York and Chicago. This is a square octavo of 121 pages of valuable letter press, and 23 pages of illustrated "ds." relating to Agricultural and domestic affairs. Our readers may form some idea of the work, as a whole, but certainly a very indefinite idea of details, from the following list of papers published in No. 4, volume 2. A grand section of country; The Storrs' Agricultural School; English calf rearing; Carp Culture; Short-horn Cattle; Protection; Free Trade; Blue Hill farm; Notes on parasitic fungi; Mineral constituents of plant growth; Apple pomace for ensilage; See 1 grain—oats; What advantage does an American boy possess? Some of the advantages of Dairy farming; the objects and interpretation of Soil analyses; besides interesting and instructive matter relating to the Editor's and publisher's departments. It also contains a list of the officers and committees of the American Agricultural Association; An index of contents, etc., etc. In another column of this number of the *FARMER* will be found a paper on the "Orange rust of Blackberry," by Prof. T. J. Burrow, extracted from the work under review.

LANDRETH'S RURAL REGISTER, and Catalogue for 1883—published annually for gratuitous distribution—an octavo of over 100 pages, and beautifully embellished covers, its cartoons of Bloomsdale Seed farm, with 100 other illustrations of improved vegetables, including magnificent colored pictures of three first class letter A. onions, its list of seeds, and many other items relative thereto, makes this a useful little publication to have on hand, and to refer to as occasion requires.

THE YOUNG SCIENTIST for January 1883 (vol. 6. No 1.) a practical journal of Home Arts, has reached our table, and is welcomed there. This an 8 vo. of 36 pages, with 12 advertising pages finely executed and illustrated, on fine calendered paper. Published monthly, 49 Maiden Lane, New York, at the exceedingly low price of \$1.00 per annum.

RULES and Premium list of the Lancaster County Poultry Association, from which we are informed that the 4th annual exhibition will be held in Excelsior Hall, East King street on January 11, 12, 13, 15, 16 and 17 1883.

REPORT OF THE STATE HORTICULTURAL ASSOCIATION of Pennsylvania (formerly Pennsylvania Fruit growers' Society), for 1882. Prepared by its officers, and printed by the State printer and binder, Harrisburg, Pa. This is an octavo of 80 pages, and an index of contents. Contains the Constitution of the Association, the By-laws, list of Officers for 1882, Standing Committees, Life Members, Honorary Members, and Annual Members. Two full-page colored illustrations of the "Seckel Pear" and the "Triumph Cumberland Cherry." Also two full-page uncolored illustrations of "Pyle's Red Winter" and "York Stripes" apples, and all the addresses,

essays, discussions, reports, etc., of the Chambersburg meeting in January, 1882. The work is very creditably executed, and the contents useful and interesting. We received a copy of this report just eleven months after the meeting was held, and probably nobody else received it any sooner. This is absolutely "too bad;" such a report ought to appear within two or three months after the annual sessions of the association. Perhaps if it was printed under different auspices things might be different. The State government, like the National government, does not appear to accord as full a recognition of its agricultural and other domestic organizations as it ought. They seem to be only "hanging on the ragged edges" of patriotism and patronage. The people should be in possession of these reports about the time they commence the season's work. Some reform is needed.

DEPARTMENT OF AGRICULTURE.—Special Report, No. 52. Report on the Yield per Acre of Cotton, Corn, Potatoes, and other Field Crops, with comparative products of Fruits; also local freight rates of transportation companies for November, 1882. 109 pages octavo. Contains a large amount of useful statistical information on subjects relating to crops in general. Printed in the usual Government style on firm calendered paper.

GREEN'S FRUIT GROWER—A medium 8-page folio, printed and published at Rochester, N. Y. Quarterly at 25 cents per year. Charles A. Green, editor. Devoted to the orchard, garden and nursery. Plain and practical. Circulation, 20,000 copies. Ought to be patronized and read by every fruit grower in the land. Occupies a sphere distinctly its own.

THE SOLDIERS' BULLETIN, a monthly journal, devoted to the interests of soldiers and their heirs. Published by Milo B. Stevens, Metropolitan Block, Chicago, Illinois; branch office, LeDroit Building, Washington, D. C. Monthly at 50 cents a year. This journal is about the size of "School Days," somewhat inferior in its physical quality, but perhaps intellectually superior. It contains much interesting and edifying to the civilian, as well as the soldier.

TEXAS SIFTINGS, is not only a capital *budget of fun*, but it is also newsy, spicy, and instructive, and is edited with more than ordinary ability. 8-page folio, weekly; Austin, Texas, at \$2.00 per year, in advance.

THE RAY, a medium folio of 4 pages, published monthly at 50 cents per annum. Parkesburg, Chester co, Pa. Philadelphia office, No. 24 North 10th street, where all business communications and exchanges must be addressed. This appears to be a literary, business, and general news paper, neat in its make up, and healthful in its tone, with a leaning towards the useful and the beautiful, and will compare favorably with the country press anywhere.

SCHOOL DAYS for Boys and Girls. Published by "School Days Publishing Co.," No. 17 Centre Square, Lancaster, Pa. Terms 50 cents per year, in advance, single copy 5 cents. A demifolio of 8 pages.

The third number of this young monthly has been laid on our table and there is a brightness about it that must accord it a welcome everywhere. Its heading is illustrated centrally by a very good picture of our High school building, for Boys. This fact, together with the title itself, would naturally lead us to conclude that the advanced pupils of the High schools would be contributors to its columns, and we venture to suggest, *if they are not, they ought to be*, and they cannot identify themselves with its interests and its welfare too soon. So far as concerns its material and typography, it can stand up with the best paper published in Lancaster city. It is devoted to literature, art, science, and general information for boys and girls, and it makes a very creditable effort to cater to their intellectual wants. Edited by J. A. Wolfersberger, an "old stager" in the *Corps Editorial*, as well as in that of Publishers, and hence ought to be a success; but whatever its ultimate outcome may be, we greet it cordially and bid it "God speed."

A KNABE IN THE WHITE HOUSE.

There was seen yesterday at Messrs. Knabe & Co.'s factory a magnificent concert grand, just finished by them for the presidential mansion. President Arthur, who is a thorough connoisseur of music, in selecting a piano for the White House decided in favor of the Knabe Piano as his preference, and ordered accordingly the instrument referred to. It is a concert grand of beautiful finish in a richly carved rosewood case, and of superb tone and action—an instrument worthy in every respect of the place it is to occupy. It was shipped to its destination yesterday.—*Baltimore American.*

COLMAN'S RURAL WORLD.

This sterling Agricultural paper entered its thirty-sixth year on the first of January, and appears in a new dress, and gives evidence of increased prosperity. To the Farmer, Stock Breeder, Fruit Grower and Cultivator of Sorghum for Syrup and Sugar, it is almost indispensable. It should be read by every one owning a farm. It is published weekly, in the best style, at only \$1.00 per annum, by NORMAN J. COLEMAN, St. Louis, Mo.

COMPLIMENTARY NOTICE.
We desire to call attention to the advertisement in another column of D. M. FERRY & Co., Detroit, Mich., the great seedsmen, whose mammoth establishment is one of the sights of the chief city of Michigan. They do the largest business in their trade in the United States, reaching across the Atlantic and Pacific oceans. The house is entirely reliable, and if you wish to get exactly what you order, you cannot do better than send to them for your seeds, and you may depend upon it you will get the best that the market can supply. Their seeds have become known over the entire civilized world for purity and fertility, and have gained for them an enviable reputation. Their Annual Seed Catalogue just issued for 1883, replete with information and beautifully illustrated, will be sent free on application.

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On Concord Grapevines, Transplanted Evergreens, Tulip, Poplar, Linden Maple, etc. Tree Seedlings and Trees for timber plantations by the 100,000
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Write for prices to
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Satisfaction guaranteed both as to price and quality.
You are invited to call and see my goods. No trouble in showing them even if you do not want to purchase.
Don't forget this notice. You can save money here if you want to buy.
Particular attention given to customer work.
Also on hand a full assortment of Counterpanes, Oil Cloths and Blankets of every variety
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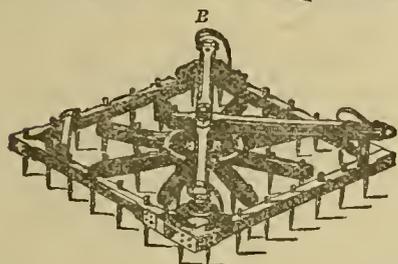
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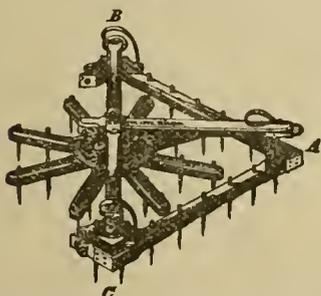


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The above cut represents the Penn Harrow complete, with all its combinations of Five Harrows and a sled for each Harrow; and each succeeding change is made from this Harrow without the least additional expense. By hooking the team to either point, B or C, the center revolves and gives the around Two Stroke and Two Crossings in passing over it once, making it the most effective pulverizer in the market.
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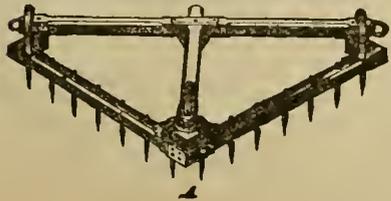
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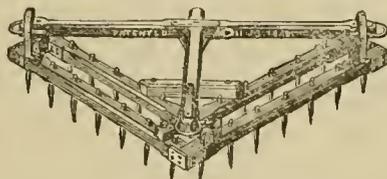
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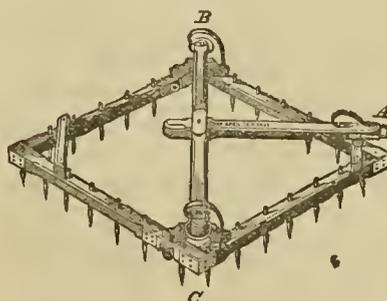
CHANGED TO DOUBLE "A" HARROW.



Remove the wheel from the original, reverse the wing, and it makes the most complete Double "A" Harrow in the market.

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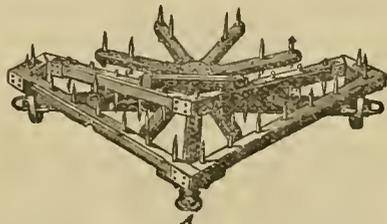
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The co-partnership in the merchant tailoring business heretofore existing under the firm of Rathvon & Fisher, is this day dissolved by mutual consent. All persons in any manner indebted to said firm, are respectfully solicited to make immediate payment to S. S. Rathvon, who is hereby authorized to receive the same, and those having claims against said firm, will please present them for settlement.

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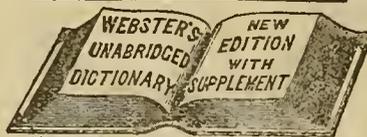
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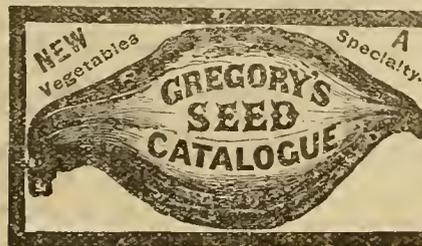
Dr. S. S. Rathvon, who has so ably managed the editorial department in the past, will continue in the position of editor. His contributions on subjects connected with the science of farming, and particularly that specialty of which he is so thoroughly a master—entomological science—some knowledge of which has become a necessity to the successful farmer, are alone worth much more than the price of this publication. He is determined to make "The Farmer's" necessity to all households.

A county that has so wide a reputation as Lancaster county for its agricultural products should certainly be able to support an agricultural paper of its own, for the exchange of the opinions of farmers interested in this matter. We ask the co-operation of all farmers interested in this matter. Work among your friends. The "Farmer" is only one dollar per year. Show them your copy. Try and induce them to subscribe. It is not much for each subscriber to do but it will greatly assist us.

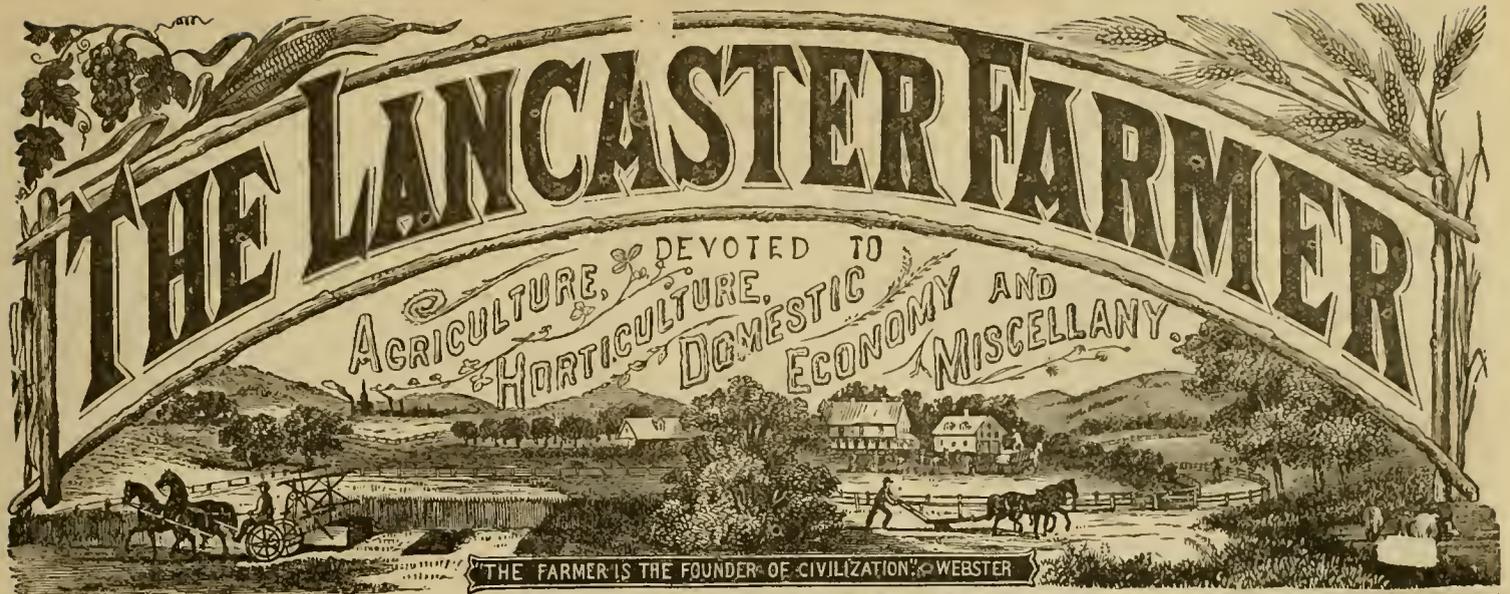
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Dr. S. S. RATHVON, Editor.

LANCASTER, PA. FEBRUARY, 1883.

JOHN A. HIESTAND, Publisher

Entered at the Post Office at Lancaster as Second Class Matter.

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j-3m]

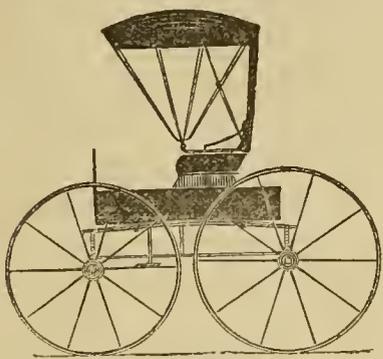
PENNSYLVANIA RAILROAD SCHEDULE.
Trains LEAVE the Depot in this city, as follows:

WE TWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*	2:40 a. m.	4:05 a. m.
Way Passenger	5:00 a. m.	7:50 a. m.
Niagara Express	..... a. m.	11:20 a. m.
Hanover Accommodation..	11:05 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy.....	10:20 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:25 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:40 p. m.
Fast Line*	2:30 p. m.	3:25 p. m.
Frederick Accommodation..	2:35 p. m.	Col. 2:45 p. m.
Harrisburg Accommoda..	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:30 p. m.	8:40 p. m.
Pittsburg Express	8:50 p. m.	10:10 p. m.
Cincinnati Express*	11:30 p. m.	12:45 a. m.

EASTWARD.	Lancaster.	Philadelphia
Cincinnati Express.....	2:55 a. m.	3:00 a. m.
Fast Line*	5:08 a. m.	7:40 a. m.
Harrisburg Express.....	8:05 a. m.	10:00 a. m.
Columbia Accommodation..	9:10 p. m.	12:0 p. m.
Pacific Express*	9:40 p. m.	3:40 p. m.
Sunday Mail.....	2:00 p. m.	5:00 p. m.
Johnstown Express.....	3:05 p. m.	5:50 p. m.
Day Express*	5:35 p. m.	7:20 p. m.
Harrisburg Accommoda..	6:25 p. m.	9:30 p. m.

The Hanover Accommodation, west, connects at Lancaster with Niagara Express, west, at 9:35 a. m., and will run through to Hanover.
The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 2:10 p. m., and runs to Frederick.
The Pacific Express, east, on Sunday, when flagged, will stop at Middletown, Elizabethtown, Mount Joy and Landisville.
*The only trains which run daily.
†Runs daily, except Monday.

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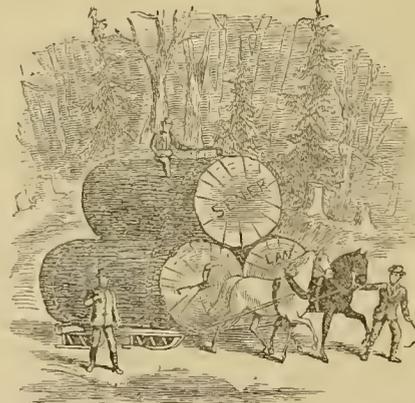
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., FEBRUARY, 1883.

Vol. XV. No. 2

EDITORIAL.

STATE AND COUNTY FAIR.

Now, that the "Main Hall" in Fairmount Park is chronicled with "the things that were," there seems to us to be no more favorable locality for a State or county fair—either separately or combined—than the grounds of our own Park Association. None more conveniently arranged, none more accessible, and none that could be obtained on more reasonable terms. We are glad to see, by the February proceedings of our local society, that it has appointed a committee of inquiry in that direction, and, taking time by the forelock, that committee cannot inquire too vigilantly nor too soon. Surely Lancaster county abounds in all the essential elements that compose a first-class Agricultural, Horticultural, and Industrial Exhibition; and, in intelligence, enterprise, and general progress, she is not behind her sister counties; and yet, she has not for many years been able to manipulate a successful county exhibition of her rich and abundant products. Every year the number of these gatherings is multiplying all over the entire country, and from present appearances it does not look as if the general enthusiasm has in the least abated.

It is true that these laudable enterprises are not always what are generally regarded as a "financial success," because they do not result in an overflowing Treasury, no matter what may be otherwise developed by them. We think a fair may be eminently successful, without yielding any surplus to its treasury, or profit to its conductors. For instance, the exhibition of the "Lancaster County Poultry Association," last month was unqualifiedly successful, and financially it involved the association in a debt. Unforeseen contingencies sometimes so combine as to produce almost a failure, financially, but in moral, domestic, and industrial results, they may be all that could have been reasonably expected from them. The late poultry show was a credit to the county of Lancaster, and the projectors and conductors of it, merit the commendations of the public. These things must not be estimated by their pecuniary results alone, although sound reason dictates that they should so far compensate those who get them up as to protect them from pecuniary loss. The public has also a duty to perform in enterprises of this kind, and yet the public is often singularly indifferent, and through this indifference the best laid plans of "mice as well as men aft gang aglec." No one would presume to say that our late "War for the Union" was a failure, and yet financially it was, or would have been a disaster, had not the wisdom of the nation devised, and compelled the means to sustain the government. By reference to our literary and personal columns, the financial and material success of our old neighbor, Berks, will become apparent to the reader; and what Berks has been doing for the past ten years,

ought surely be accomplished by Lancaster. There are no better means of advertising a district, a county, or a State, than through an exhibition of their material and industrial resources, and this also applies to all large towns and cities. Our Centennial Exposition in 1876 placed our entire country in a position before the world that she never had occupied before that event, and yet financially it was not a success to those who ventured in the enterprise; else they would not be knocking at the door of the American Congress for a reimbursement. Many things in this world "cost more than they come to," and yet the world would be a "three-wheeled wagon" without them. Through these periodical gatherings people come to know each other better than they possibly could otherwise. They are not only social assemblies in which every man, by external blandishments, is endeavoring to put the best foot foremost, but they are the congregated ultimations of practical ideas, in living and moving forms. They exhibit to each other outwardly, what men and women have been inwardly thinking about, and they lead all to consider whether there may not be better plans for doing things, than those which have been transmitted to them through an *effete* ancestry, thus affording them a practical opportunity to "prove all things, and hold fast that which is good."

At the annual meeting of the State Agricultural Society, held in Harrisburg, without definitely adopting any place to hold its next exhibition, yet it seems that Fairmount Park was informally mentioned. It is true, the State Society held one or two exhibitions there, which were eminently financial successes; but then, it must be remembered, that it was backed by the attractions and the patronage of the "Main Hall," an influence it could not possibly now command.

Next to Fairmount Park, the most successful State Fair ever held in Pennsylvania, was the one held in the Park at Lancaster. This ought not only to be an inducement, but also a guarantee to the State Society, justifying a repetition of their enterprise of 1875, in which they may count on a practical co-operation of our local society.

But that is not all. Our *citizens* should vouchsafe an earnest co-operation in the event, a thing they have never yet fully and freely done. The nearest approximation, so far as related to the mechanical, domestic and fancy departments, was in the demonstration of the "Fulton Institute," in November, 1859. But notwithstanding the material success of that display, financially it was a failure—perhaps occasioned by the rivalry of two local institutions. We never *could*, and probably never *can*, hold two successful fairs of any kind in Lancaster city and county in the same season, perhaps not in the same year. It needs a unity of purpose and energy to succeed in enterprises of this kind. When a local society projects anything of this character its hands ought to be held up by the entire community, and their *it must succeed*.

WIGGINSANIA.

"Blow gentle musician, blow;
Let thy dulcet strain proceed;
Play us Michael Wiggins once again."

Scientific *authority* has demonstrated by the usual meteorological data, that no storm was brewing in the United States, that could possibly develop itself on the 9th of February, notwithstanding Mr. Wiggins had predicted months ago that such would certainly be the case. Perhaps Mr. Wiggins may discover the "loose screw" in his meteorological calculations, and blow his blast over again, even at the hazard of demonstrating to the world that his system is based upon mere guess work. The world has been making such immense progress in the physical sciences, that a time must ultimately come, when the changes in the weather can be foreshadowed, with as much certainty and precision, as an eclipse, a transit, or a change in the moon can now be foretold, but neither Mr. Vennor nor Mr. Wiggins have yet attained to that position as weather prognosticators, and very probably never will.

We cannot exactly say that these prophets become *enthused* on the subject of meteorology; but, after the manner of the present period, they become *sensational*, and like the crow listening to the flatteries of the fox, they loose their beef, by opening their mouths and cawing too loud. Not satisfied that the grass was shaken by the *wind*, it must be shaken by *five hundred snakes* therein, or the tale would be too tame to elicit attention.

It is a great pity (on Mr. Wiggins' account) that we did not have a devastating "blizzard" on the 9th of February, 1883, just for the sake of a new epoch in meteorological history, and a world wonder to talk about. All effects are but the manifestations of prior causes, and therefore there is nothing arbitrary, nothing capricious in nature's laws; and, if we can demonstrate that twice two make four, it is because we see the two twos as primitive factors in our calculations. When weather prognostications are based upon suppositions only, they are sure to fail.

THE FULTZ WHEAT.

We call the special attention of our wheat-growing patrons to the communication of Dr. T. C. PORTER, of Lafayette College, which puts an entire new face on the origin of the "Fultz wheat," so far as relates to the article of Mr. David Detwiler, published in the N. Y. *Tribune* of the 16th ult., and so patronizingly *sandwiched* by the editor of that journal. We believe that Dr. Porter knows exactly what he is talking about, and if he does, his exposition is not very flattering either to Mr. Detwiler or the editor, and as to Mr. Fultz himself, possibly he may be altogether oblivious of the pretensions set up in his behalf. It would be singular indeed if the originator of such a valuable cereal could content himself in cultivating a *stone quarry* in the vicinity of "Jack's mountain," a region where, it is said, corn has to be shot into the ground with a musket.

"BALANCE OF TRADE."

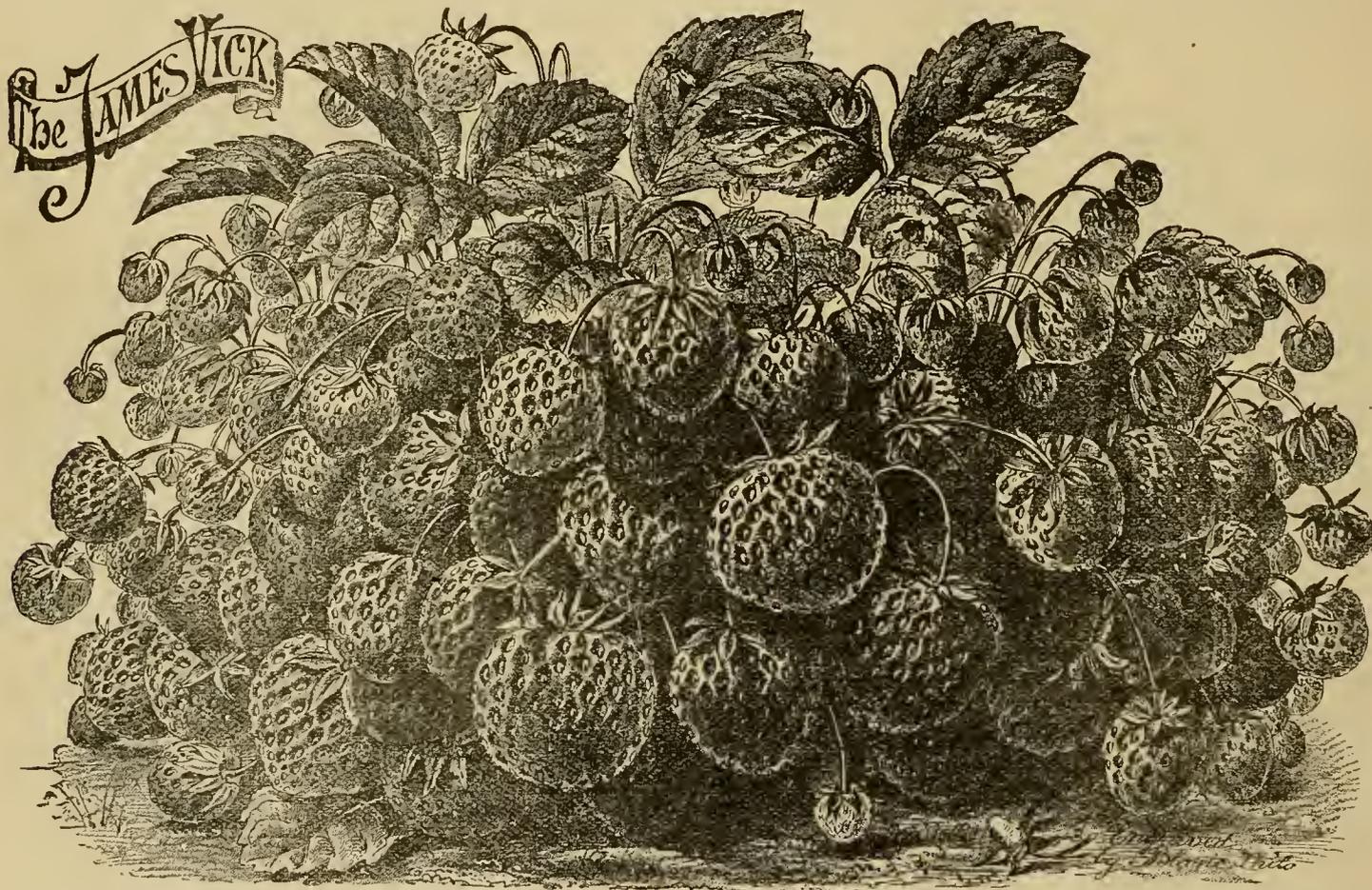
The discussions of this question by our esteemed correspondents, "J. P." and "S. P.," which have for some months appeared in the columns of THE FARMER, have perhaps been sufficiently prolonged, and, therefore, without the least shadow of disrespect to either of the parties, we would suggest that they be brought to a close. Enough may have been advanced for the digestion of our readers, on this subject, for months to come if they are in the habit of thinking at all, and that our correspondents are not able to see alike on it, is not at all surprising, since some of the greatest minds in our country have been exercised upon it and kindred topics, from the very foundation of the government, without coming to a unanimous conclusion.

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basket, or a tray around each plant, only needing to be detached from the ground, and carried off fresh to market just as "cream nuts" are brought in natural receptacles from Southern climes. Neither have we any personal interest in the berry, nor is this intended as an advertisement of it. But when anything new and valuable is discovered in the realm of fruit, we desire to have some idea of its form and appearance in addition to other information, and also to communicate it to others, and for this reason we will cheerfully insert in the FARMER appropriate illustrations of fruit, flowers, and stock, if sent to us with the freight prepaid. We cannot afford to pay freight on articles in which we have no personal or pecuniary interest; and we would also suggest here that there is a wide distinction between a *request* and a mere *inquiry*. Two hundred and eighty strawberries on one plant, and two bushels from a row 100 feet

SNOW FLEAS.

The snow, in the neighborhood of What Glen, near Lancaster city, was covered on the 18th of January with countless millions of "snow fleas" (*Podura nivecola*), small, black, wingless insects, about the size of a grain of common gunpowder. Of course, being without wings, they have not the power of flight, but this is compensated by their leaping powers. Mr. Wm. Roehm, the host of the "North Pole" restaurant, brought me about one thousand of them, which I immersed in alcohol for preservation. Mr. R. informs me that they were so numerous that he verily believes he might have gathered a quart of them without going very far. They seemed to be most numerous under the cedar trees. He was surprised to witness their leaping powers, which they freely exercised, notwithstanding the ground was covered with snow. This leaping is not effected by the use



THE JAMES VICK STRAWBERRY.

Sufficient has been said about the character and quality of this prolific berry on pp. 9 and 10 of our January number, for 1883, but as our journal went to press before the cut arrived, we were deprived of the opportunity of using it in that issue. As a pictorial illustration of any object conveys a better general idea of the thing illustrated than the most elaborately written literary description, we have thought it not inappropriate to insert the cut in the present number. Whether the picture is overdone or underdone, we have not the means of knowing from personal experience, but from the antecedents of those concerned in its origin and introduction, we are quite willing to take it upon trust. A facetious friend at our elbow suggests that there is only one thing yet needed to stamp it with perfection, and that is to grow a box, a

long are certainly results that go very far towards establishing its character as a prolific bearer, and this is claimed as a usual crop of the JAMES VICK. It is, however, possible, that many people would never realize such a result, mainly because, having what they term a "good thing," they would be apt to let it take care of itself. The improvement of the strawberry, or any other fruit is an aggressive labor, and cannot be "severely let alone," if men expect to get a crop. It is hardly necessary to admonish the reader that the figure 4 at the beginning of the last line but one, in the article on the "Vick Strawberry," in the January number of the *Farmer*, should have been a dollar mark thus \$, making it \$2 per dozen; instead of 42.

EVERY new subscriber to THE FARMER for 1883 will receive, in addition, a copy of the "Art of Propagation, a Hand-book for Nurserymen, etc." This is deemed an excellent work and sold readily at 50 cents per copy

of the feet, but by a caudal appendage which turns over on the underside of the abdomen, and by suddenly throwing this appendage backward a leap is produced and from this characteristic the family to which they belong are called *Poduridae*, or "springtails." Some of the species are nearly half an inch in length, but they are less numerous than the *nivecola*, and are not found on the snow.

The scales that cover these little animals form very popular objects for the microscopist—at least, this is the case in England. The whole family are usually found under cover, in places that are moderately moist and sheltered. They, and allied families, form the order *Aptera* or *Aphaniptera*, based upon the absence of wings. Not much is known about their transformation and their procreative habits, but it is pretty well known that they are very destructive to early garden

vegetation, and hence are also called "Garden fleas."

In the spring of 1880 they were particularly destructive to the young tobacco plants in the forcing beds, and who knows but that these may be an advance brigade, come to reconnoitre the tobacco fields. Insects that appear in such vast numbers in midwinter—when the ground is covered with snow—are not likely to be much incommoded by cold weather, and, therefore, it might be well for tobacco growers to be on the lookout for them.

For the benefit of whom it may concern, I here reproduce from page 83, volume 12 of the FARMER, a portion of an article on "Tobacco Pests," relating to the depredations of these little insects, and the remedies that have been suggested for their extinction:

"On one occasion Mr. G. W. M., of Marietta, Pa., sent me half a gill of this species of snow-flea which he found in his garden walk, and of which he stated he could have gathered a quart or more. Mr. M. informed me that he had used "Persian Insect Powder" against the depredations of the 'snow fleas' in his garden successfully, and that his tenant used a mixture of sulphur and asafetida with satisfactory results on his tobacco beds.

"For the past two seasons our tobacco growers have been complaining about these little pests under the names of 'Black-fly,' 'Black Spider,' etc. They may prove greater enemies to the tobacco plant than either the 'Flee-beetle,' the 'Tree-cricket,' or the 'Hornworms,' inasmuch as they appear earlier in the season, can stand more cold, and puncture the seed-leaves, and, moreover, are too small to be readily detected, and from their leaping abilities are able to escape or to secrete themselves. These minute insects for many years have been alternately depredating upon different species of vegetation, but there are some people who allege that they are entirely harmless. They appear usually in gardens and tobacco-beds during the months of May and June, and by the 1st or middle of July they all disappear, and nothing is seen of them again until the following winter or spring. They remain, however, long enough to damage the young tobacco plants and other vegetation. In addition to the remedies above referred to, it is stated that flour of sulphur has been used with good effects. They are very delicate in their structure, and cannot be taken between the fingers without crushing them, therefore, any remedy that would destroy plant-lice, would also destroy snow-fleas. Tobacco seed-beds are usually limited in extent, therefore, for two or three days before the seed is sown, if the beds were saturated with scalding water, it might not only destroy these insects, but also small species of centipedes that infest the young plants."

STATE AGRICULTURAL AND HORTICULTURAL SOCIETIES.

Except the two papers read before the State Horticultural Society, published in the January number of the FARMER (of which, of course we possessed advance copies) very little has come before us in relation to the proceedings of either of those Societies. Things were quite different when the latter society met at

Reading last year. On that occasion the Reading *Times and Dispatch*, published a full report, not only of its regular proceedings, but also all the addresses, essays and other papers read before it. The following slips from the *Examiner* of this city, and the *German-town Telegraph*, are all that we have yet seen upon the subject, and we give these for the general interest they possess. Had these gatherings been political conventions, no doubt our local papers would have had full reports of them, but being only Agricultural and Horticultural Societies, they were matters of little comparative consequence. If full reports have been published, they have not yet come under our observation.

State Agricultural Society.

The Pennsylvania State Agricultural Society, met January 18. It is thought the next State Fair will be held at Fairmount Park, Philadelphia, at least efforts are being made in that direction. There is a balance in the treasury of \$16,000, which shows pretty good housekeeping. The following well-known "tillers of the soil" were elected officers for the ensuing year:

President—James Miles.

Vice Presidents—D. L. Twaddell, George Blight, John Hunter, Wm. Singerly, Burnet Landredth, David H. Branson, Wm. H. Holstein, Tobias Barto, S. S. Spencer, Daniel H. Neiman, D. H. Waller, Ira Tripp, J. S. Keller, Gabriel Hiester, Joseph Piolett, Robert P. Allen, John A. Lemon, John S. Miller, Daniel G. Gehr, L. A. Mackey, George Rhey, F. Y. Clopper, W. W. Speer, John McDowell, Moses Chess, J. D. Kirkpatrick.

Additional Members Executive Committee—A. Wilhelm, Abner Rutherford, Wm. Taylor, John H. Zeigler, W. B. Culver.

Ex-Presidents Members of the Board—Frederick Watts, D. Taggart, Jacob S. Halde-man, J. B. Eby, W. S. Bissell.

Corresponding Secretary—Elbridge McConkey.

Recording Secretary—D. W. Seiler.

Treasurer—John B. Rutherford.

Chemist and Geologist—A. L. Kennedy.

Librarian—Wm. H. Egle.

The Horticulturists.

The State Horticultural Association of Pennsylvania began its session Thursday, Jan. 18th, in the apartment of the State Board of Agriculture, Hon. George D. Stitzel, of Reading, in the chair. There was an unusual large attendance of members, and many ladies were present. The afternoon session was devoted mainly to the reading and consideration of the reports of committees. There was a fine display of apples, pears, and preserved fruits. Mr. Thomas J. Edge, the careful and efficient Secretary of the State Board of Agriculture, informs me that there was only 21 per cent. of an average crop of apples in Pennsylvania during the past season. In the display of to-day 50 per cent. of the apples were from the west. The following officers were elected for the ensuing year:

President—Hon. George D. Stitzel, Reading.

Vice Presidents—H. M. Engle, Marietta; Josiah Hoopes, West Chester; W. S. Bissell, Pittsburgh.

Recording Secretary—E. B. Engle, Chambersburg.

Corresponding Secretary—W. P. Brinton, Christiana.

Treasurer—George B. Thomas, West Chester.

Professor of Botany—Thomas Meehan, Germantown.

Professor of Entomology—S. S. Rathvon, Lancaster.

Professor of Horticultural Chemistry—S. B. Heiges, Shippensburg.

The State Horticultural Society.

At the recent annual meeting of the Pennsylvania State Horticultural Society at Harrisburg, the chairman of the general fruit committee, Mr. Edwin Satterthwait, read an interesting report on the fruit crop of this State, of which the following is a synopsis:

Notwithstanding that there was an abundance of blossoms last year, the yield of apples was unusually small. The foliage of the trees presented an unhealthy appearance, and with the exception of the Cider and Ridge Pippin varieties, the fruit generally failed to mature. Reports from different portions of the State say that pears were almost as general a failure as apples, although the crop of Mr. Satterthwait, comprising many varieties, was exceptionally prolific. Mr. S. says he loses thousands of bushels of Bartletts and other pears annually by bees, and the loss thus occasioned him he considers greater than the value of all the bees in his county.

Last year's peach crop was very variable; in some instances a total failure is recorded, in others there was a bountiful yield. The "yellows" still affect many orchards and greatly reduce the crop. The cherry and plum crops were generally reported poor. They did not suffer as much from the curculio as from the rot. Quinces of late years have done better, being less injured by worms than formerly. Small fruits produced an average yield. Currants and gooseberries were much injured by the currant worm. The use of hellebore on the first appearance of the insect, by dusting over the bushes is pronounced an effective remedy. Grapes generally yielded well. In regard to the Kieffer pear Mr. S. says that he had last year over one bushel from trees only two and three years grafted. Saplings only one and a half inches in diameter, grafted over two years, produced over a bushel each of perfect fruit. He considers it the most valuable pear he has ever grown.

Certain destructive insects are reported to be on the increase, while others, the curculio for instance, is less numerous than formerly. The tent caterpillar is apparently more numerous, and another variety which makes no web but gathers in clusters on the branches of apple and quince trees, did considerable damage last year. Removal by hand seems to be the most effective means of destroying pests of this kind. The potato beetle and pear slug have almost entirely disappeared. The codling moth is about as numerous and destructive as ever. The injury inflicted by bees is very serious in certain localities, and the only means of reducing their depredations is the troublesome remedy of suspending bottles of sweetened water to the branches of the trees.

Apple-Orchards—Where to Plant One.

There has been considerable discussion o

late as to the best site for setting out an apple orchard—and we may add a peach orchard, also. From our own knowledge of this subject, and from what we have learned from others, and what we have seen in passing through regions where the apple was a crop of much importance, we should undoubtedly select a northern exposure. Leading apple growers, we are assured, agree in 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 does not know and is desirous to be informed, should understand that uniformity of temperature and retardation in budding, are almost everything in preserving the health and promoting the productiveness of almost any fruit tree. An orchard planted—say in this latitude—on a hillside with a full northern exposure, always stands the winter and is almost unfailingly productive. While, on the other hand, that with a southern exposure, planted in valleys or protected by belts of trees, is liable to constant changes of temperature; but are subject to the visitation of early, and late frosts, which generally prevail only in low situations, and to the consequent destruction of the crop. It may be just as well for those who may contemplate the setting out of an orchard the coming spring to bear this in mind. All of us desire to know the surest way to success in the cultivation of any crop, and this is unquestionably the surest way in apple growing, and in peach growing too.—*Ger. Telegraph.*

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.

GRAPE CULTURE.

As the grape is one of the most useful objects of fruit cultivation, a proper knowledge of its planting and pruning is absolutely necessary in order to succeed well; although some varieties will bring forth abundantly without much care in regard to locality or training. Among those most common are the Concord and the Clinton, which may produce ordinary crops without much cultivation, but in some localities, with a well prepared ground and proper pruning, their productive qualities are very much increased and improved. Many varieties will do well enough when planted as single vines in pot-loam and gardens, but will fail in vineyards. I have so far succeeded in vineyards only with Concord and Clinton. But I saw the Brighton and Worden's seedling thrive to perfection in a vineyard last year, on an old piece of ground on the brow of a gravel ridge, sloping a little north, but the owner was an old and well-experienced grape-grower, and an expert in fruit cultivation. What I wish to impress is, that grape growing, more than any other fruit, accommodate itself to one's own hand, depending only on a proper location, and care after planting. The Catawba and Delaware rank among the best of grapes. It is said that the Catawba is in Ohio, what the Concord is in Pennsylvania or in Lancaster county. It is also said our season is too short for the Catawba, yet I have seen it and the Delaware come to perfection in Niagara county, N. Y., bordering on the lake. Five years later, when I visited the same place, the people informed me that they still raised the Catawba, but failed with the Delaware. I never succeeded with the Delaware, either in my garden or my vineyard, but my neighbor had a healthy vine on the east side of his brick house, with perhaps

a bushel of the finest grapes that ever came under my observation. I have experienced the same thing in other fruits, failing in one place and doing well only a half mile away. So there must be causes and effects in these things not yet discovered. I planted three grape vines 35 years ago—two Catawbas and one Isabella. The first vines on the Isabella failed, but the Catawba grew luxuriantly, and ripened a few berries. One was on the east side of my house, and the other in my garden on the north side.

These vines stood for years uncared for. At last I cut them off close to the ground. The following year they sprouted a little, but were neglected. The one in the garden run at last on the fence, and from there on to a pear tree, and last year it had reached the very top. It bore five clusters of grapes for the last three or four years, improving all the time. It had over half a bushel of fine grapes last season, and we used them until late in the fall, and the one near the house, also had some fine clusters, which hung under the porch, and were very perfect. We let them remain until late in the season for ornaments. When I started out on my place, forty years ago, there was not a single fruit or ornamental tree in my whole yard, now I am surrounded by fruit and other trees, including many evergreens. I believe the reason my Catawbas are now doing better again, is, that the climate or temperature is somewhat changed by the contiguity of its surroundings acting as a shelter belt. I believe that all kinds of fruit, and fruit trees, will improve by being surrounded by a thicket of trees. There will be more or less of a climatic change and an amelioration of the surroundings attractive to "Borers," "Curculios" and other noxious insects, as they will seek refuge and subsistence on forest trees instead of fruit trees. I failed some years ago with the Prune varieties, but have lately started in again, and the indications are that I will succeed. If I do I shall ascribe it to the shelter belt composed by surrounding trees.—*L. S. R., Oregon, Feb., 1883.*

FOR THE LANCASTER FARMER.

WEIGHED IN THE BALANCE.

EDITOR FARMER: Your very belligerent Delaware correspondent, I observe, has another communication in the last number of THE FARMER, and after a fashion attempts to answer my article on "The Balance of Trade Delusion" in the December number. How successful he has been, I leave the reader to judge.

As to my statement in THE FARMER of April, 1879, which after nearly four years' waiting he so fiercely attacked and designated "false statistics," I repeat, that to the best of my belief, the figures were correctly condensed from the "Quarterly Report of the Chief of the Bureau of Statistics, issued by the Treasury Department at Washington for the quarter ending March 31, 1878;" and from that report it appeared that from 1860 to 1877 there was a large excess of exports over imports. I am confident that the figures I gave were substantially correct, as condensed from that official report. It seems, however, that Nimmo, who succeeded Young as Chief of the Bureau, gave quite different figures, for which it would appear that the imports were greater than the exports in that period, as in all the previous decades. The explanation of this difference in the figures if the two Chiefs, it now appears, is, that Young gave the valuation of the exports, as it appeared on the custom-house books, in United States currency (greenbacks) then greatly depreciated, while Nimmo gave the gold valuation. If your Delaware contro-

versialist, knowing this fact, as I have reason to believe he did, had given that simple explanation of the discrepancy his candor would have been more conspicuous, and he would have been left without plausible excuse for his charge of "false statistics."

Besides the depreciation of the currency at the time referred to, it is to be remembered that the United States were then borrowing money very largely and a great many millions of dollars of Government bonds were going to Europe, though these of course did not appear in the Custom-house returns, but they went to pay for imported merchandise of equal value; so that altogether our foreign trade at that period was in an entirely abnormal and exceptional condition, such as it never was before, and is not likely to be again.

The greater part of his last essay calls for no reply. Let any reader who cares about the controversy, read his two communications, compare them with mine in the December number of THE FARMER, notice the character of his answers and what he omitted to answer, and then judge accordingly. However, there are two or three minor points in his last that it may be worth while briefly to refer to.

He says "J. P. has made the astounding discovery that consumption is gain and production loss." Quite an unwarrantable assertion. I said nothing about production being loss, and I did not allege that consumption necessarily or always is gain, but merely that *certain kinds* of consumption are gainful and other kinds are loss.

He laid it down as "axiomatic" that "all consumption is loss." From this it follows that consumption of necessities and luxuries must be loss alike, the one no more so than the other—the very thing thought so irrational when attributed to me. And he says everybody knows that "grain or coal consumed for food or fuel, is just as much lost as when sunk in the sea or burned up." I maintained, on the contrary, that when grain is fed to hogs, for instance, and the result is pork of greater value than the grain consumed, the loss is *not* the same as if consumed in the fire. He says, however, that though in the one case we may produce something of value while the destruction is going on that makes up for the loss and in the other case not, still "the loss is precisely the same;" as much as to say, unless his words have some hidden meaning that does not appear, though by and through its consumption as food for hogs the owner of the corn increases his wealth, the loss is just the same as if he had thrown it in the fire! I believe the owner of the corn would not think so! In Pennsylvania (I won't speak for Delaware) farmers who feed their corn to hogs, think they make a gain by its consumption in that way.

To prove that consumption is always loss he quotes Noah Webster as defining consumption to be "waste, decay, destruction, loss." But on turning to Webster's Unabridged Dictionary, the latest edition and also the preceding edition, the very first definition given of consumption is, "The act of *consuming by use.*" In overlooking this definition S. P. no doubt was saved some trouble, for it would have been rather an up hill business to argue that consuming a thing by use is of *no use* or value.

He had said before that imports, being for consumption, are to be considered as consumption. But it being "axiomatic" that all consumption is loss, of course the imports are all loss, and being so, why make a distinction between imported necessities and imported luxuries? The latter can be no more than lost. And indeed the person who believes that it is what we part with to foreigners that enriches us, and what we receive from them in return that impoverishes us, may consistently enough argue that the country would be no greater loser if the merchandise intended to be imported was wrecked at sea, instead of being safely landed to be consumed and therefore lost on shore.

In regard to imported luxuries he says it is not the mental or spiritual enjoyment or improvement we get from them; it is only the *money value* of our possessions with which we have anything to do in this discussion. Well, the money value of as much coffee, wine, or any other luxury as sells for a dollar is exactly the same as the money value of a dollar's worth of gold or corn, and I don't see that this helps his argument, but directly contradicts it that imported luxuries are "of no account" "in increasing the material wealth of the country." Such articles of luxury as those I mentioned before—tea and coffee, with entertaining or religious books, paintings, silk dresses, pleasure carriages, and a hundred other things that we *could* live without, not only conduce to the comfort and enjoyment of those who want and can get them, but they are *material* wealth, and of just the value of the money for which they are exchangeable—and none the less so because it would be imprudent, foolish and wrong for a person to indulge in them until after he or she was provided with the absolute necessities. The money value of an object is determined by the amount of money that those who want it will pay for it, and not by the opinion of what it ought to be valued at by those who do not want it.

And an article is none the less to be valued at the money it costs because it is of a perishable nature, while the coin endures. That circumstance is taken into account and allowed for when the price is fixed. So a man is not cheated because he parts with a dime for a loaf or a mug of coffee or other luxury that he can afford, although those articles will be eaten and consumed in a few moments while the coin will remain unchanged for a lifetime. But the owner cannot use it and still have it, any more than the possessor of the loaf can.

To the extent and with the limitations mentioned in my former communication, luxuries are undoubtedly conducive to the comfort and happiness of the community. In practice, if not in theory, everybody agrees to this, except here and there a miser or a religious enthusiast; and I can't think the miser, who lives on nothing but the coarsest food and clothes himself in rags in order to hoard money and die rich is the model economist or most valuable citizen—though it is very true that economy and frugality to a reasonable extent are virtues that ought to be encouraged and practiced; and that indulgence in luxuries beyond our means of paying for them is little short of a crime.

S. P. slurs over Daniel Webster's unanswerable argument against the Balance of Trade theory, but intimates that his own opinion is not different from Webster's! Well, if that is so, he may be congratulated on having got his eyes open and become a convert to the sound doctrine he so fiercely attacked when propounded by me; for I assert that nobody can read that extract from Webster's speech in the December number of *THE FARMER* and point out any conflict or difference between his views and those I have all the time upheld.

I was going to say something about the misconstruction by S. P. of my language and meaning in two or three particulars, and then making the perversion an excuse for calling my arguments "ridiculous," "a medley of absurdities," and the like, but it does not matter, and I will conclude by commending to his attention the homely maxim of the philosopher of the Limekiln Club, "The man who draps argyment for epythet has no case."—*J. P., Lancaster, Feb. 1, 1883.*

FOR THE LANCASTER FARMER.

HYBRIDISING FRUITS.

MR. EDITOR: If I were a young man, which you know I am not, I would take great pleasure in crossing fruits of various kinds, thus originating many new and valuable varieties. As I could not hope to see the results, I wish to urge our young Horticulturists to try what they can do in this branch of experimenting.

We now have some seven or eight hybrid seedlings, of the Chinese pears—the "Sha lea," or sand pear, and the "suct lea," or snow pear. They were produced from planting the seeds of these Chinese varieties—evidently crossed by bees, or insects during flowering. The original Chinese varieties, as well as all the hybrids, are remarkably healthy, thrifty, and early and profuse bearers of uniformly large fruit. Now by again crossing these hybrids when in flower with pollen from some of our best pears, they can be still further improved. Thus by operating in this way for several generations there is no doubt in my mind, but pears can ultimately be secured equal in quality, if not of superior to any we now have; then, too, if their vigor, freedom from disease, and profuse and early bearing can be retained, which is very likely, a race of pears can be secured, far superior to any we now have. Here is a wide field to experiment in for our young horticulturists, and a field of great promise in the origination of new and valuable fruits.

Many years ago Van Mons, of Belgium, was the originator of many superior pears. His plan was simply to commence with the seeds of an ordinary pear, plant the seeds, and as soon as the seedlings were large enough to furnish a graft, he would cut it and graft it on a bearing tree, thus having it to fruit several years earlier than the seedling on its own roots would fruit. So soon as these grafts bore fruit, he would again plant the seeds, and in this way continued his experiments until he produced fruit from the seventh generation, each generation improving in quality; so by such a simple process he produced many new varieties of pears. Unfortunately for him, the city encroached on his

experimental grounds,—cut streets through it, and he had to save what he could of his trees in mid-winter. Thus many valuable varieties were lost. At that time, it is supposed, artificial crossing of plants was unknown. But it is more than probable, that bees and insects performed the operation unknown to him—on all his fruits.

If I am not mistaken, Mr. Rogers, of Salem, Mass., was the first person who successfully hybridized the grape. The grape is probably the most difficult of all fruits to cross, on account of its very small flowers. Yet Mr. Rogers succeeded in applying the pollen of foreign grapes to the pistil or stigma of a native fox grape, and planting the seed thus impregnated, produced over fifty plants, all of which produced fruit different from either male or female parent, and all of superior quality. Even after after his many seedlings produced fruit of such good quality many of the best botanists in the country insisted his seedlings were not hybridized, but simply seedlings of a wild fox grape. Even the great botanist of the South, Mr. White, said the grape could not be crossed, though his neighbor, the late Dr. Wylie, was operating in the same way at the very time, and also produced many new varieties by crossing foreign on natives. I am not acquainted with the history or origin of our best apples, but judge they have all originated from seeds that had been crossed by birds and insects. We have several pears that originated in Manor township, than which there are very few that are superior—such as the "Hosen Shenk," and the Neff pear; the latter was found growing among briars in a fence corner. Mr. Henry Neff dug up the little tree and planted it outside his garden fence; it never blighted, is now a tree of sixty or more feet in height, and bears large crops of fruit every year. The fruit is of medium size, pyriform, of a golden yellow color, and in quality better than one-half of the imported varieties.

The new celebrated strawberry, "James Vick," is an accidental seedling, originating on the grounds of Samuel Miller, of Missouri. Evidently this is also a hybrid, the flower of some variety having been crossed by bees, and the seed dropped, and thus are most, if not all our seedling fruits crossed.

The Japan persimmon is a most delicious fruit, but unfortunately is not sufficiently hardy to stand our severe winters; yet by growing the trees in pots, or tubs, and placing them in a cellar in winter, they grow and bear fruit freely. By using the pollen of these exotic trees, and applying it to the stigma of our native varieties, a race of new fruits can no doubt be secured of great value.

It will be understood, that in crossing the flowers of any fruit, it will be necessary to cut out the male parts of the flowers to be operated on, before the pollen is ripe, and to apply the pollen of the other to the stigma at the proper time, and then to carefully enclose the impregnated flower in some material so as to prevent bees and insects from spoiling our work.

The *Rural New Yorker* is now distributing among the subscribers of that paper seeds of the Niagara grape, in the hope of the receivers planting the seeds to produce valuable new varieties.

The company that have the grape had many tons of the fruit last season. The Niagara grape may be a good one, though there may be better. Yet, as I suppose, their vineyard is exclusively of this variety, and as a consequence no pollen of other varieties can have been introduced, so that the probability is, there is not likely to be much improvement in the seedling. Had there been many varieties growing in the same vineyard there would be much greater promise of improvement.

A very plain case of cross-fertilization I noticed last season. A family in Columbia, who are very fond of growing flowers, especially the Asler, a beautiful annual. They plant them in beds close together, of all colors. Last summer a number of the seedling plants not only produced beautiful double flowers as usual, but among the lot were a number of *striped* flowers of all colors. As I had never before known of these plants having striped flowers, it appeared to me a great novelty. The seeds had been crossed by bees, which is Nature's method of producing new varieties.—*J. B. G., Feb. 6th, 1883.*

FOR THE LANCASTER FARMER.

LIME vs. MODERN FERTILIZERS.

My attention was called lately to an article in the August (1882) number of THE LANCASTER FARMER under the heading of "Lime." I take no exception to the writer's statements—but to the inference, that because lime in the past done so much for our land, we may still depend upon it.

Forty years ago the theory and practice of the farmers in this part of Chester county—was mainly embraced in liming—liming and feeding stock was their main business, and by it poor land became rich; but the credit should be given quite as much to the manure as to the lime. After a long time it was found out that some land had enough of lime, for the present, at least from the fact that no difference could be observed in the crops between that part of a field that had recently been limed and that which had not. Experiments became general, and to-day I believe there is not one-tenth part as much land-lime used within 15 miles of the great limestone quarries in London Grove township, that there was 30 years ago; and that within that time the productiveness of the land has increased from 20 to 50 per cent.

The growing crop requires a certain portion of lime; but according to our highest authorities only a small portion, say from 1 to 3 bushels yearly. If we apply as formerly 40 to 80 bushels per acre every time we break up a sod, there must be a great deal unused. Broken oyster shells are good for laying hens, supplying a portion of the material necessary for the perfect egg, and by their mechanical action, making its other food digestible, but only a limited quantity of such rations is profitable; more than enough is waste.

So it is with lime. A small portion is taken up each year and the rest lies in the ground useless. On some soils, however, lime has other uses than supplying plant food, acting upon it mechanically and chemically, and it is for each farmer for himself by experiment to find out what his own land needs now. What it required 50 years ago does not concern him, except as a matter of history.

We think our land now needs bone—by the use of which we are returning to the soil an element as fully essential to plant growth as lime. With the use of bone and acidulated South Carolina rock a second revolution in farming commenced, which on many farms is doubling the crops.

The time appears to have gone by when feeding cattle can be counted upon as a paying business; nor is it reasonable that we can compete with the West, where grain can be raised and fed so much more cheaply than here. But in selling hay and straw we have the advantage, for on such cheap and bulky articles the freight is an important item of expense. The raising and selling of these looms up as an interest with which the West cannot successfully compete.

The time-honored theory, that a farm can only be kept in a high state of fertility by feeding the hay and grain upon it, is now being rudely tested by our necessities, and a new departure is inevitable.

Many of our most successful farmers in this county have given up cattle feeding and adopted the practice of selling most of their hay and straw and using bone and other special fertilizers in place of barnyard manure.

My object in this writing is not to advance any new theory, but to encourage farmers to think and experiment for themselves, and to protest against our farmers following blindly the practices of fifty years ago, and resting satisfied therewith in regard to their manures, any more than they would be with the threshers and reapers of that time.

I believe agriculture should keep pace with the arts and sciences, which have made such tremendous strides since the time Mr. Garber "rode in the stage coach from Baltimore to York, sixty years ago."—*Howard Preston, Lower Oxford, Chester county.*

FOR THE LANCASTER FARMER.

DEEP OR SHALLOW PLANTING.

Nature's plan in planting her seeds is altogether in dropping on the surface soil of the earth. Nuts, from their respective weights, may sink half their size into the ground, before they germinate, but very often they are entirely on the surface when they begin to sprout, and often their tap-roots come forth and penetrate the ground, and form the germinating nucleus of the majestic oak. Other seeds so very light that an ordinary wind will carry them many miles, will eventually drop on the ground and grow. Often whole crops are injured by planting the seeds too deep in the ground, and this is especially the case with wheat. Some years ago, I, in connection with a neighbor of mine, worked a drill together. I had sowed half a field in very good loose ground, perhaps three, four or five inches deep, with the drill. Heavy rains prevailed for a few days—I was at the time "pushed" for a drill, and would have sowed had I possessed a drill of my own. So I commenced to sow on the rather wet ground. The seeds sown seemed too much on the top of the wet soil. The result, however, was, that the wheat came up almost twice as thick, was better from the start, and continued better until harvest time. Last fall I saw two fields of wheat sowed too deep in the ground. They looked discouraging all last fall, and the

outlook was not half as promising as from fields sown a few days earlier or later, an inch or two under the surface. Corn should not be planted too deep; in fact I believe altogether in shallow planting, no matter what kinds of seeds you may plant—I believe we should approximate nature's plan.

I am also opposed to planting fruit and forest trees—as well as ornamental trees—too deep. You can plant small trees very shallow, and all kinds of trees will do better if they are transplanted before they are too large. Of course, the larger the tree the deeper the hole. I have planted trees. I will plant trees with any one in the neighborhood except nurserymen. The question may arise, which is the right or best way to plant trees? when at the same time there seems to be only one way. A writer in the last number of THE FARMER recommends holes from 8 to 10 feet in diameter for trees 12 feet high, instead of 4 to 5 feet in diameter for those of the same height. That may be an exception, but when we go to a nursery, we don't want fruit trees 12 feet in height; but, we may want a few Maple trees of that height, and they will require holes two and a half feet in diameter, and fifteen inches in depth. The advice may come from a "Book-farmer," and he is welcome to his opinion. Well, how do I make holes for apple trees? Why, I make them 30 inches in diameter and 15 inches deep. I place a good stake in the hole, then fill it half full, after which I place the tree in it and fill over all the roots. Shake a little when filled up, and tramp the ground all around the tree; fasten it to the stake with a straw wisp. I planted five orchards and subsoiled two of them. The trees grew very luxurious; have planted a great many trees in my time, and have been reasonably successful. I seldom lose more than one or two in one hundred.—*Warwick, Oregon, Feb., 1883.*

FOR THE LANCASTER FARMER.

FOLTZ WHEAT.

EASTON, Pa., Jan. 19, 1883.

MY DEAR SIR: Enclosed you will find a clipping from the agricultural columns of the *N. Y. Tribune* of the 17th inst. It will furnish you a good example, if you have never seen the like of it before, of the manner in which history is sometimes made. The sapient editor has evidently been fooled by the "Foltz wheat." That poor, worthy, Christian farmer living at the base of that mountain on that wretched stony farm has had his wits sharpened and fabricated a good yarn. It would be cruel to vote him a monument as a public benefactor. Let some society or combination of societies, by all means, send this two-blade-of-grass man the \$10,000. He should then move west and extend the acreage of his wheat to some purpose, after having given a suitable reward to the obliging friend who had trumpeted him into fame. How can the generous tillers of the soil, who have been so vastly benefited by this humble co-worker, resist the appeal?

To speak soberly, such attempts to rob Dr. Foltz of the credit justly due to him for the introduction of the valuable variety of wheat which bears his name, ought to be exposed by every respectable agricultural journal in the land.

Yours, respectfully,
THOS. C. PORTER.

The Facts About the Fultz.

The following carefully verified history of the celebrated Fultz wheat—concerning the origin of which many conflicting accounts are current—is furnished by Mr. David Detweiler, and may be relied upon as exact:

"Twenty years ago, Abraham Fuls or Fultz (pronounced Fools—the vowel short), living near Allenville, Millin county, Pa., while harvesting for his neighbor, C. Yoder, in Huntindon county, in a field of Lancaster Red wheat, which was much broken down and tangled, noticed three stalks of a different wheat standing straight, and bearing beautiful heads. He plucked and stuck them on his hat and in the evening gave them to Mr. Yoder, and insisted on him taking care of them and planting them; but Mr. Yoder said that Mr. Fuls should take them along home and see what he could make out of them. Mr. F. did so, and in '63 he had a little over half a pint. He planted this and had a little over a peck in '64; sowed again and had several bushels in '65, and in '66 he gives a little to C. Detweiler, and had a few bushels ground which made good flour. In 1869 there was over 3,000 bushels of it threshed in the neighborhood. This was all distributed among farmers for seed, and from that time on it spread fast over our entire wheat-growing belt. It is estimated by men of good judgment that in ten years those three heads of wheat increased to millions of bushels in the United States. Abraham Fuls lives two miles south of Allenville, at the foot of Jack's Mountains; owns a small stony two-horse farm; is a hard working man, a good neighbor, good citizen, and Christian; in fact, a good man every way you take him, but has no gift to talk, or he might have made a nice thing out of the wheat that bears his name, and that has proved to be worth millions to the grain-growing farmers of our country. He should have a good reward. Ten thousand dollars would be a small reward forward for what he has done for agriculture; 2,000 to 5,000 acres of Government land in the far West would be only a partial compensation of his thoughtful service."

Mr. Detweiler, who is a near neighbor to Mr. Fuls, says the idea of deserved recognition is general in that community. If agricultural societies, or private individuals, who have shared in the benefit, would contribute liberally to the proposed testimonial, such action would doubtless encourage to further observation and patient effort in the same important direction.

SELECTIONS.

TOBACCO GROWING.

How It Has Enriched Our County.

It is about 270 years since tobacco was first grown for commercial purposes. From the few thousand pounds raised in the youthful colony of Virginia in 1615, the culture of this article has extended into almost every country. To-day the production of the world reaches 1,500,000,000 pounds, and 700,000,000 of people, one-half the entire number of the inhabitants of the earth, use it in some form. There is, perhaps, no other instance on record where an article not absolutely necessary to the needs of the human family has gained such a wide introduction among men in so brief a period. It almost seems to indicate that some mild narcotic is essential to the comfort and enjoyment of mankind. The purpose of this letter, however, is not to moralize over this question, but to give some details concerning the growth of this industry in a single Pennsylvania county, where, dur-

ing the brief period of fifty years, it has reached a most remarkable development, has become a leading crop, giving employment in season to thousands of persons and enriching a whole community.

The Beginning.

Nearly 200 years ago tobacco culture was extensively carried on in the newly founded colony of Penn. In 1689 no fewer than fourteen vessels sailed from Pennsylvania loaded with tobacco. Of course they were small craft compared with the ships of to-day, but the fact nevertheless indicates to what extent the culture of this product was carried on at that early day. It seems to have died out, however, as little is heard of it until the first quarter of the present century, when it was again taken up in a few places, but nowhere so extensively as in Lancaster county. About the years 1825-30 the farmers once more began growing it in a small way. There was not much of a market for the product, and the custom was for the grower to have it made up into cigars for his own use, and the surplus, if any, was sold to the local cigar dealers. Those were halcyon times for smokers and manufacturers. There was no special license required to deal in the article and no internal revenue tax. The cigars made were principally of two kinds, common and half-Spanish, the former were sold at four for a cent, while the latter and more aristocratic article was smoked by the better-to-do class in the community and retailed at two for a cent. The wholesale price of the former was from 16 to 20 cents per hundred; that of the latter about twice as much. The amount of tobacco grown in the State increased slowly but regularly. The first authentic estimate of the crop was made in 1850, when 3,500 cases or 1,400,000 pounds were produced. The best grade was sold at that time for twelve and fourteen cents, and the inferior ones proportionately lower.

The Crop in Lancaster County.

Upon the revival of the industry in 1825, Lancaster county took the lead, a pre-eminence it has maintained to the present hour. The soil seems especially adapted to the growth of this crop. Most of it is limestone, but even where slate and sandstone prevail good tobacco crops are grown. It may be as well to remark right here, that all the tobacco raised in the Northern States, from Connecticut to Wisconsin, is known in the market as "seedleaf," and is used almost exclusively in the manufacture of cigars, part for wrappers and the rest for fillers. Tobacco possessing certain indispensable qualities is required for this purpose. The wrapper leaf must be soft, pliant, silky and elastic, not light nor flimsy, but thin and tough, with veins so small as not to show above the level of the leaf, and only a moderate amount of nicotine; and above all it must be handsome in appearance and of pleasant flavor. All these requisites are met in Lancaster county tobacco, to which may be added the rich, dark brown color so much affected by smokers at the present day, and the adhesive white ash which results when the cigar is smoked. These several qualities have made this tobacco a favorite with manufacturers and have stimulated the production to its present extraordinary extent. There is seedleaf tobacco grown else-

where in the United States that possesses some or most of the above-mentioned qualities, but none other, perhaps, that possesses them all. Lancaster city is the largest seedleaf market in the country, except New York.

Cultivation of the Crops.

Space will not allow of any extended remarks on the cultivation of the crop. As soon as the frost is out of the ground in the spring, the tobacco seed is sown in beds specially prepared for that purpose, in favorable localities. Open-air beds are preferred, as the plants are hardier, although canvas-covered ones are meeting with favor because they exclude the minute flea-beetles (*Halticidae*) which frequently attack the young plants. When the plants have developed three or four leaves, the largest equal in size to a silver dollar, they are transplanted into the fields prepared to receive them. Here they are set in rows from three and one-half to four feet apart, the plants themselves being placed from twenty to thirty inches from each other in the rows. The richness of the soil and the variety of tobacco govern this matter. No sooner are the plants set out than insect enemies assail them. The cut-worms come first. They cut down the tender plants and the planter must visit his fields every few days to replace. In exceptional years the replanting amounts to more than the original labor.

After a few days the cultivation of the crop must be commenced, and this must be continued at intervals of a few days until the plants have attained such a size that the passage of a horse and shovel plow between the rows is no longer possible without injuring the leaves. Meanwhile another enemy has come along in the shape of the "hawk-moth" (*Sphinx quinquemaculatus*), a nocturnal enemy that lays its numerous eggs upon the leaves, where they are hatched into the formidable "tobacco worms;" these latter, unless at once removed, soon eat large holes in the leaves and render them unfit for cigar wrappers. At a certain stage of its growth the plant must be topped. The upper portion is removed, only as many leaves being left as the plant will be able to mature. When this has been done suckers or shoots are at once thrown out, which must also be broken off, as they draw to themselves the strength and vigor necessary to the full development of the leaf. When the plants are matured, they are either cut or sawed off, hung upon temporary scaffolds in the fields to wilt for several days, and then carried on specially constructed tobacco wagons to the sheds or barns, where they are finally hung up to cure. After being left there for several months the crop is taken down, stripped from the stalks and prepared for the inspection of buyers.

Varieties, Prices and Profits.

The two principal varieties of tobacco grown in Lancaster county are the "Pennsylvania seedleaf" and the "Glessner," both attaining a remarkable development of leaf, and producing in favorable seasons very heavy yields to the acre. Leaves from forty-five to fifty inches long, and twenty-two to twenty-eight inches wide, are not unusual in the growing season, and cured ones 20 by 40 inches are not uncommon. Not only the size of the crop but its value also is largely dependent on the

season. When the latter is favorable from 1,500 to 2,500 pounds of tobacco are grown on an acre; 2,000 pounds is by no means an unusual crop. The price varies from season to season, as do all other farm products, being governed however mainly by the quality.

Immense Profits Realized.

Tobacco is generally assorted into three grades, known as "wrappers," "seconds," and "fillers;" in average years the first-named sells at from 15 to 30 cents, the seconds at from 6 to 12 cents, and the fillers at from 3 to 5 cents. In 1879, a tobacco grower set out 15,800 plants on three acres of ground; he got 7,681 pounds of cured tobacco, slightly more than half a pound per plant, and at the rate of 2,560 pounds to the acre. The crop was sold at 25 cents "through," realizing \$1,920.25, or \$640.08 per acre. The same man sold in March, 1881, his crop of the previous year, 8,663 pounds, grown from 17,000 plants, which was at the rate of 2,800 pounds to the acre, perhaps the largest authenticated yield ever recorded in the United States. Senator Cameron is an extensive tobacco grower. In 1880 he grew on twenty acres eighty-five cases or 34,000 pounds, an average of 1,700 pounds to the acre, which was sold at 14½ cents, realizing him about \$5,000. It was a good average yield for such an acreage, but the price at which it was sold was only moderately good. A farmer residing two miles beyond the city limits sold to a California cigar manufacturing firm the product of nine acres at the uniform price of 25 cents, receiving therefor the very handsome sum of \$5,553, or at the rate of \$617 per acre. Two years ago a wide-awake tobacco grower bought seven acres of land lying on a bluff of the Conestoga creek for \$125 per acre. It was steep, stony and rough, and seemed to defy cultivation; but the plucky purchaser removed the largest stones, cleared off the underbrush, and in some way managed to turn the soil and put in a crop of tobacco. He found a place sufficiently level, on which he built a tobacco barn. The season was propitious; he raised a heavy crop, sold it at 24 cents per pound, realizing enough to pay for the land and tobacco barn, and had \$700 in his pocket besides as the reward of his thrift and pluck.

Cost of Growing Tobacco.

Lying before me are several estimates by prominent tobacco growers of the cost of growing an acre of this crop. They run from \$100 to \$160, the principal difference being in the amount of manure used. One, which is about an average, is as follows:

Rent of land (interest on value).....	\$ 15
Making seed bed.....	5
Ploughing one acre twice.....	4
Manure.....	50
Planting.....	3
Harrowing and hoeing three times.....	10
Topping, worming and suckering.....	10
Harvesting.....	4
Use of barn, wagon, laths, etc.....	12
Taking down and stripping.....	15
Taking to market.....	2
Total.....	\$130

It is not an easy matter to get at the average money value per acre of the Lancaster county tobacco crop. Perhaps \$250 would be near the mark, although there are hundreds of instances every year where \$300, \$400, and \$500 are realized. The net profit per acre

seldom falls below \$100 in an average year with a careful planter, while very frequently it is two or three times that sum. True, it is in one sense a very precarious crop, liable to destruction by late frosts in spring and early ones in autumn, and to insect destroyers and hail, rain and wind storms between, but on the whole, during the past twenty years the tobacco crop has not been oftener a failure than the usual ones grown on the farm. The labor in season is also constant, but much of it can be done by the juvenile members of the farmer's family, and therefore inexpensively. There is seldom a money outlay; manure is sometimes purchased, but most of the labor is supplied on the farm, while the returns are generally prompt and large. During the last four years the value of the Lancaster county tobacco crop has run from \$1,500,000 to \$3,500,000. All this money has come into the county from abroad and has remained here. Hundreds of laboring men who have farmed tobacco on shares, as is very generally done, have earned comfortable homes as well as a living.

Does It Exhaust the Soil?

The question is frequently asked, if tobacco does not impoverish the soil, and none can be more easily answered. In Virginia thousands of acres have become barren, but careless farming did it. The farms of Lancaster county produce better crops to-day than they did twenty years ago. The land is richer and more productive. Not an acre lies waste. From three to five per cent. of his land is thought as much as a farmer should put in tobacco. It is very heavily manured, and the crop of wheat, which nearly always follows tobacco, is better on tobacco ground than elsewhere on the farm. The manure makes the two crops. Should they observe deterioration in their lands, this crop would at once be given up. But under the present system deterioration seems impossible. Thirty years of tobacco farming has steadily improved their farms.

Tobacco Barns and Their Cost.

In the early days of tobacco growing, before the business was understood or the farmers prepared to handle their crops properly, the house-garret, the wagon-shed, and even the hennery, were laid under contribution for room in which to hang up and cure the tobacco crop. But experience soon taught the farmers that the handling of the crop was all-important, and that this could only be properly done in buildings specially constructed. Then came the era of tobacco barns. To-day they are found on every farm: large, capacious structures, with cellar underneath, and stripping room, where the work of preparing can be done in all weathers. These structures are of all sizes, from those twenty-five feet square to the more imposing ones 40 feet wide and 150 feet long, costing from \$400 to \$4000. It is estimated that in a single year the cost of tobacco barns built has been as much as \$200,000.

Lancaster County's Product.

As nearly as can be ascertained, the tobacco product of this county from 1860 to 1872 was about 225,000 cases, or 90,000,000 pounds. For the last ten years it has been as follows:

	Cases.	Pounds.
1873.....	25,000	10,000,000
1874.....	30,000	12,000,000
1875.....	40,000	16,000,000
1876.....	35,000	14,000,000
1877.....	37,000	14,800,000
1878.....	38,000	15,200,000
1879.....	45,000	18,000,000
1880.....	40,000	16,000,900
1881.....	35,000	14,000,000
1882.....	30,000	12,000,000
Total for the 10 years.....	355,000	142,000,000

Estimating the average value of the crop in the growers' hands at only 10½ cents during the past twenty-two years, they received more than \$25,000,000 for this single agricultural product. The crop of 1879 was not only one of the largest but also one of the best ever grown. The average per acre was about 1,500 pounds. Lancaster county grew more than one-half the entire product of the State. If the entire county was planted in tobacco, the product in an average year would be double that grown in the whole United States. The 18,000,000 pounds yield of 1879 has never been equaled by any county in the Union. Christian county, Kentucky, approaches most nearly, with 12,577,574 pounds grown on 18,475 acres, while our 18,000,000 pounds were grown on 13,500 acres.

Tobacco Warehouses.

At least 100 firms are engaged in buying and packing tobacco in this county. Not only do they buy and pack the crop of Lancaster county, but three-fourths of all grown in the State is brought here, as well as some from Connecticut, New York, and Wisconsin. To handle such an amount of goods requires great facilities, and these are found here. There are in Lancaster city alone about 75 packing warehouses, some of them immense structures, from two to four stories high and from 50 to 200 feet long, with a capacity of storing from 200 to 5,000 cases of tobacco each. There are many more packing warehouses throughout the county.

Business on "Receiving" Days.

Most packers have certain days of the week for receiving tobacco, known as "receiving days." On such days Lancaster presents a sight to be seen nowhere else in the world. Wagons of every kind, from the slight one-horse affair to the ponderous Conestoga wagon with its six heavy draught horses, begin to come into town as early as ten o'clock on the previous evening, all anxious to get favorable places that they may unload early on the following day. The streets in the neighborhood of the warehouses, especially where three or four of the latter are near together, as they are on "Tobacco Avenue," are completely blockaded; as many as eighty-nine teams of every size have been counted in a single block. 600 wagon loads were delivered on January 10, 1880, and as many more on the 17th of the same month; these delivered 1,500,000 pounds; some were compelled to remain until the following day before they could discharge their cargo. A single firm has received as many as 148,000 pounds in one day; a number of others 100,000 pounds. Tobacco is paid for on delivery. Frequent investigations show that the banks pay out on large receiving days from \$150,000 to \$200,000 to farmers on the checks of the tobacco buyers. On one of the dates given above the amount reached \$250,000.—*F. H. D., in N. Y. Tribune.*

LANCASTER COUNTY VACCINE FARM.

Only Grain-Fed Stock Used.

The Practitioner, a new monthly medical journal, published at Lancaster, by H. B. Stehman, M. D., gives the following accurate and explanatory account, in the initial number for January, of an industry in this place which is now under fair and prosperous headway, although years of study and arduous labor on the subject have preceded the birth of the project.

What the editor of *The Practitioner* has said, we, from what we have seen and know, fully endorse as being correct in every particular, and that Dr. H. M. Alexander has the *best constructed and most convenient establishment*, besides having the *best of stock* from which to secure vaccine matter, are facts that the profession will not deny if they see his establishment and then see those of others in the same business. That the Doctor personally attends to the inoculation of the stock, and looks over every package of virus that leaves his establishment, we also know to be facts. Following is the article referred to :

This farm, situated at Marietta, this county, is located in one of the finest sections of the State and besides has the extra advantage of fine railroad and postal facilities. It is not generally known how these farms are conducted or by what method vaccine virus is produced, and therefore, in describing Dr. Alexander's method, we are confident that the reader will become acquainted with not only the finest, but also the most carefully kept farm in the country. For obtaining good virus only heifers from 6 months to 2 years are selected, and this selection is limited to the Alderney and Devonshire breeds.

The cattle are all grain fed during a preparatory period as well as during the time they are developing the virus, and consequently they are neater, more healthy and cleaner than they would otherwise be. The grain-fed feature is peculiar to the Alexander farm. When a heifer is first selected it is taken to the farm and carefully groomed several times a day; after this important preparation, it is taken to the doctor's stables, which he had erected on his premises in order that the cattle might be under his immediate observation. The stables are a marvel of neatness and cleanliness, as there is hardly a perceptible odor about the entire place. They are erected so that the cattle may have the benefit of an eastern and southeastern exposure, and consequently plenty of sunshine.

The stables are also heated, which is also a great improvement over these farms generally. The operating room adjoining the stable, is exceptionally clean, comfortably warm, and well-lighted. On the north side of the room is a cistern, which supplies all the water necessary, and running from this cistern across the room at the foot of the operating tables is a trough with the floor dipping toward it from either side, and consequently all the debris from operating or droppings from the cattle, fall into this trough and are consequently easily washed away. The operating tables are as ingenious as they are practical, and are the exclusive invention of Dr. Alexander. They are thus constructed: A heavy framework is fastened securely to the floor, in

which rests a V-shaped table, cushioned in such a manner that when the animal lies on it the spinal column rests perfectly free and its weight rests on that portion on the ribs near the vertebrae; at the end of the table there is a hollow box which is covered with a soft cushion, upon which the heifer's head rests very comfortably during the operation. By an arrangement of rope and pulleys, this table is manipulated by means of a crank, so that it can be carried across and let gently drop on the animal's back, while it is standing at the side of the table. This manoeuvre causes no resistance, because it inflicts no pain; then after fastening several straps, one man can raise her deliberately off her feet and lay her squarely on her back, which is the most favorable position for operating—the head of course lays on the side.

When she is on the table, the feet are secured by means of cushioned straps, and thus the operation goes on without any interruption. After the operator had finished, the crank is turned again and the heifer lands on her feet. This table works so admirably that when our townsman, Chas. A. Heinitsh, saw it, he said: "I always considered this brutal treatment, but on such an apparatus, it is really a kindness."

We will now suppose the calf is ready for operation—both sides of the upper and inner parts of the hind legs are thoroughly lathered and cleanly shaven and afterwards carefully washed with sponges.

Then this surface is thoroughly slapped with the hand in order to bring the blood to the surface, preparatory to inoculation, which done by previously scarifying the part that is to receive the virus. From 7 to 10 days after the inoculation the vesicles will begin to mature, and the animal is again brought on the table, and the parts previously shaven are again scrupulously washed and sponged in order that no particles of dust or dirt may come in contact with the virus. The ivory points and quills are then coated with the exuding virus, fastened upon racks and laid aside to dry—afterwards they are coated a second time from another heifer, thus not only hermetically sealing the first coating, but also giving the benefit of the virus from two heifers. This lymph is also put into glass tubes, but for obvious reasons the dry form is preferable.

Crusts are also found scattered over the denuded parts, and they have been quite popular of late; but it is urged against them, that in drying a large surface is exposed rendering them more or less inert, and if the surrounding epithelium, which is valueless, be broken off, the crust does not present a salable appearance.

Dr. Alexander, appreciating the force of this objection, has substituted his *patent tablet*, though he furnishes crusts if desired. These tablets are simply the crusts deprived of the dried epithelium, and while yet damp well crushed and the mass then moistened with pure lymph, after which they are pressed into tablet form.

This is by far the most desirable form of the virus; this is less liable to become dry, as was proven by experiment.

One of these tablets was exposed to the air for several months, and afterwards the centra

position was used in vaccination, and the result was a successful taking.

We cannot omit referring to the doctor's most original and ingenious method of drying and preserving the virus in its different forms. By a peculiar construction and arrangement of air chambers and absorbents he is able to maintain an even temperature, both summer and winter, of 40 to 50 degrees Fahrenheit.

Here the quills, points, etc., are kept, and it is surprising how well the object desired is obtained.

The packing rooms are in harmony with the entire surroundings—bright, airy and comfortable.

The packings are simply unique and surpass everything in this line we have ever seen.

Everything is put up in glass; the points are inclosed in small test-tubes, well corked and consequently not liable to any metallic contamination.

The quills are equally protected. The tablets or crusts are first wrapped in tissue and paraffine paper, then tin-foil and afterwards imbedded in cotton and enclosed in an appropriate bottle. Indeed these packings must be seen to be appreciated: they are on exhibition at the drug store of Chas. A. Heinitsh, and in our opinion are all that can be desired.

When Dr. Alexander started his farm, in order to be sure that he sent out none but reliable virus, he entered into an arrangement with a hospital in Philadelphia to test the virus from every heifer—if it was first-class he sent it out, if not it was thrown away; he still continues this practice, sending fresh virus to the city every day, and as might be imagined it has been of great service to him.

The profession appreciate a good thing when they see it, as is evident from the demand for these goods.

By actual calculation we find that during the first two weeks of this month the doctor filled orders for 12,220 points, not to speak of tablets and quills which are also greatly sought after. We know Dr. Alexander to be thoroughly conscientious and strictly reliable and consequently we heartily wish him success in his enterprise.

THE SNOW FLEA APPEARS.

A Package of Siberian Wastes Brought Here

When the lamented Poet-Traveler Bayard Taylor wrote of snow-flakes as "the wild white bees of winter" it is doubtful that he imagined the pretty fancy contained a large amount of truth. Such, however, is the case, and from recent important discoveries made in this city by students and professors of one of the academies it has been shown that the beautiful snow of poetry bids fair to become a provoking reality. About three months ago there arrived in this city a box which, on being opened, apparently contained about a pint of snow. A note which accompanied it stated that the contents had been collected from the deck of the British steamship Glenchester, during a snow squall off the Banks of Newfoundland, while on a voyage from Hull to Montreal, and that the Captain, Edward Manning, had been advised to forward the specimens to the Academy to be investigated. The matter was kept quiet, and only within the last day or so has the

result become public, and as it is undoubtedly a matter of considerable importance we print it at length. The examination of the snowy-looking stuff under the microscope at once disclosed the fact that it was composed of thousands of very minute insects, covered with silvery scales, and nearly all in a vigorous state of health. A searching investigation was at once set on foot, and strict secrecy enjoined on all concerned, and it was soon proved beyond a doubt that the insects were no less than the dreaded snow fleas of Eastern Siberia, which have never before been found in any part of the world more than a few hundred miles from that country. A well-known professor of natural history, who formed one of the investigating committee, said yesterday: The first specimen we received was sent from Montreal by a ship-master named Manning, who discovered them on his ship's deck on the Atlantic Ocean, but we have found large quantities of them about the city during and after all the snow storms of this season. The snow flea, or, to give it its scientific name, the *Bisti-Siberius*, belongs to the family of *Produridae*, or "Springtails," and, although very much smaller than the ordinary black flea, closely resembles it in form and habit, one great difference being that, while it is capable of leaping, it does so by means of its tail, and not as the flea does—with his legs. The leap, in the case of the snow-flea, is performed by doubling the tail up under the abdomen and suddenly throwing it backward, which results in a forward movement of the body—in fact, it is from this characteristic that the name "Springtails" is derived. They are very tenacious of life, and breed very rapidly, especially where the weather is cold and dry, damp weather seeming to throw them into a stupor. In Eastern Siberia the people have to use every precaution against the pests, and many legends speak of them as the "suow of Hades," and say that the souls of the wicked are being tortured by being exposed to driving storms of them. "As yet," continued the Professor, "we have found but few cases in this city where people seem to have been sufferers from the insects, but should a spell of cold, dry weather set in it will unquestionably be the signal for much complaint. The insects, which can only by the closest scrutiny be distinguished from fine snow, fasten to the clothes of pedestrians and cling there, until the person enters a warm temperature, when they at once begin to bite in the most vicious manner; and, although the bite is not poisonous, it is for a few moments even more painful than that of the ordinary flea. As a rule, the bites are mainly confined to the legs, for the snow-flea does not seem to possess the power to climb and wander over the body of its victim. One gentleman, a resident of Frankford, was a few days since much annoyed by them, and his little boy, who was bitten at the same time, suffered great pain for several hours. Correspondence with scientific men in Montreal and Boston shows that the pests have also appeared at those points, and in the former city have created great discomfort. The strangest feature noticeable is the fact that it is never found more than eighteen inches above the ground, and servant girls have been forced to wear rubber boots

while sweeping off the sidewalks in front of their masters' residences. Professor James McArchfield, of this city, has prepared an exhaustive article on the subject, which will be read at the next meeting of the Academy.—*Philadelphia Record*.

[We publish the above more as a matter of fancy than of fact. It needs scientific confirmation, and until that is accorded we are compelled to place it on the outer margin of our belief. It will, however, do our readers no harm to read both papers on the "Snow Flea." It may set them to thinking and observing, exercises people are prone to shove on the shoulders of others, unless they are sure there is "something in it."—Ed.]

PIPES MADE FROM POTATOES.

According to the *Vienna Agricultural Gazette* it has been discovered that meerschau pipes of excellent quality, susceptible of the highest polish, and even more readily colorable than the genuine *spiuma di mare*, may be made of potatoes. The familiar tuber, it seems, is well qualified to compete with the substance known to commerce as "meerschau clay." Its latent virtues in this direction are developed by the following treatment: Having been carefully peeled and suffered extraction of its "eyes," the potato is boiled uninterruptedly for thirty-six hours in a mixture of sulphuric acid and water, after which it must be squeezed in a press until every drop of natural or acquired moisture is extracted from it. The residuum of this simple process is a hard block of a delicate creamy white hue, every whit as suitable to the manufacture of ornamental and artistically-executed pipe-heads as the finest clay. The potato, moreover, dealt with in the manner above described, promises to prove a formidable rival to the elephant's tusk. It may be converted into billiard-balls as hard, smooth, as enduring as ivory, and can be depended upon for an inexhaustible supply of carved umbrella-handles, chessmen and fans. As potatoes are plentiful all over the world, and likely to remain so, while elephants are, comparatively speaking, rarities, mankind at large may fairly be congratulated upon the discovery of a substitute for ivory, which can be produced in unlimited quantity, and at an almost nominal cost, taking into consideration the difference of price between a pound of the best kidney potatoes and a pound of prime elephant's tusk.—*London Daily Telegraph*.

TRAINING A HORSE TO BACK AND TO LEAD.

Take him to the top of rather a steep piece of ground, stand his hind feet down the slope, throw the bridle reins over the neck, place yourself in front, and take hold of them on each side of the head close to the bit. Now press the bit against the sides of the mouth and speak gently, "back, back"—and the horse will soon learn to do this. Next, take him on the top of ground not quite so steep, and pursue the same course. When the horse has learned to back readily down hill he can be taken on to level ground to do it. As soon as this lesson is well taught, harness him to a light, empty wagon and go through the same course. When completed jump into the wagon, take the reins in hand, pull on them, at the same time speaking to him "back,

back," and thus keep up the discipline till the animal is perfected in it. If he has a mate, after both are well instructed, they can be harnessed together and drilled till perfect in backing.

Three things, as above stated, must be strictly observed: First, to place the horse with his back down descending ground; second, when harnessed, let it be in a light, empty wagon, which requires the least possible effort to back it; third, be perfectly kind to the horse, speak gently, pat it on the neck, stroke down its face with the hand, and on no account strike it. As soon as the horse understands what is wanted of him he will do it with alacrity. It is not from ill-temper or stubbornness that he does not back at once when spoken to; it is from sheer ignorance—he does not know what is wanted or how to do it until gently taught.

A second method is to harness the horse alongside of another well broken to back, and set the hind end of the wagon on a sloping piece of ground and follow the directions above, or jump into the wagon and take the reins in hand, but it is better to discipline alone at first, as above.

To teach a horse to lead, let a man or boy take the end of the bridle in hand and gently pull on it, while another holds out a dish with grain or meal in it. The horse will then advance to it. Now let him nibble a small quantity, then move with a dish a little farther in front, and so keep on till he is taught to lead well. He can also be taught by putting him alongside another horse which leads easily. He ought to be rather hungry when thus drilled, so that he will come up eagerly to the dish of grain.—*Rural New Yorker*.

OBSERVATIONS ON CRIB-BITING.

A crib-biter in a stable has a most unpleasant and disagreeable appearance. Opinions differ whether crib-biting should be regarded as a habit, or a disease, or a vice. Our observations on this point are as follows: We imagine that it generally arises in horses in poor condition, and that, in the first instance, the habit is acquired from an effort of nature to get rid of the gases collected in the stomach, and in these cases it may or may not commence from irritation. We have not known a fat horse to take to crib-biting by standing next to another affected with it; but a lean horse that is difficult to get fat may do so. This habit, when once acquired, and when the animal is in condition, will seldom or never be left off; but the same diseased action and tendency to flatulency will still continue. We do not think that horses inhale the air in crib-biting; we consider it an effort to expel air. We never saw a horse make a gulp, or attempt to swallow air. Whether any air is expelled from the stomach in crib-biting, we can not determine, but think there is some portion, and that the principal noise is from the fauces. The construction of the fauces and stomach of a horse render the excretion of air a difficult process, and we have seen horses nearly choked by a sudden rush of gas up the oesophagus, but this effect was probably caused by the noxious quality of the gas. The distention of the stomach of the animal in crib-biting depends, we consider, on the gases given out from the food; as a proof

of which, the hindering a crib-biter from his habit will not always prevent this distention. We all know that many persons of sedentary habits are peculiarly liable to dyspepsia and flatulency, and we must all have experienced the unpleasant sensation attending it. How are they relieved? By exercise, or by giving an agent to dispel these gases. So it appears to be with horses; and we have observed that, when crib-biters are on long, slow, regular work, they crib less. We have seen many cases in which crib-biters, being debarred from their habit, have fallen away in flesh, and others, in which the animal has been much more liable to colic; and we think that in many crib-biters the habit is necessary to the health of the animal. We usually see crib-biters thin, but we think that proceeds more from a diseased action of the digestive organs than from the effect of the habit, and their being poor is no proof that crib-biting makes them so. When a crib-biter continues in health and good condition, if he can be kept apart from other horses, we see no reason why he should be debarred from cribbing; and, indeed, we think that, generally speaking, it would prove injurious to him. Any one who will take the trouble to examine one-half of the different contrivances that have been made to prevent it will wonder how it is possible for a horse to crib-bite with some of them; and it will most strikingly convince them of the very great difficulty there is to overcome a habit once fully formed in a horse, or any other animal.—*Prairie Farmer.*

DEEP CULTIVATION.

In answering a correspondent who advocates shallow cultivation for corn the *Country Gentleman* mentions two conditions of soil which are not benefited by deep plowing; these are such as have a sterile subsoil and those which are porous below. A sterile subsoil does not benefit the richer top soil by intermixture with it, and a porous subsoil does not need loosening. But a soil rich above and poor and impervious below may be much improved for withstanding the effects of severe droughts by subsoiling and loosening to some depth to receive like a sponge the heavy rains which fall upon it, and to give out from this reservoir the needed moisture to growing crops when droughts prevail. We have seen some striking instances. A row of potatoes planted over a covered ditch yielded double the crop given from either of the adjacent rows, the quality of the soil being the same; but the loosened earth over the ditch prevented the effects of the severe drought which affected the adjoining rows. In the same way an advocate for manuring with electricity proved his theory, as he thought, by running a wire from a lightning rod under a row of beans, which were greatly increased in growth. The theory, however, was overthrown when it was found that the same increased growth was produced away from the wire by loosening the subsoil as much as was required for burying the wire. The great increase in the potato crop by thorough subsoiling was shown some years ago in a season of unusual drought in a field of several acres, which yielded more than triple the amount per acre obtained from other fields which were planted after common or shallow plowing, and, the

whole crop being sold at 75 cents a bushel, gave over \$100 from each acre.

These instances occurred where the subsoil possessed no unusual fertilizing quality, the benefit arising from its acting as a sponge or reservoir for moisture, as well as for the deeper extension of the roots. But in very large portions of the country a great positive benefit has been found by bringing up and mixing portions of the subsoil with the earth at the surface. A farmer in one of the western counties of New York, in preparing the land for wheat, set the plow to run two inches deeper than the plowing in previous years. The result was that his wheat crop was increased eight or ten bushels on an average. A still more striking instance occurred on another occasion of the benefit of an intermixture of the subsoil with the surface. An open ditch had been cut through a field to drain a small pond. The earth taken from the ditch was scattered over the surface for a rod or two on each side. The field was then sown to wheat. The subsequent winter was very severe on this crop, and the following summer proved unusually unfavorable. On most of the field the product did not average over five bushels per acre—it was scarcely worth cutting. The two strips (on each side of the ditch) on which the subsoil was spread yielded at the rate of twenty bushels per acre. This contrast was not owing to the drainage effected by the ditch, as the soil and sub-soil of much of the field rested on gravel and had a natural drainage.

Farmers must adapt their practice to circumstances. If the subsoil is both sterile and porous there would be no object whatever in deep plowing, unless possibly for gradually deepening the manured top-soil. If sterile but impervious it should be sub-soiled—not trench-plowed—to deepen the reservoir for the absorption and supply of moisture. If it possesses enriching qualities the plowing should be deep enough to bring up a portion to the surface; and, if in addition to its fertilizing effects it is impervious to water, the sub-soil plow should be used in addition to running the common plow deeper than before. It is hardly necessary to add that all impervious subsoils need thorough underdraining as an indispensable requirement in connection with subsoiling.

We might offer conjectures as to what the fertilizing substances were in these enriching subsoils, but our present purpose is merely with the established facts.

CARE OF HORSES.

1. Never allow any one to tickle your horse in the stable. The animal only feels the torment and does not understand the joke. Vicious habits are thus easily brought on.
2. Never beat the horse when in the stable. Nothing so soon makes him persistently vicious.
3. Let the horse's litter be dry and clean underneath as well as on top. Standing on hot, fermented manure makes the hoofs soft, and brings on lameness.
4. Change the litter partially in some parts and entirely in others, every morning; and brush out and clean the stall thoroughly.
5. To procure a good coat on your horse, use plenty of rubbing and brushing. Plenty of

"elbow grease" opens the pores, softens the skin, and promotes the animal's general health.

6. Never clean a horse in the stable. The dust fouls the crib, and makes him loathe his food.

7. Use the curry comb lightly. When used roughly it is a source of great pain.

8. Let the heels be well brushed out every night. Dirt, if allowed to cake in, causes grease and sore heels.

9. Whenever a horse is washed, never leave him till he is rubbed quite dry. He will probably get a chill if neglected.

10. When a horse comes off a journey the first thing is to walk him about till he is cool if he is brought in hot. This prevents his taking cold.

11. The next thing is to groom him quite dry, first with a whisp of straw, then with a brush. This removes dust, dirt and sweat, and allows time for the stomach to recover itself, and the appetite to return.

12. Also let his legs be well rubbed by the hand. Nothing so soon removes a strain. It also detects thorns or splinters, soothes the animal and enables him to feed comfortably.

13. Let the horse have some exercise every day. Otherwise he will be liable to fever or bad feet.

14. Let your horse stand loose, if possible, without being tied up to the manger. Pain and weariness from a continued position, induce bad habits and cause swollen feet and other disorders.

15. Look often at the animal's feet and legs. Diseases or wounds in those parts, if at all neglected, soon become dangerous.

16. Every night look and see if there is any stone between the hoof and the shoe. Standing on it all night the horse will be lame next morning.

17. If the horse remains in the stable his feet must be "stooped." Heat and dryness cause crack hoofs and lameness.

18. The feet should not be "stooped" oftener than twice in the week. It will make the hoofs soft, and bring on corns.

19. Do not urge the animal to drink water which he refuses. It is probably hard and unwholesome.

20. Never allow drugs to be administered to your horse without your knowledge. They are not needed to keep the animal in health, and may do the greatest and most sudden mischief.

THE COLLIE DOG.

In the Kennel department will be found an interesting report of the sheep dog trials of the Northwestern Counties Association. England, with a full description of the work of the dogs. We would suggest to the lover of the collie in this country that an association be formed under the name of the American Collie Club, for the purpose of holding trials and improving the breed of this intelligent and useful animal. Not least among the benefits resulting from the work of such an association would be the wide-spread knowledge gained by the public as to the virtues and intelligence of their favorites, and this would win for them their rightful place—now

usurped by the worthless cur—in the heart and by the fireside of the farmer.

It is perhaps needless to say that *Forest and Stream* will willingly lend its aid for the furtherance of the objects of such an association believing that much of good may be accomplished by bringing more prominently to public notice the many good qualities of the gallant collie.

Mr. Hugh Dalziel, in his "British Dogs," says: "There is no dog that excels the collie in good looks, high intelligence, and unswerving loyalty to his master; and to these qualities does he owe his high position as a general favorite with the public, while his many practical excellencies render him indispensable to the shepherd." Idstone, in his admirable work on the dog, says of him: "To my mind he is one of the most perfect animals extant." Stonehedge also speaks very highly of their intelligence. "Only those," he says, "who have seen one or more of the public sheep dog trials, or have privately seen these animals at their usual work, can realize the amount of intelligence displayed by them."

Innumerable anecdotes of their wonderful sagacity and intelligence have from time to time appeared in print, and, although many of these tales are almost incredible, we have invariably found that none were so ready to avow their belief in their truthfulness as those who know the collie best. As the assistant of the shepherd and herder he stands without a rival. As the servant of the farmer, a protector of his property, and a companion for his children, he is the peer of any of his kind. As a retriever for the sportsman we believe him to be singularly well adapted. As the pet of the parlor, his great beauty and affectionate disposition, combined with his almost human intelligence, eminently qualify him for the place. In the British Islands the collie has long been an especial favorite among nearly all classes, and we are pleased to notice that within the past few years he has rapidly gained in public favor in this country. We trust that the day is not far distant that will see him installed in his proper place among the first of canine favorites throughout the land.—*Forest and Stream.*

A TAME WOODCHUCK.

A correspondant of *Our Dumb Animals*, writing from Johnsburg, N. Y., says:

"At the house of a friend, in Lawrence county, we lately saw a curious household pet—a tame woodchuck named Charley. He was found, alone in the highway, in the summer of 1873, and was then scarcely larger than an ordinary mouse.

"He soon became accustomed to his new home, and allowed the members of the family to handle and caress him, and was quite playful and domesticated. For a time he took up lodgings in the barn, but subsequently made himself a house in the woodshed, which he furnished with bits of paper, straw and other light material. Being domesticated so young, he never learned to obtain his own food, or seemed to realize that it could be obtained in the garden or the fields, but depended entirely upon what was provided for him at the house, which he visited many times a day.

"He is very fond of milk, sugar, cake or

pie, but his favorite dish is boiled potatoes, or green cucumbers, and he does not care to eat bread.

"Whenever he is hungry, he runs to the house, chattering as he goes, and if he fails to find his food in its accustomed place, he 'begs' of the lady of the house, by sitting up on his hind legs like a squirrel, and making a peculiar, chattering noise. If not attended to at once, he takes hold of her dress and endeavors to pull her toward the larder, where his food is usually kept.

"He retires each evening about sunset, always taking care, however, not to go to bed without his supper. In the latter part of September, 1873, Charley was missing, having left the house as usual the previous evening, and was not seen again until the early part of the following April! When he returned, he came directly to the house, chattering as usual, and seemed quite familiar with the household and family, and very soon told the latter in plain terms that he wanted his breakfast. He ate very sparingly for several days, although very thin when he returned from his winter's nap. Previous to leaving in the fall, he became very dull and sleepy, and at last, being entirely overcome by the disposition to sleep, he sought his winter-quarters, which were afterwards found under the hay-mow, in the barn."

THE lumber cut in the Sierras will this season reach 46,000,000, and of this probably 40,000,000 feet sold for about \$12 a thousand, footing up about \$500,000, and the rest sold as clear lumber for about \$35, making over \$200,000 more—over \$700,000 earnings for the nine mills that run, some of them only part of the time.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular meeting of the Agricultural and Horticultural Society was held on Monday, Feb. 5th, the following members being present: J. C. Linville, Gap; Casper Hiller, Conestoga; Joseph F. Witmer, Paradise; Calvin Cooper, Bird in Hand; W. H. Brosius, Drumore; Peter S. Reist, Lititz; W. W. Griest, city; F. R. Diffenderfer, city; C. A. Gast, city; J. M. Johnston, city; James Collins, Colerain; John H. Landis, Manor; Levi S. Reist, Manheim; Abram Brubaker, Drumore; G. Oram Phillips, Drumore; Christ Keeperts, Lancaster township; Em'l Resh, Bird-in-Hand; Johnson Miller, Lititz; M. D. Kendig, Creswell; H. M. Engle, Marietta.

In the absence of the President, Calvin Cooper was, on motion, elected President pro tem.

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

Simon B. Cameron, of Donegal, was elected a member of the society.

Reports of the Commtees.

Johnson Miller, who was one of the committee appointed to the Washington Convention, reported that he visited the convention and had been admitted to a seat in that body. The United States Agricultural Society was reorganized at the convention, and it is proposed to hold a great national fair during the coming summer in one of the Western States.

The Condition of Crops.

Mr. Witmer, of Paradise, said the crops were all under snow at present, and but little is known of the prospects. Tobacco stripping is going on vigorously, but he had not heard of any sales being made.

Johnson Miller said the crops looked pretty well, so far as he was able to judge.

Mr. Linville said the wheat looked rather poor, and some of it was reported to have been injured by the ice. It has been a good winter for feeding cattle. Some tobacco has been sold in his neighborhood.

Lecture Postponed.

Mr. Linville reported that he had corresponded with John I. Carter, in reference to a lecture on Creameries, and received a promise from the gentleman that he would lecture at this meeting, but since that time he had not heard from him, and the gentleman would probably not be present.

Cattle Feeding.

"At the present prices of corn and bran, what constitutes a profitable ration for beef cattle?" This question was opened by Mr. Witmer, who said it was the intention to feed only corn and bran, he would advise feeding two-thirds corn and one-third bran. He would give his cattle all they would eat. Some persons claim to be able to fatten faster on oil cake or cotton seed meal, but he did not know what a proper ration would be.

Mr. Cooper said the ration fed would vary according to the weather, more being fed in cold than in warm weather.

Mr. Linville said in feeding cattle we must look to the animal and also to the manure heap, and we can increase the value of the latter and at the same time fatten our cattle fast by feeding either corn and bran or oil cake.

Casper Hiller was no feeder, but drew the attention of the society to the value of the different kinds of feed on the manure pile. Cotton seed cake is worth on the manure pile \$24 per ton; bran \$14 and corn \$6. If this is so, it will be to our advantage to feed cotton seed cake. We should devote more attention to this matter.

Peter S. Reist favored feeding to cattle of all kinds as much as they would eat. He believed corn was as good and as cheap to feed to cattle, provided their systems are in good condition.

M. D. Kendig, one of the delegates to Washington, read a written report of his visit, after which the report was received and the committee discharged.

On motion of Mr. Witmer the traveling expenses of Messrs. Johnson and Kendig to and from Washington were ordered to be paid.

Should Creameries be Established in This County?

Joseph F. Witmer answered this question by saying that in a county where there is so much grain grown and so many cattle fed as in Lancaster co., creameries should be profitable. Among tobacco growers, the great object appears to make as much manure as possible; and they buy cattle to feed during the winter. He thought it would be just as profitable to the farmers to buy cows and sell their milk to the creameries. One objection to this is the scarcity of pasture land, without which cows will not thrive; but he did not know why more time should not be devoted to the matter and cows retained over the summer. If this were done, he was of the opinion that the plan would prove profitable.

Mr. Cooper said there was a creamery close to his place, and in a conversation with a farmer he learned that it paid better to sell his milk to the creamery than to make it into butter. Persons who patronize the creamery can easily test the qualities of various kinds of feed, as the product is weighed every morning.

Mr. Miller did not think creameries would pay in sections of the country where land was worth \$200 per acre; but where land was not worth much for crops it would be put into pasture, and here creameries would prove profitable.

The question was discussed at some length by other members of the society, the general impression appearing to be that creameries would pay in almost any section of the county.

J. Williams Thorne, of North Carolina, spoke in favor of creameries, and said he was glad to see that efforts were being made to establish them in all parts of the country, as they would no doubt prove beneficial. In regard to feed for cattle, he knew

of nothing better than the pure cotton-seed, which can be bought in his State for about ten cents per bushel.

The Fair Question.

Mr. Witmer said he had a conversation with a gentleman recently, in the course of which he learned that in case the society determined to hold a fair next fall, it would be able to secure the park grounds on the condition that if any money was made a reasonable rent should be paid, while if nothing was made the grounds would be given rent free.

Mr. Engle hoped the members of the society would have backbone enough to hold a fair next fall.

Mr. Cooper was of the opinion that if it was the intention of the society to hold a fair definite action should be taken at once, and a committee appointed to make the necessary arrangements.

On motion, a committee of three, with Mr. Cooper as chairman, was appointed to confer with Mr. McGraw in reference to the matter.

The committee as named is composed of Messrs. Calvin Cooper, Joseph F. Witmer and J. M. Johnston.

Mr. Engle reported the rainfall for December to be 1 2.16 inches; January, 3 2.16 inches.

The following questions were referred: "Prepare a good list of small fruits for farmers," to H. M. Engle. "Is there any benefit derived from harrowing wheat in spring?" to M. D. Kendig. "What is the feeding value of corn cob chops?" to John C. Linville.

Adjourned.

THE POULTRYMEN.

The regular monthly meeting of the Lancaster County Poultry Society was held Monday morning, February 5.

The following members were in attendance: J. B. Lichty, Charles Lippold, William A. Schoenberger, John E. Schum, J. M. Johnston, C. A. Gast, F. R. Duffenderffer, J. B. Long, Charles E. Long, Simon P. Eby, city; George A. Geyer, Florin, and J. L. Brenner, Mt. Joy.

The minutes of last meeting were read and approved.

Reports of Officers.

Secretary Lichty made the following report:

The association held eleven stated meetings during the year, with an average attendance of ten members. There are now fifty members in good standing.

Amount received for advertisements in catalogue	\$194.15
Postage, etc.....	81.93
Profit on catalogue.....	\$112.22
Cash received at door.....	296.30
Miscellaneous expenses.....	292.50
Received as entrance fees.....	785.85
Premiums paid.....	436.20
Expenses of judging, etc.....	470.84
Bills unpaid.....	162.94
Premiums due members.....	142.50
Balance due J. E. Schum.....	25.00

By reason of the large number of entries the association was compelled to make twenty new sections of four coops each, and ten new sections of six coops each, with sufficient material to make additional ones.

Liquidating the Debt.

J. B. Long offered a resolution authorizing the society to purchase two shares of Building Association stock from J. B. Lichty, and then borrow thereon the money required to satisfy all the outstanding indebtedness of the society. In this way the money due home exhibitors can be paid and everybody will be satisfied and encouraged to lend their assistance to the society in the future.

This plan was discussed at great length. The general feeling seemed adverse to contracting obligations running through a series of years, and many suggestions were made as to the best way of liquidating the debt of the association.

Charles E. Long then moved that a committee of

five members be appointed, all residing in Lancaster, to receive subscriptions to raise money to pay all bills due by the society, and report at an adjourned meeting to be held on Friday, the 16th of February, at 10:30 A.M., and that the secretary be authorized to notify every member of the society to attend said meeting without fail.

The following were named as the committee: John E. Schum, Charles E. Long, Charles Lippold, J. B. Lichty and J. B. Long.

In order to secure better attendance, Charles E. Long offered an amendment to the By-Laws changing the time of meeting from the first Monday in the month to the first Friday, at 10:30 A.M.

Election of Officers.

A vote for officers having been taken, George A. Geyer was re-elected President of the Society for the present year. Vice Presidents, T. Frank Evans, M. L. Grider; Corresponding Secretary, Jos. R. Trissler; Recording Secretary, J. B. Lichty; Treasurer, John E. Schum. The Executive Committee elected consists of Charles Lippold, Peter Bruner, W. A. Shoemaker, Dr. E. H. Witmer and A. S. Flowers. The meeting then adjourned.

OCTORARO FARMERS.

The Octoraro Farmers' Club met at the residence of James Jackson on Jan. 20. Most of the members were present, and the following visitors: Levi Scarlett, Abner Davis and wife, Henry Pownall and Harvey Scott, with families. The minutes of the previous meeting were read and approved.

Specimens being called for, James Jackson and Henry Pownall exhibited some Gourd seed corn, good, though slightly mixed. The former also a fine plate of onions.

Under miscellaneous matter the subject of trimming hedge was brought up; the best manner and proper time for doing it. Most of the members thought the time of year did not matter much, though close pruning late in fall might prove hurtful, leaving the wood more exposed in case of severe winter, and the best mode of trimming would depend on the condition of the hedge; if overgrown and open, they should be trimmed up to single stem and layered, thereafter trimming once or twice each season regularly in order to have a close and compact hedge. When neglected or left untrimmed they become more rank like trees, thus an unnecessarily robbing the soil for their support and causing the under-shaded branches to die and decay, leaving it more open to the smaller domestic animals, such as sheep and hogs.

J. C. Brosius presented a printed report from Thos. J. Edge, Secretary State Board of Agriculture, in regard to pleuro-pneumonia, an account of the disease in this State for the past four years.

Inspecting the Farm.

After partaking of dinner, the buildings and stock were inspected. The latter, consisting of seventeen cattle, five horses, six colts and nineteen pigs, were found generally in thrifty condition, with the exception of two shoats that were stunted and in an unhealthy condition from some cause the host could not give. Some suggested that it was from being fed too much whole corn, which is considered injurious to young pigs; it was recommended to feed them on bran and milk with some ground corn.

On returning to the house the host read an essay pertaining to farm labor and labor saving machinery. While machinery had become plenty, and was of great advantage to the agriculturist, it had not been the means of making farm-laborers more plenty, as predicted would be the case on the introduction of agricultural machinery. On the opposite, help had become scarcer and wages higher, though comparatively low to the compensation of those seeking professions or other branches of industry. Was it just that the farmer and his help, who produce the first necessities of life, toiling harder and longer, should be less compensated than those having lighter employments and pursuing what are considered the higher occupations of life?

Thomas Baker read a communication, not on agriculture, but appealing to those concerned, and others, to do their utmost toward discountenancing the prevailing and pernicious habit of carrying firearms with fatal results, referring to the Uniontown tragedy, and others as disgraceful, all over the country.

The Benefits of Experience.

The question was discussed: "Are farmers benefited more from reading than experience?" While the importance and almost the necessity of reading was acknowledged, though farmers could read, and were told by smooth-tongued tree-agents of the fine qualities and productiveness of the Baldwin and other apples, experience demonstrated that they could not be relied on for this locality. Hence it was decided best to rely on experience, rather than depend on book learning as an instructor.

The topic of stock feeding was also thoroughly discussed; the time, the quantity and best kind and most profitable grain food for steers, cows and young cattle. Most of the members fed grain twice, a few were trying three meals, while one more liberal fed them a fourth, if they looked hungry.

Potato Growing.

The question was asked whether any could give an explanation of potatoes failing to come up? This ailment has been prevalent among growers of late years. Some thought the defect could be traced to a disease, or species of fungus that affected the young sprouts, while others gave their opinion to the effect that the seed had been improperly selected, or injured by cold, or had not been kept in a good place during winter. These suggested burying in ground or some other means of keeping them at as low a temperature as possible to prevent sprouting before planting. Others thought the sprouting ones were best to select, as a sure sign they would grow. That did not injure them any, nor did they lose their vitality by so doing. Some had experienced failures the past season, caused by heavy coating of undecomposed barnyard manure, while in the same patch the same kind of potatoes treated to well rotted manure or commercial fertilizers came up nicely and produced well.

Adjourned to meet at Samuel Whitson's next month.

LINNÆAN SOCIETY.

The Linnæan Society met in their room on Saturday, January 27th, 1882, at 2 o'clock, P. M.; the President, Prof. J. S. Stahr, in the chair, and eleven members present.

Donations to the Museum.

After dispensing with reading the minutes the monthly dues were collected, and the following donations to the museum were then made: Dr. H. E. Mullenberg, of our city, presented a small volume of about 50 species of Hypnum or Moss, which were collected by the learned botanist, Henry Ernst Muhlenberg.

A bottle containing about a thousand specimens of the common "Snow Flea" (*Podura niveola*) from Mr. Wm. Roehm. The most prominent feature in the entomological character of the month of January, of the present year, was the abundance of these little apterous insects, in several localities near this city. I published some remarks on those obtained from Mr. Roehm, in the *New Era* of the 22d inst., and on the same day Mr. George Steinman and Mr. Landis called upon me, and exhibited a very large number from a different locality. When Mr. Roehm took those now before us (on the 18th) the temperature was comparatively mild, and under the influence of the sun a rapid thaw was in process; but on the 22d, when Messrs. Steinman and Landis called, the temperature had fallen much lower, a freeze prevailed, and yet the snow fleas exhibited on that day were as active as we might expect to find them in the spring or summer.

The society has in its possession a large number of these insects taken about three years ago at Marietta, Pa., in the month of May, where they came up

through a fissure in a garden walk, in hundreds of thousands, if not in millions. From this we may infer that those now appearing will survive the winter, however cold it may be. They have been known to be destructive to the *cotyledons* or seed leaves of tobacco, cabbage, radishes, peas and other vegetation, under the names of "black fly," "black spider," and, perhaps, other names.

Additions to the Library.

The donations to the Library consisted of a volume entitled "Correspondence of Dr. Baldwin," compiled by Wm. Darlington, M.D. This is quite a rare book, and was presented by Miss Emma Musser; No. 23 of volume 22 Patent Office Gazette: Proc. of Academy of Natural Sciences, of Philadelphia, from May to October, 1882; FARMER for December, 1882; and January, 1883; circulars 2 and 3 of Bureau of Education, and three other pamphlets on education; lot of pamphlets from effects of Dr. A. P. Garber, deceased; 6 circulars and 20 envelopes of scraps. The Librarian then presented a report showing condition of the Library, and the Treasurer also presented report showing financial condition of the society. The following bills were then ordered to be paid: Taxidermist's bill, \$9.80; Proc. Academy of Natural Science, \$5.00, and four years' subscription to the *Farmer* was ordered to be paid and continued. On motion, the treasurer was ordered to procure keys for officers.

Election of Officers.

The following officers were elected for the ensuing year:

President—Hon. J. P. Wickersham.

Vice Presidents—Dr. J. H. Dubbs and Dr. T. R. Baker.

Recording Secretary—Dr. M. L. Davis.

Assistant Recording Secretary—S. M. Sener.

Corresponding Secretary—Dr. H. L. Knight.

Treasurer—Dr. S. S. Rathvon.

Librarian—Mrs. L. D. Zell.

Curators—Prof. J. S. Stahr, Dr. S. S. Rathvon, S. M. Sener and Charles A. Heinitch.

Report of the Curators.

The following report of the Curators of the Linnæan Society for the year ending December 31, 1882, was presented and ordered to be entered on the minutes:

The year 1882 has not been as prolific in material results to the Linnæan Society as some that have preceded it; still it has not been altogether idle. In canvassing the proceedings of the ten meetings held during the year we find there have been added to the museum six vertebrates, over three hundred articulates—mainly insects, twenty archæological specimens, five botanical, eleven minerals, five fossils, and three miscellaneous objects. To the library have been added eighty-six books, serials and pamphlets, fifty-five catalogues and circulars, and to the historical department thirty envelopes containing two hundred and seventeen biographical, historical and miscellaneous scraps, many of which are of local value.

Twenty papers have been read before the society during the year, which have been either published in detail, or a synopsis of them published in the proceedings.

It would be useless to indulge in any complaints that we are not permitted to do more, or in regrets that we have done so little. Our highest wisdom is to reconcile ourselves to the inevitable, and patiently wait; one thing we can assure ourselves of, the Linnæan Society does not belong to things impundable. It is a living, growing, tangible and visible fact, which cannot be historically obliterated, even if it should be materially dissipated. Its record will descend to posterity. It has maintained its vitality for more than twenty years, in spite of systematic neglect. It is, perhaps, the only living organization in Lancaster city, about which the public has never exercised itself; and whether it survives or perishes, the small number who have thus far sustained it have nothing to reproach themselves with.

Committee Appointed.

A committee, consisting of the retiring president, recording secretary and assistant secretary, was then

appointed to collate the amendments which have from time to time been made to the constitution and by laws and report the same to the society. The evening meetings not having proved satisfactory, on motion, it was then resolved to discontinue the same, and the society then adjourned to meet in the museum, on Saturday, February 24, 1883, at 2 o'clock P.M.

FULTON FARMERS' CLUB.

The Fulton Farmers' Club met at the residence of Josiah Brown, near New Texas, on Saturday, February 3.

Wm. King exhibited a sample of oleomargarine on a plate along with four samples of butter. The plate was passed around the company, and each one was requested to give his or her opinion as to which sample was the counterfeit butter, and after a great deal of tasting and smelling, four out of twenty-one persons guessed right.

Questions and Answers.

Day Wood asked "Is it advisable to sell wheat now?" No one present seemed to have much faith in any great advance in price soon, but as the price is low now it was thought safe to hold it a while longer, and several expressed a determination to do so.

S. L. Gregg asked "What kind of commercial fertilizers did the best on corn last season?" With but few exceptions all had used dissolved South Carolina rock and it had done well, and by nearly all it was considered the cheapest manure in the market.

Montillion Brown asked what is to be the coming cow and read a selected article in favor of Ayrshires for cheese.

J. R. Blackburn and Lewis Brown thought that the Jerseys stand foremost.

S. L. Gregg and Josiah Brown thought that there is an excitement about Jerseys now and that they are being overrated, but eventually they will have to stand on their real merits.

Day Wood thought that the Jersey will not be the coming stock, but that they will deteriorate in our climate. He believes a cross of the Jerseys with common stock will be preferable to the full blood.

E. H. Haines said he would prefer Jersey cows, even if they did not make more butter than other cows; there was not near so much milk to handle for the same amount of butter. He found that from his Jersey cows he could make a pound of butter from 15 or 16 pounds of milk, while from ordinary cows it takes from 25 to 30 pounds of milk to make a pound of butter. He had been told by a person who had a creamery that taking the milk from the run of the cows in his neighborhood that it required from 30 to 37 pounds of milk to make a pound of butter. The butter from Jersey cows is firmer, better colored and stands marketing better than ordinary butter.

Wm. King expressed a preference for the Guernsey cows; he thinks they give a richer milk and make a higher colored butter than the Jerseys, and read a letter from Thomas M. Harvey, of West Grove, in support of this view of the matter.

J. P. Hutton asked "Is it better to cut timothy while it is in bloom, or not until it gets ripe?"

Day Wood said if the hay is for home use, he preferred to cut it while in bloom or even before, but if the hay is to be sold, he would let it get ripe.

S. L. Gregg and Josiah Brown, said that when they have fields all timothy, they let them stand until after wheat harvest. The hay was then easily cured, often being ready to be hauled in the same day that it is cut.

Several others said they had been in the practice of cutting it while in bloom, but were undecided about it being the best time. The ripe hay sells as well, if not better, than the green, and weighs more.

After assembling for the afternoon session, the report of the last meeting held at this place was read, and some unimportant criticisms made on the appearance of the farm and condition of the stock.

M. Brown read a receipt for making butter gather,

which is to add a gallon of weak brine at a temperature of sixty-five degrees, churn a little and let it stand fifteen minutes; then skim off the butter, disturbing the buttermilk as little as possible, then put the butter in another weak brine and there will be no trouble in gathering the butter.

After the reading of several selections by different members of the club the following question was adopted for consideration at the next meeting: "Does it pay farmers in this section to take up their land with orchards or would it be better to farm the land and buy their fruit?"

The next meeting will be held at the residence of Jos. R. Blackburn, on the second Saturday in March.

AGRICULTURE.

A Two-Story Milking-Stool.

The *Agriculturist* tells how to make a two-story milking-stool that presents a number of conveniences. A board the width of an ordinary stool seat and twice the length, forms the first floor and rests upon four stout legs. The two rear legs pass up through the long board and furnish two legs for a short board above that forms the seat, two front legs being placed in the stool. A cleat is placed on the front edge of the long board to keep the pail, which is set on the front half of the first floor, from falling off during the process of milking. This arrangement prevents any necessity for placing the pail on the ground and brings it nearer to the udder.

Small Farms.

One of the most marked and striking features of present conditions throughout the country is the tendency towards small farms. Things have been taking this direction in New England and the more thickly-settled States of the North for a long time but it is only within a few years that this has come to be the case in the South. There, under the slavery system, large plantations were the rule, but this is rapidly becoming changed. In Florida, for instance, a large portion of the land is becoming utilized for truck-farms and the raising of fruits. This business already demands very extensive transportation facilities, and the "Land of Flowers" expects bye-and-bye to be able to supply the Northern market with an almost unlimited amount of early vegetables and fruits. Last year tomatoes, green peas, cucumbers, and other delicate vegetables were received here as early as the 1st of February, and strawberries at fabulous prices began to appear very soon afterward. In portions of Florida vegetables may be raised every month in the year. Whether in Florida or upon Long Island, the best returns are found to be derived from a small area highly cultivated. Year by year the number of farmers who own very much more land than they can properly cultivate, and upon which they are hard pushed to pay the taxes, is diminishing, and the number who have small farms, and better still, who own them free and clear, is increasing. It is a good omen for the future of this country, and there is wisdom in the old and homely lines that describe as the best possession of a man:

"A little farm well tilled,

A little barn well filled,

A little wife well willed."

—*Flabush, L. I., Rural and Brighton Gazette.*

Bone Meal Manure.

Last year we gave ground bone manure a pretty thorough trial, and on the whole we are better satisfied with it than with any other commercial fertilizer we have ever used. Its effects are not so immediate as those of the superphosphates and guanos, but it has staying qualities far beyond any of them, and when properly applied will give satisfactory results the first season. We prepared it by mixing one part bone with two of wood ashes and then wetting the mixture, after which it was shoveled over several times at intervals of four or five days, when the bone was thoroughly reduced and incorporated

in the ashes. In this shape we count the mixture as good for hoed top dressing as the best commercial fertilizers, and for vines, flowers and garden vegetables it is superior. It has a wonderful effect when used in a flower bed, especially in preserving the freshness of the plants through the season, and grape vines feed and thrive upon it better than upon anything else we ever gave them. We tried it upon grass land, side by side with a standard Boston fertilizer, and got quite as good crops with it last season, while last spring it showed to much better advantage than the imported article.—*Mirror and Farmer.*

Two Crops of Potatoes in One Season.

It has been discovered that two crops of Early Rose potatoes can be grown on the same land in a single season, and is worth testing in this section. Take your potatoes of this year's growth and dry for a few days in the shade; then put them in a trench or cold frame, throw water over them, cover with a few inches of dirt, and then place straw over the frame to prevent too much evaporation. At sundown place over them a glass sash and remove it the next morning. In four or five days the potatoes will sprout, when they can be cut to two eyes and planted. Whole potatoes do not answer as well as those that are cut. Plant in checks two and a-half feet apart, or in drills three feet by eighteen inches, and cover lightly. From the digging of early potatoes to the middle of August is the proper time for the second crop. Cultivate them on the level method, and do not hill. The points to be observed are to use plenty of fertilizer, as two crops exhaust the land; select good seed; be sure that the tubers are sprouted before planting; plant shallow, and endeavor to take advantage of the season. Or, to give a more economical method, the smaller potatoes, provided they are good, together with large ones, if desired, may be cut and bedded like sweet potato, and when they are well sprouted can be taken up in the same manner, removing all but the most vigorous sprout, and transplanted. In doing this it is well, if possible, to take up the plant entire, with the earth and decaying potato adhering. The above is recommended by a fruit growers' and farmers' association, and it appears to be a good method for growing early potatoes as well as late ones.—*Phila. Record.*

Relative Values of Different Woods.

The *Forestry Bulletin* sent out from the Census Office gives the specific gravity, weight per cubic foot; and the full value of the well-known woods of the United States. The woods of the South are of greater specific gravity than are those of the North, and consequently rank higher in burning value, but there is more difficulty attending their preparation as fuel than with the northern growths.

The iron wood of Florida gives the greatest specific gravity of all the woods tested; next comes the log-wood, of west Texas, then the mangrove of the Gulf Coast, and following this, the lignum vitae, generally considered—(erroneously, according to the Bulletin) the heaviest of our woods.

In a table giving the approximate relative fuel value, ironwood comes first, hickory pignut second, hickory shell-bark third, persimmon fourth, white-oak next, then locust, rock-elm and black oak. For building purposes, woods of light gravity, as white pine and white wood, are much employed, these woods having a low fuel value.

Ventilators for Corncribs.

Corn can be cribbed in larger quantities and earlier in the season with safety by using ventilators. Make upright flues of slats or four boards nailed together at their edges and bore holes on every side. This flue should open at the bottom and extend through the corn at the top of the crib. The heating that starts up in a crib causes an upward draught through the ventilators which carries off the moisture and reduces the temperature. The cost is trifling, but the device is satisfactory in use. Sometimes rails or blocks of wood are thrown in the crib

with damp corn, but unless they are in a perpendicular position they do little good and these are not nearly so effective as an open flue. Even if corn is not damp or green enough to spoil it will materially assist in curing so as to be fit to shell and grind by giving full ventilation and free circulation of air.

For Farm Boys to Learn.

From a Western paper we extract the following practical remarks; they will be useful to every one on a farm: How many of the boys who read this paper could "lay off" an acre of ground exactly, providing one of the dimensions was given them? Now I have taken some pains to make out a table, and I would like to have every one of the farm boys learn it. There are 160 square rods in an acre, and there are 30¼ square yards in one rod. This gives 4,840 square yards in one acre:

5 yards wide by 968	yards long is 1 acre.
10 yards wide by 484	yards long is 1 acre.
20 yards wide by 242	yards long is 1 acre.
40 yards wide by 121	yards long is 1 acre.
80 yards wide by 60½	yards long is 1 acre.
70 yards wide by 69½	yards long is 1 acre.
60 yards wide by 80¾	yards long is 1 acre.

Again, allowing 9 square feet to the yard, 272¼ squares feet to the rod, 43,560 square feet to the acre, and we have another table:

110 feet by 369	feet—1 acre.
120 feet by 363	feet—1 acre.
220 feet by 198	feet—1 acre.
240 feet by 181½	feet—1 acre.
440 feet by 90	feet—1 acre.

HOUSEHOLD RECIPES.

MINUTE BISCUIT.—One pint sour or buttermilk, one teaspoonful soda, two teaspoonfuls melted butter. Flour to make soft dough—just stiff enough to handle—mix, roll and cut rapidly, with as little handling as may be, and bake in a quick oven.

BAKED EGGS.—Break six or seven eggs into a buttered dish, taking care that each is whole, and does not encroach upon the others so much as to mix or disturb the yolks. Sprinkle with pepper and salt, and put a bit of butter upon each. Put into an oven and bake until the whites are well set. Serve very hot, with rounds of buttered toast or sandwiches.

BAKED WHEAT.—Cracked wheat is a very nice dish if baked with plenty of water added from time to time as it is needed, to allow the wheat to expand. It should boil slowly for from five to six hours, and it will then be found to be remarkably sweet and wholesome. It is delicious if baked with milk instead of water, but will then need more attention when in the oven to prevent scorching.

VERY PALATABLE.—The *Germantown Telegraph* gives the following recipe for making squash cakes: These cakes, to be fried in hot lard like griddle cakes, are made of one pint of sour milk, one egg, a little salt, half a teaspoonful of soda, flour enough to make a light batter and one cupful of squash, which has been cooked tender and then rubbed through a colander. Beat all well together and the cakes will be very light.

INK.—While the stains are yet wet upon the carpet, sponge them with skim milk thoroughly. Then wash out the milk with a clean sponge dipped again and again in clean, cold water. Exchange this presently for warm; then rub dry with a cloth. If the stain is upon any article of clothing, or table or bed linen, wash well in the milk, afterward in the water. Dry ink stains can be removed from white cloth by oxalic acid or lemon juice and salt.

PICKLED CHICKENS.—Boil four chickens till tender enough for meat to fall from bones; put meat in a stoneware jar, and pour over it three pints of cold good cider vinegar and a pint and a half of the water in which the chickens were boiled; add spices, if preferred, and it will be ready for use in two days. This is a popular Sunday evening dish; it is good for luncheon at any time.

CONFECTIONERY.—Maple walnuts are made thus: Beat the white of one egg to a stiff froth, stir in enough powdered sugar to make it like hard frosting, stir in the walnut meats (which you have taken care to remove from the shells without breaking) in a sirup made by boiling for two or three minutes two table-spoonfuls of maple sugar in one of water, or in this proportion. Press some of the hard frosting between the two halves of the walnut, and let it harden. Dates may be prepared in this way, and Butternuts and English walnuts also.

PIGEONS WITH LITTLE PEAS.—Truss the pigeons, put them over the fire with fat pork and butter, let them brown slowly, add small green peas, and season them with but little salt and pepper. Wet a very little flour with some broth, or soup, pouring it over the birds and stewing them until tender.

GRAHAM PUDDING.—Mix well together one-half a coffee-cup of molasses, one-quarter of a cup of butter, one egg, one half a cup of milk, one half a tea-spoonful of pure soda, one and a-half cups of good graham flour, one small teacup of raisins, spices to taste. Steam four hours and serve with brandy or wine sauce, or any sauce that may be preferred. This makes a showy as well as a light and wholesome dessert, and has the merit of simplicity and cheapness.

RICE CAKES.—Rice cakes are a nice side-dish for dinner, or may be used in place of pastry. Boil some rice until it is soft, then roll it in your hands in cakes; dip them in beaten eggs, and then in Indian meal; see that they are covered with the meal. Then fry them in a little very hot lard. If to be served with meat, lay them around the edge of the platter; if for dessert, make a sauce with butter, sugar, and flour, and flavor it with Madeira wine and a very little grated nutmeg. Serve warm.

In a column of the *Chicago Herald* devoted to the interests of the "cooking school," we find this recipe: The excellence of potatoes cooked this way is dependent upon slow baking to evaporate the milk without burning it. Cut enough potatoes in thin slices to half fill a two quart pan or dish. Drop in butter the size of an egg, in little bits, a teaspoonful of salt, and a teaspoonful of chopped parsley, then fill up the pan with milk and bake for two hours. The milk remaining in the pan should by that time be as thick as cream, and the dish should be light brown on top.

A LUNCHEON MENU.—A sensible fashion for lunch parties in the afternoon is gaining ground and growing in popularity in both city and country. Young ladies who wish to spend a few hours together, and have no escort upon whom they can depend, find these early parties very enjoyable. At a very successful one last week the bill of fare was as follows: Two kinds of bread, two kinds of cold meat, chicken salad, which appeared to be the work of an artist, so delicate and perfectly blended were the several ingredients: potato cream—that is mashed potatoes mixed with the well-beaten whites of several eggs, and then put into the oven until it is very hot; pickles and celery, escalloped oysters; two kinds of cake, with chocolate and lemon ice, concluded the feast. All was served with exquisite neatness; the table was brightened with a few flowers and with quaint pieces of china, the chocolate being served in shell-like cups of brown and white or cream color.

THE FARM.

WEED out your stock and get rid of the poor milch and butter cows. The profit in a dairy comes from the good cows, while the poor ones not only do not pay for their keep, but they reduce the profit made by the others.

For a general purpose fowl for farmers the Plymouth Rock is probably the best. They are good layers through the year and the young chickens are unusually hardy, being the only variety of which a late-hatched setting in the fall is not rather a misfortune.

THE Vergennes grape is a novelty because of its long keeping qualities. With ordinary care, in a cool room or dry cellar, the fruit will be as fresh in January as in September. It is also a remarkable grower, extremely hardy, a good bearer, handsome bunch and berry, and of really good quality.

EXPERIMENTS by careful breeders give some valuable facts for estimating the cost of producing pork. It is conceded that one bushel of corn should produce ten pounds of pork, but everything depends on the management. With good weather, a good breed, sound corn and regular feeding this average may be reached, but not otherwise.

AN Illinois farmer gives the following directions for curing galled shoulders in horses, and says that it is reliable: Take the leather and burn it to a crisp; rub the bone on the galled part. A few applications will effect a perfect cure. A new work horse put to the plow this spring received several galls on both shoulders. A few applications of the burnt leather made them as sound as if never injured, and no scar is now seen.

THE six leading agricultural productions of the United States, according to the census report for 1880, were in the following order: Corn, wheat, hay, cotton, oats and potatoes. The value of the first was \$600,000,000, wheat \$500,000,000, hay \$330,000,000, cotton \$242,000,000, oats \$130,000,000, and potatoes \$73,000,000.

LITERARY AND PERSONAL.

EIGHTEENTH QUARTERLY REPORT of the Penn'a Board of Agriculture for September, October and November, 1882. An octavo pamphlet of 48 pages in which is crowded a great deal of interesting and useful information to the farmers and gardeners of the State. Containing local reports from almost every county, with proceedings of the Board, and tabulated statistics of the yield of crops; condition of growing crops; prices of farm products and farm stock; condition of live stock and tabulated analyses of fertilizers, including investigation of diseases among live stock; ensilage, etc., etc. From this report we learn that there are over 750 granges, farm clubs, and similar organizations, together with 102 County Agricultural Societies in the State of Pennsylvania, a few counties being without such organizations, but a number of others having more than one. The silo is not unqualifiedly endorsed, nor yet unqualifiedly condemned, but is rather still regarded as an open question. In response to the enthusiastic siloists, a competent authority asserts that "one thing is certain, viz: Nothing came out of the silo that was of value that did not go in, in an equally valuable form." In regard to commercial fertilizers, it is estimated, from the best available evidence, that the annual consumption of Pennsylvania is 70,000 tons, which at an average price of \$30.00 per ton, would amount to \$2,100,000, showing that prejudice against this class of manure is gradually diminishing, and the consumption rapidly increasing. Since the enactment of the law regulating the manufacture and sale of these fertilizers, nearly 300 samples selected from all parts of the State, have been analyzed by the chemist of the Board. The yield of crops in Lancaster county, compared with 1881 at 100, were as follows: Wheat, 140; rye, 117; oats, 87; corn, 120; hay, 121; straw, 135; potatoes, 107; produce, 113. The condition of growing crops in November were as follows: Wheat of 1882-3, 115; grass in wheat stubbles, 165; clover stubbles 2 years old, 125; timothy stubbles, 120; pasture, natural grasses, 160; do. artificial grasses, 165; rye, 109. Acreage of wheat crop of 1882-3, 107. No allusion is made to tobacco except in the local report, which says, "the tobacco crop has been the best raised for several years."

NORTHWESTERN FARMER.—A semi-monthly journal, devoted to Agriculture, Horticulture, Stock raising, Poultry-breeding, and the Household. Published by the N. W. Farmer Co., Fargo, Dakota. A royal

quarto of 8 pages in tinted covers. Fine calendered paper, beautiful typography, and excellent general "make-up." \$1.00 a year, payable in advance. J. P. Daly and H. D. Mann. This journal comes out "flat-footed" in opposition to the admission of Dakota into the Union as a State; but advocates the division of the territory into two territorial governments, on the ground that "nature divided Dakota long ago;" that "it is clearly apparent that North and South Dakota have very little in common," and that it is too large for a single government. But that is "neither here nor there" to us. The *N. W. Farmer* is a credit to that far off territory, and worthy of a liberal patronage.

THE MERCHANT AND SALESMAN.—A 16 pp. Royal octavo, published monthly, for the advancement of the Merchants' and Salesmen's Association of Philadelphia (of which it is the official organ) by the M. and S. Co., 123 South Third street, at \$1.00 per annum. Interesting and useful to the class of men whom it so ably represents. Among the officers of M. and S. Association we recognize the name of our genial and worthy friend, Mr. JAMES P. MALSEED, of the house of Malseed, Hawkins & Co., as the presiding officer, which alone is a sufficient guarantee of its standing.

ADDRESS of the Hon. Geo. B. Loring, U. S. Commissioner of Agriculture, before the Mississippi Valley Cane Growers' Association, December 14, 1882, St. Louis, Mo. Special Report—No. 34 of the Department of Agriculture, Washington, D. C., 20 pp., 8 vo., discussing the Sorghum Sugar Industry. Kansas far outstrips all the other States put together, in this laudable enterprise. According to the census of 1880 she had that year 20,643 acres in sorghum, and produced 18,000 pounds of sugar, and 1,414,404 gallons of molasses. In all the States participating 509,731 pounds of sugar, and 12,898,098 gallons of molasses were produced. Surely the question of Sorghum Sugar is approaching a solution in these United States, and only requires time and patience to make it an established fact.

SOUTHERN CULTIVATOR FOR JANUARY.—The January number of this standard Agricultural publication is on our table. It is, perhaps ahead of any other number in general interest. In its pages are treated all matters pertaining to the success, comfort and happiness of the farmer. The publishers are doing what nearly all the proprietors of Southern publications have failed to do, namely: employing the best writers in the South to contribute to its columns. And they are thus making the most entertaining Agricultural journal ever furnished the Southern people. The January number has the usual able contributions from Dr. Jones—his "Thoughts for the Month" and the entertaining "Inquiry Department;" articles on Preparing Cotton for Market, Crop Lien Law, Railroads and Right of Way, Farm Tenants, Intensive Farming, Jute in the South, The Sugar Cane Question, Stock and Dairy Departments, Bill Arp's Inimitable Letter, four full pages of Correspondence directly from the Farmers' Biographical Sketches and Portraits of Senator Barrow and Maj. Campbell Wallace, a full Discussion of Fish Culture, and the Patrons of Husbandry Department. The enumerated articles are only a small portion of the contents. It is a paper well worth the price, \$1.50 per year, or ten copies one year for \$10.00. Address Jas. P. Harrison & Co., Atlanta, Ga. The LANCASTER FARMER and the *Southern Cultivator* for \$2.00 a year in advance.

PENNSYLVANIA STATE COLLEGE BULLETIN II.—Describing Agricultural Experiments with various fertilizers, on Corn and Oats, together with General Remarks, Examination of Agricultural Seeds, Temperature and Rainfall. 10 pp. octavo. This college has been very much "kicked" for the past ten years, but it seem it is still "alive and kicking."

FARMERS' INSTITUTE.—A free lecture course on Farm topics. A 4-page 8 vo. Catalogue and programme of exercises, etc., in the College aforesaid.

BERKS COUNTY AGRICULTURAL SOCIETY.—

Through the kindness of Cyrus P. Fox, Esq., the obliging Secretary, we have received a copy of the *Reading Times and Dispatch* of January 8, 1883, containing a *Year's Retrospect* of said Society, which, to any one at all interested in the agricultural interests of Pennsylvania, it surely cannot but "make the heart glad," and to the citizen of Lancaster county—the farming citizen at least—it must operate as a quiet self-reproach, at the disparaging comparison between two of the most prominent counties in the State.

The Society above named is strong, numerically, prosperous financially, and solid materially. It has 354 annual members, who pay \$1.00 a year, and 259 life members, total membership, 613, and it is in communication with a large number of the oldest, largest and most intelligent and influential agricultural and Live Stock associations in the United States. On the 1st of January, 1883, there was a balance in the treasury of \$1,999.42, besides \$1,000.00 in good investments, and other valuables, leaving it entirely free from debt.

The officers for 1883 are James McGowen, President; Joseph L. Sticher, Josiah Lewis, William G. Moore, Ezra High and Reuben Sherer, Vice Presidents; Cyrus T. Fox, Secretary; Stephen E. Meredith, Corresponding Secretary; William S. Ritter, Treasurer; Matthias Mengel and Ezra High, Auditors; C. F. Fox, Librarian; Jacob Zerr, Representative in the *State Board of Agriculture*. We are also informed that the total number of entries at the 28th annual exhibition (September, 1882) were 2,723, and the premiums awarded amounted to \$1,892.00, and the exhibition itself was materially and financially successful. Well done "Alt Berks." Who will "go and do likewise" during the current year?

REPORT OF THE DEPARTMENT OF AGRICULTURE, for 1881 and 1882. A royal octavo volume of 704 pages, including a copious index, which occupies 12 pages, embellished with 4 beautiful colored plates illustrating the "Boll-worm," the "Army worm," and the Botanical "insecticides"—*Pyrethrum roseum* and *cinerariaefolium*. Also 16 uncolored plates illustrating numerous noxious insects; 25 plates illustrating as many different kinds of grasses; 12 plates illustrating the investigations of "Fowl Cholera;" 13 folded plates illustrating character, quality and relative compositions of sugar-canes, sorghums, imphees, &c., 4 do. on the analysis of various sugar (sorghum) canes; a diagram showing the production of corn for the years 1849 to 1859, by the principal corn-producing States; and 1 plate on diseases among horses, illustrating dead and living *Monads*, *Micrococci*, *Bacteria*, etc. Perhaps one-third of the volume is devoted to tabulated reports on analyses of various vegetable substances under domestic cultivation, stock and crop reports, area and acreage, wages, valuation, etc., etc., all of which are useful and interesting to those "who take pleasure therein," but too voluminous for us to quote in detail at this time; but which, perhaps, never will be read by the masses any more than they will read the Bible. There is one thing in connection with this report that manifests progress in the literary management of the Department at least, and that is, its *early appearance*. Here we have the report for 1882 in the month of January, 1883. Although the vol. also contains the report of 1881. The object, perhaps, was to bring the work up abreast with time, as well as with the "spirit of the times," a thing rather unusual to the Department of Agriculture. There are probably 19,999 out of every 20,000 of the population of the most intelligent sections of the country, who will probably never look into one of the volumes (or any other likely); still that is not the Report's fault, but purely those for whom they are intended. Take the entire literature of the Department from its origin to the present time, and what is it? and where is it? Still, as seed cast abroad, some of it may fall upon good ground, take root, and yield an hundred fold, and for that reason, we think they ought to be published and distributed.

A KNABE IN THE WHITE HOUSE.

There was seen yesterday at Messrs. Knabe & Co.'s factory a magnificent concert grand, just finished by them for the presidential mansion. President Arthur, who is a thorough connoisseur of music, in selecting a piano for the White House decided in favor of the Knabe Piano as his preference, and ordered accordingly the instrument referred to. It is a concert grand of beautiful finish in a richly carved rosewood case, and of superb tone and action—an instrument worthy in every respect of the place it is to occupy. It was shipped to its destination yesterday.—*Baltimore American.* 1t.

COLMAN'S RURAL WORLD.

This sterling Agricultural paper entered its thirty-sixth year on the first of January, and appears in a new dress, and gives evidence of increased prosperity. To the Farmer, Stock Breeder, Fruit Grower and Cultivator of Sorghum for Syrup and Sugar, it is almost indispensable. It should be read by every one owning a farm. It is published weekly, in the best style, at only \$1.00 per annum, by NORMAN J. COLEMAN, St. Louis, Mo. 1t

COMPLIMENTARY NOTICE.

We desire to call attention to the advertisement in another column of D. M. FERRY & Co., Detroit, Mich., the great seedsmen, whose mammoth establishment is one of the sights of the chief city of Michigan. They do the largest business in their trade in the United States, reaching across the Atlantic and Pacific oceans. The house is entirely reliable, and if you wish to get exactly what you order, you cannot do better than send to them for your seeds, and you may depend upon it you will get the best that the market can supply. Their seeds have become known over the entire civilized world for purity and fertility, and have gained for them an enviable reputation. Their Annual Seed Catalogue just issued for 1883, replete with information and beautifully illustrated, will be sent free on application. 1t

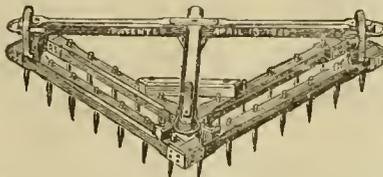
SEND FOR SPECIAL PRICES

On Concord Grapevines, Transplanted Evergreens, Tulip, Poplar, Linden Maple, etc. Tree Seedlings and Trees for timber plantations by the 100,000
J. JENKINS' NURSERY,
WINONA, COLUMBIANA CO., OHIO.
3-2-79

By removing the wing and wheel from the original you have a complete one-horse "A" Harrow.

The Penn Harrow

CHANGED TO DOUBLE "A" HARROW.

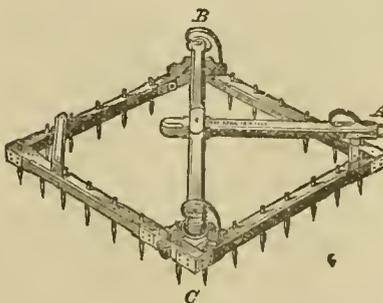


A

Remove the wheel from the original, reverse the wings, and it makes the most complete Double "A" Harrow in the market.

The Penn Harrow

CHANGED TO A SQUARE HARROW.

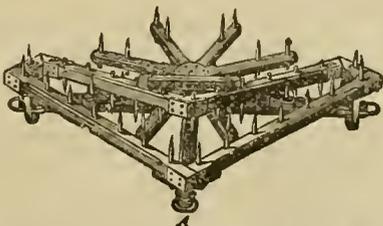


C

By removing the wheel from the original you have a Harrow with three points to hook to. By hooking to B or C you can harrow in a furrow, and harrow the bottom and both sides, or over a ridge and harrow the top and both sides, or you can lift either point and have three points on the ground—something that cannot be done with any other Harrow.

The Penn Harrow

ON ITS SLED.



A

It has always been a great inconvenience to get the Harrow to and from the field. The Penn Harrow obviates this, as no matter which Harrow you wish to use in the combination, it has its own sled to haul it on.

The Penn Harrow

Is made of the best white oak, with steel teeth, well pointed, in every way first class. Formerly a harrow was the most unhandy implement on the farm; with our improvement it is the most convenient, will do double the work of any other harrow and save the farmer half his labor, and is warranted to do all we represent or money refunded. ORDER AT ONCE AND BE CONVINCED.

Price of the light draft Combination Penn Harrow, \$30. Send for a Catalogue and see what farmers say.

AGENTS WANTED IN EVERY COUNTY.
PENN HARROW MANUFACTURING CO.
CAMDEN, N. J.



Fruit, Shade and Ornamental Trees.

Plant Trees raised in this county and suited to this climate. Write for prices to

LOUIS C. LYTE.

Bird-in-Hand P. O., Lancaster co., Pa.

Nursery at Snocketown, six miles east of Lancaster. 79-1-12

WIDMYER & RICKSECKER, UPHOLSTERERS,

And Manufacturers of

FURNITURE AND CHAIRS.

WAREHOUSES:

102 East King St., Cor. of Duke St. LANCASTER, PA.

79-1-12

Special Inducements at the **NEW FURNITURE STORE**

OF **W. A. HEINITSH,**

No. 15 1-2 E. KING STREET (over Bursk's Grocery Store), Lancaster, Pa.

A general assortment of furniture of all kinds constantly on hand. Don't forget the number.

15 1-2 East King Street, (over Bursk's Grocery Store.)

Nov-1y

For Good and Cheap Work go to

F. VOLLMER'S

FURNITURE WARE ROOMS,

No 309 NORTH QUEEN ST.,

(Opposite Northern Market),

Lancaster, Pa.

Also, all kinds of picture frames.

nov-1y

GREAT BARGAINS.

A large assortment of all kinds of Carpets are still sold at lower rates than ever at the

CARPET HALL OF H. S. SHIRK,
No 202 West King St.

Call and examine our stock and satisfy yourself that we can show the largest assortment of these Brussels, three plies and ingrain at all prices—at the lowest Philadelphia prices.

Also on hand a large and complete assortment of Rag Carpet.

Satisfaction guaranteed both as to price and quality.

You are invited to call and see my goods. No trouble in showing them even if you do not want to purchase.

Don't forget this notice. You can save money here if you want to buy.

Particular attention given to customer work

Also on hand a full assortment of Counterpanes, Oil Cloths and Blankets of every variety. [nov-1y.

C. R. KLINE,

ATTORNEY-AT-LAW,

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Nov-1y

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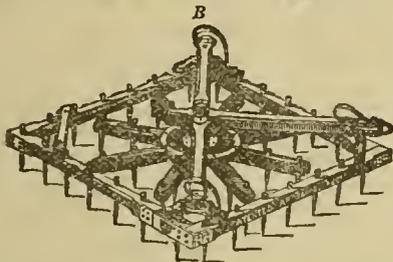
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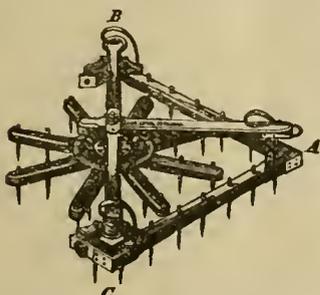
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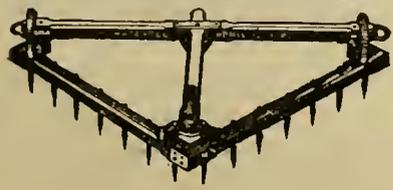


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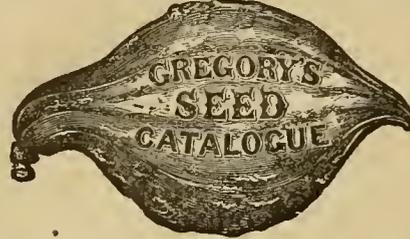
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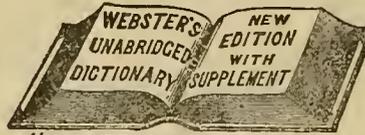
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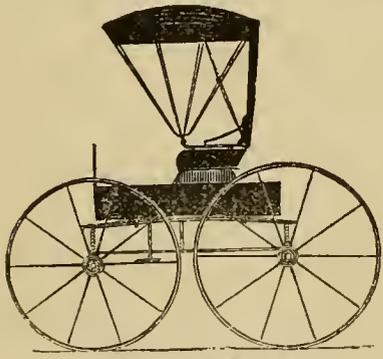


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Trains LEAVE the Depot in this city, as follows:

WE TWARD.	Leave	Arrive
Pacific Express	Lancaster. 2:40 a. m.	Harrisburg. 4:05 a. m.
Way Passenger	5:00 a. m.	7:50 a. m.
Niagara Express	a. m.	11:20 a. m.
Hanover Accommodation	11:45 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy	10:20 a. m.	12:40 p. m.
No. 2 via Columbia	11:25 a. m.	12:55 p. m.
Sunday Mail	10:50 a. m.	12:40 p. m.
Fast Line	2:30 p. m.	3:25 p. m.
Frederick Accommodation	2:55 p. m.	Col. 2:45 p. m.
Harrisburg Accom.	5:45 p. m.	7:40 p. m.
Columbia Accommodation	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:30 p. m.	8:40 p. m.
Pittsburg Express	8:50 p. m.	10:10 p. m.
Cincinnati Express	11:30 p. m.	12:45 a. m.
EASTWARD.		
Cincinnati Express	Lancaster. 2:55 a. m.	Philadelphia 3:00 a. m.
Fast Line	5:08 a. m.	7:40 a. m.
Harrisburg Express	8:05 a. m.	10:00 a. m.
Columbia Accommodation	9:10 p. m.	12:00 p. m.
Pacific Express	4:40 p. m.	3:40 p. m.
Sunday Mail	2:00 p. m.	5:00 p. m.
Johnstown Express	3:05 p. m.	5:30 p. m.
Day Express	5:35 p. m.	7:20 p. m.
Harrisburg Accom.	6:25 p. m.	9:30 p. m.

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

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., MARCH, 1883.

Vol. XV. No. 3.

EDITORIAL.

THE CANKER-WORM.

(*Palaeocrita vernata*.)

Prof. C. V. Riley, Entomologist of the U. S. Department of Agriculture, is desirous of obtaining information from local observers concerning canker-worms, and the Entomological Division of the Department has issued circulars calling the attention of farmers, amateurs, professionals and others to the subject, which is, or may become, one of no little importance. It appears, that until comparatively a recent date, "two entirely distinct species of canker-worms have been confounded in description, seasons of appearance, habits, and geographical distribution." We append the circular itself, or the most important portions of it, and respectfully ask our patrons to make careful observations on the matters referred to therein, during the approaching season, and to communicate them to us, or immediately to the Entomologist of the Department, although, we may be allowed to say, that thus far, canker-worms have never been conspicuously among the noxious insects of Lancaster county, and only to a limited extent in Pennsylvania, if at all.

In June, 1865, from an elevation in Mt. Auburn Cemetery, near Boston, Mass, we observed, the apple trees especially, as far as the vision extended in every direction, were brown and crisp, as though a fire-blight had passed over them, and this effect, we were assured by an intelligent conductor, was caused by the presence of devouring hosts of *Canker-worms*. One tree, of which we had a close view, had its leaves skeletonized from base to apex, but it was near the end of June, and the worms had nearly all disappeared and gone into the ground. We never saw any approximation to such a sight in Pennsylvania and especially not in Lancaster county. Now and then a few straggling individuals, but never an "epidemic." Still, like many other noxious insects, they involve *possibilities*—if we have *ten*, we *may* have ten thousand when all the favorable circumstances combine. That our readers may be able to distinguish between a "canker-worm" and an "army-worm," we would just suggest that the first named is a "Looper" or "measuring-worm" whilst the last named, belongs to the great family of "cut-worms."

"The most widespread and best known species is the Spring Canker-worm (*Palaeocrita vernata*, Peck). The female rises from the ground chiefly in spring, and secretes her ovoid and delicate eggs. The second species is *Anisopterix pomataria*, Harris, and the female rises chiefly in the fall, and lays her eggs in serried and exposed masses.

Will you please give such information as you possess, especially upon the following points, in regard to the occurrence of Canker-worms in your locality:

1. Which species, if either, is now found in your locality, or has ever been found?
2. When was it first observed there?
3. During what years has it been especially injurious?

4. During what year has it been entirely unnoticed?

5. Has the appearance of the perfect or parent insect been confined to either season, the fall or the spring, or has it covered both?

Wherever any doubt can or does arise in regard to the species observed, it is particularly requested that specimens may be sent to the Department. All expenses for packing and postage will be reimbursed to the contributors if a request to that effect is made; or boxes and stamps for the return of specimens will be sent to any person who will notify the Department of intention to contribute information and specimens.

Observations may be made during all mild weather from the present month (November) until the middle of June. The more frequent and detailed the observations the greater will be their value. If you have not the time or inclination to make these observations personally, you will confer a favor by handing this circular to some person who will be interested.

Should this circular come to the hands of any entomologist familiar with the two species, I would respectfully ask of such any information they may possess that will throw light on the range and preferred food-plants of either.

Respectfully,
C. V. RILEY,
Entomologist."

"NOW IS THE TIME."

Any times, all times, may be proper for the doing of that which is useful and good. In short, now it is still time to give heed to the *insect survivors* of the past season—that diminished "few" which lay the foundations for the greatly increased multitudes that prove so disastrous to the crops during the summer following their advent. Only two or three days ago an honest yeoman from the country called upon us to enquire, "What must I do to be saved" from the depredations of the "Squash-bug," (*Coreus tristis*) "for I have tried lime, and soap, and salt and London purple, and Paris-green, all to no effect whatever, and I almost dread the approaching spring and summer." We advised our interlocutor that *that* had been precisely our experience with this insect more than five and thirty years ago, except that we had not applied the two remedies last named. He seemed astonished that Paris-green would kill a "potato beetle," and not a "Squash-bug." The reason is obvious from the structure of the mouth-parts of these insects, although there may be circumstances under which both would perish or both escape.

The Colorado potato beetle is *mandibulated*, that is, it possesses *jaws*, masticates its food, and swallows it bodily down, like any other masticating animal; and, if the food has been previously poisoned it is very likely also to eat the poison along with its natural food, and thus become a *victim* to poison.

The case is different with the squash-bug, which is *haustellated*, that is, provided with a sucking apparatus in the form of a piercer, by which it penetrates vegetation and sucks out its substance in a liquid form, just as a horse-fly, or a mosquito, sucks the blood of the hosts

they prey upon. A squash-bug would have no difficulty in finding a place to enter its beak, for we have known it not only to penetrate the leaves of the vines it infests, but also the *leaf stems*, the main vines and the young fruit. Nevertheless, Paris-green, London-purple or *Pyrethrum*, we do not think would be healthy for immature squash-bugs or potato-beetles, if applied as a liquid or otherwise, even if they did not eat any of it. Before their maturity, or in the *larva* state, the breathing spiracles and the pores of the body are more exposed than when they are mature, and hence they may be poisoned by external absorption. We have experienced this in the *larva* of the potato-beetle. And on one occasion a gentleman from Maryland sent us five mature specimens of the beetle in a bottle half-filled with pulverized Paris-green, which had been confined in the bottle 24 hours before we received them, and four of them continued to live 24 hours longer. This may illustrate that poison has little effect upon the hardened integument of an insect, or that the poison is of an inferior quality. Under these circumstances we admonish our readers that "Now is the time" to inaugurate measures of *prevention*. The squash-bug makes its appearance early in the spring. Some years ago we captured over two hundred of these insects in the middle of March, under a piece of bark about three feet long and one foot wide—all were lively.

We slaughtered them—or most of them—and we found it no very pleasant task; but, pleasant or not, we have never heard of a remedy better than what is called "Hand-picking." A pair of wooden forceps with long handles, will obviate the necessity of handling or heeling them.

Now also is the time, to anticipate the early broods of a large number of insects—*now*, before trees, and bushes, and shrubbery are in foliage. Look out for Potato Beetles, Squash-bugs, Sack-bearers (Drop-worms), Cutworms, Canker-worms, Cucumber Beetles, White, Cabbage Butterflies, the Sawflies that breed the Apple, Pear and Rose-slugs; the egg bracelets of the "tent caterpillars," or "Tussock moths," the vapor-moths, and many others. But you must *look* for them if you desire to find them in their still semi-torpid condition. Some of these insects, notably the Potato-bugs and the Squash-bugs do not deposit all their eggs at one time, but continue this work "here and there" and "now and then" nearly all summer: and if you can succeed in heading off the early broods, you will have less of this vexatious labor during the summer.

The follicles of the "Sack-worm" are now visibly pendant from the naked branches of trees and shrubbery, and also on the arbovitae, where they are not so conspicuous.

There is no possible excuse for the non-removal and non-destruction of these follicles, for they are very visible and accessible. Perhaps four-fifths of these follicles are the vacated premises of the males of last year. But

the other fifth may contain the eggs of the last year's female, of which we have counted over three hundred in one follicle. *Now is particularly* the time to "head off" these insects, for when the foliage appears on the trees, it will be too late, for they will be hidden. Now is also the time to look out for the "Codling moth" (*Carpocapsa pomonella*). These may be found in houses, or in places that contained apples during the winter. Those that breed within doors will appear prematurely, and should never be permitted to go abroad. Take our word for it, NOW IS THE TIME if not too late or early.

THE GROUND-HOG.

As usual, the ground-hog the present season, comes in for his share of laudation, as a truthful prognosticator, "laying" Vennor and Wiggins entirely "in the shade," and even defying "Old Probabilities." "Old Aretomys," seems just now to have the best of it, and doubtless always will have the best of it. He is a cute old prophet, never says much, by way of prophesying, lays down his *ipse dixit*, and lets time and season work out the problem, and generally comes out as near as the best of them. But, when we reflect upon it, he really is not much of a prophet after all. His luck consists mainly in basing his prophesies upon premises that cannot well fail entirely. It does not require much foresight to predict that we shall have six weeks of wintry weather after Candlesmas. Take any ten, fifteen or twenty years together, and it will be found that the spring seldom opens before the middle of March, or St. Patrick's day, and this always occurs about six weeks after Candlesmas. We always expect rough weather about St. Patrick's day, not because it is the anniversary of the birth of Ireland's patron saint, but because, it comes near the vernal equinox, an event that is nearly always accompanied by a greater or a lesser storm. Equinoctial "blows" are always looked for in March and September, and they are looked for because they so frequently occur about the middle of these months, and that too, without regard to St. Patrick or the ground-hog. And then too, his coming out of his winter lair on the 2d of February is subject to different constructions by different people; one party contending that the sun must shine all day to make it a bad ground-hog day, and that the heavens must be clouded all day to make it a good one; another party contending that sufficient sunshine to cast a shadow—if but for a moment—or only cloud enough to obscure a shadow, are all sufficient. And still another party asserts that six weeks of rough or fine weather, commencing on the 1st of March, and ending in the middle of April, is a *bona fide* verification of the prophecy, without regard to the character of the weather in February. Thus the ground-hog is generally jubilant, having the weather-lawyers on his side, Vennor, Wiggins, Ground-hog. Make your choice.

To give relief to a burn apply the white of an egg. The yolk of the egg may be eaten or placed on the shirt bosom, according to the taste of the person. If the burn should occur on a lady, she may omit the last instruction.

EXCERPTS.

PURCHASE small trees with plenty of roots rather than large ones with few roots, for spring setting.

SOLDER FOR NICKEL.—The following has proved a good formula for making a solder for nickel: For fine or high grade nickel, three parts yellow brass, one part coin silver. For low grade nickel, fifteen parts yellow brass, five parts coin silver, four parts zinc (pure or plate zinc). Melt the brass and silver with borax for a flux, and add the zinc in small pieces, stir with an iron rod, pour in a slab mold, and cool slowly, when it can be rolled thin for cutting.

CEMENT FOR LEATHER BELTS.—According to the *English Mechanic*, the most valuable cement for leather belts is thus produced: Common glue and American isinglass, equal parts, adding water to cover the whole; after soaking this mixture ten hours, it is to be brought to a boiling heat, and pure tannin added till the whole becomes ropy; apply warm—buffing off the grain of the leather where it is to be cemented, rubbing the joints solidly together, and allowing a few hours for drying.

TREATMENT OF DISTEMPER.—It will be interesting to lovers of the canine species to hear of a simple remedy for distemper. At the quarterly meeting of the Scottish Metropolitan Veteran Medical Society, Mr. Baird mentioned the case of a collie dog, in the last stage of the disease, and which its owner had determined to destroy. Shortly after being treated with doses of strong coffee and a little sweet milk, the animal, however, so far recovered as to be able to stand and walk. The chairman of the meeting said the case seemed almost unique.—*London Lancet*.

NON-POISONOUS NEW GREEN COLOR.—According to Ad. Carnot, a non-poisonous and permanent new green color may be prepared as follows: A solution of bichromate of potash is mixed with a sufficient amount of phosphate of soda; sodium acetate and sodium thiosulphate are added, and the slightly acidified mixture is boiled down, for an hour. Fine green precipitate is thrown down, which is not volatile and perfectly fast against air, light, dilute acids, soap, etc. It may be used for painting, calico printing, etc. For dyeing, the material to be dyed is treated with a mixture of bichromate, phosphate, and acetate of soda, and is then boiled in a slightly acidulated bath of thiosulphate of soda.

Raw starch, applied with a little water, as a paste, will generally remove all stains from bed-ticking.

To clean metal plates, keyholes, etc., of doors, also stair-rods, use sapolio; or, if brass, rottenstone.

To clean and polish tortoise-shell use a drop or two of sweet oil, and rub it in thoroughly with the ball of the thumb.

SILVER in constant use is kept nice and bright by washing it every day in warm soap-suds and drying it with old linen.

BURNS and scalds are immediately relieved by an application of dry soda covered with a wet cloth, moist enough to dissolve it.

To clean irons use a lump of beeswax tied

in a rag; rub the irons with it when hot, and then scour with a paper or cloth, sprinkling with salt.

To remove spots from furniture, take four ounces of vinegar, two ounces of sweet oil, one ounce of turpentine. Mix and apply with a flannel cloth.

SPIRITS of ammonia, diluted with water, if applied with sponge or flannel to discolored spots of the carpets or garments, will often restore the color.

SOOT falling on the carpet from open chimneys or carelessly handled stove-pipes, if thickly covered with salt, can be brushed up without injury to the carpet.

ONE pound of green copperas dissolved in one quart of boiling water, will destroy foul smell. Powdered borax scattered in their haunts will disperse cockroaches.

A STARCH that will make linen look as good as new, is made of one quart of corn starch, three ounces of gum arabic and two ounces of loaf sugar.

To clean oilcloth, wash with warm milk. Once in six months scour with hot soapsuds; dry thoroughly and apply a coat of varnish. They will last as long again.

WHEN carpets are well cleaned sprinkle with salt and fold. When laid, strew with slightly moistened bran before sweeping. This with salt will freshen up wonderfully.

To give glass great brilliancy, wash with damp sponge dipped in spirits, then dust with powdered blue or whiting (tied in a muslin bag), and polish with a chamois skin.

A PASTE made of whiting and beuzoin will clean marble; and one made of whiting and chloride of soda, spread and left to dry (in the sun if possible) on the marble, will remove spots.

SILK handkerchiefs washed in clear water with pure white castile soap look like new. Do not iron, but soap between the fingers until almost dry, and then press under a weight.

To cure earache, take a pinch of black pepper, put it on a piece of cotton batting dipped in sweet oil, and place it in the ear, and tie a bandage around the head, and it will give almost instant relief.

To clean oil or grease spots from carpets, use fullers' earth and water, spread thickly, cover with paper, and let it remain two days; brush off, and if not removed, make another application. If haste is required, use benzine.

GILDED frames of mirrors and pictures are beautifully cleaned by applying the white of eggs with a camel's hair brush. To prevent flies settling upon them, wash in garlic or onion water. Do not fear the odor, as it soon dies away, and brightens the gilt.

CHINA of any color, excepting white, may be easily and quickly mended with shellac. Place a little shellac on the broken pieces, and keeping them close together, hold them to a lighted candle. When the shellac is melted sufficiently, let it cool and harden, and it forms a strong cement.

HOT alum-water is the best insect-destroyer known. Put the alum into hot water and let it boil till it is all dissolved; then apply

the solution hot to all cracks, closets, bedsteads and other places, where any insects are found. Ants, bedbugs, cockroaches and creeping things are killed by it; while there is no danger of poisoning the family or injuring property.

TO FIND THE NUMBER OF BUSHELS IN A HOPPER.—A convenient rule to find the number of bushels of grain in a hopper, is to multiply the length (in inches) at the top by the breadth and that product by one-third of the depth, measuring to the point; divide the last product by 2150.4 (the number of cubic inches in a bushel), and the quotient will give the number of bushels contained in it.

BRONZING IRON.—Iron has sometimes to be bronzed for domestic use. The following is a very simple way of obtaining a very good bronze: Mix an equal quantity of butter of antimony and oil of olives; put this mixture on the iron which is required to be bronzed with a brush, the iron having been previously brightened with emery and cloth, and leave it for several hours. Then rub with wax and varnish with copal.

SURE CURE FOR CORNS.—A. C., who has tried it, is authority for the following: Take one-fourth cup of strong vinegar, crumb finely into it some bread. Let stand half an hour, or until it softens into a good poultice. Then apply on retiring at night. In the morning the soreness will be gone, and the corn can be picked out. If the corn is a very obstinate one, it may require two or more applications to effect a cure.

METALLIC PROTECTORS TO BOOT HEELS.—Metallic protectors are now ingeniously applied to light steel and fastened around the outer edge of the heel with three screws; they are about one-half an inch in height, and protect the bottom of the heel by a narrow flange, which operates to prevent the edges from wearing away, at the same time imparting strength and stability. Its lightness is a special advantage, and its appearance is not at all unsightly.

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.
APPLE CULTURE.

The cultivation of the apple is supposed by some people to be of very little importance; that in order to be successful in raising apples all that is required is to plant trees and large crops of fruit should be forthcoming; without paying any regard to what varieties are planted, or what the nature of the soil may be, or paying any attention to the subsequent cultivation of the orchard or to the trees. Our intention, however, is to refer briefly to varieties and soils, claiming that a proper starting point is the most important to insure success. My experience is that while some varieties upon our soil may be complete failures, the same varieties upon different soils may be a perfect success and *vice versa*, so we would infer that it was all-important to ascertain the adaptation of the different varieties to the various soils.

I have taken an interest in apple raising for years, having planted upwards of 200 trees in 1865-6, planting in five different orchards in as many different soils, not two miles apart. The different conditions of soil upon which I

planted were, a red-shale southern slope, a rich gravel southern slope, a lime stone plot, inclining north, a little west; a sprouty lot consisting of lime stone and gravel, and a sandy lime stone. Red shale was the best soil to bring the Newtown Pippin, Smoke-house, and other varieties to perfection, when there would, at the same time, be failures in my other orchards. My trees blossomed very profusely all over, and I expected the largest apple crop that I ever raised, but only three varieties bore a full crop—namely, the York Imperial, the Russet, and the old Pennsylvania Red streak. Last year the Red streak and the Smith's Cider were the apples above all others. If I were to plant an orchard now, of fifty trees, I would plant fifteen Red-streaks, fifteen Smith's Cider, fifteen York Imperial, and five summer and fall varieties. I have sold early in the fall the York Imperial and the Red streak at from seventy-five cents to one dollar per bushel, and the average from the trees in my orchard would have been very valuable, had there been a greater number of those kinds. The Pound Apple and the Baldwin Pippin were about half a crop, and so also were a few other varieties. Among the failures were the Krauser, the Northern Spy, the Hubertson Nonsuch, the R. L. Greening, the Monmouth Pippin, the Munson Sweet, the Gilly flower, the Black Cole, and the King of Tomkins County—this last named was a greater failure than any of the others, many of which were only partial failures. Smith's cider only bears in alternate years. 1882 being its regular bearing year, of course I expect nothing from it the present year. I have, however, observed that occasionally these alternating bearers change their years. The York Imperial alternates, whilst the Penna. Red streak bears every year, slightly alternating between good and better. It does best on the south side of running water, where the soil is more or less moist in the spring. Those on the north side, on higher and richer ground, were much inferior in 1880 and 1881. In 1882 there was also a difference, but not so great as in some other years.

My Smokehouse apples fail on low ground almost invariably. My object is making these homely remarks is merely to show—according to my experience—that some soils will never make a bearing orchard. L. S. R

Oregon, March, 1883.

[The tendency towards *alternation* is somewhat singular. Even in characteristic annual bearers, the tendency is toward alternation, even should it be between *better and best*.—Ed.]

FOR THE LANCASTER FARMER.
"AND FOUND WANTING."

MR. EDITOR: Notwithstanding your pretty broad hint that you do not want any further discussion on "The Balance of Trade," I have ventured to write again, for as J. P.'s last article leaves no doubt that I am entirely right and he entirely wrong, in regard to the disputed statistics, I think I have a right to show it. Surely where plain figures are concerned, there should be no two opinions. I assure my opponent I did *not* know of the explanation he gives or I certainly would have used it, for it tells conclusively in my favor.

I had no intention nor desire whatever, as he intimates, to charge him with, or convict him of *intentional* deception. Though if he had only acknowledged in his last, as it seem to me, to be entirely candid, he should have done, that the statistics he used from Young's report, were false and worthless, for any use in our argument, and that Nimmo's were the only true ones, it would have saved you and your readers the infliction of this article.

If, as he says, (and I have no doubt his explanation is the true one) Mr. Young took his estimate of our exports from a *paper* value when gold was worth in greenbacks, sometimes 250 per cent. and over, and our imports being always estimated at their cost abroad, and hence at their value in gold coin, then, of course, his statistics were entirely false and deceptive, while Nimmo's being estimated on the gold value of both exports and imports, must be the only true ones. We can only compare things by reducing them to the same unit of value. We might just as well say one stick is longer than another because it contains more feet than the other one does yards. A paper dollar during the decade spoken of, did not bear a much greater ratio to a gold one, than a foot does to a yard. What sense is there then, in statistics founded on such different units of value? Mr. Young would have only exaggerated his error, if he had estimated our exports in dollars and our imports in pounds sterling, and then, because every article of value is worth about five times as many dollars as it is pounds sterling, say our exports were two and one-half times our imports, when in fact, the excess was just as much the other way.

My friend in his last article, misquotes me and misrepresents himself. He says, referring to what I said in the January number, "He says 'J. P. has made the astonishing discovery that consumption is gain and production is loss.'" By referring to my article you will see just what I did say, which is quite different. He says, "I said nothing about production being loss." Now see he forgets, for in December he writes, "Is not the very opposite of this alleged axiomatic proposition," (that is, that production is gain and consumption loss) "nearer the truth, *vis.* All productions of the earth are or will be *lost* if they are not consumed." Is not that something about production being loss? Daniel Webster does not say in the speech quoted that the large importation and consumption of extravagant luxuries will advance the material wealth of our country as J. P. does. If he did, his mind must have been under as great a cloud as when he made his celebrated "7th of March" speech, of which his best friends were so much ashamed, and from the eternal disgrace of which, we all know, he never recovered. It seems to me this whole controversy might be settled by a single hypothetical case. Suppose our exports last year were \$500,000,000 and our imports \$600,000,000, we paying the balance in gold coin. While this year, by some kind of good management, no matter what, we have been able to set all our tramps and previously idle men at work, and thus have increased our productions, so that we have been able to export \$600,000,000 and by economy, have only demand for \$500,000,000 of imports, the balance

\$100,000,000 coming to us in gold coin or bills of exchange. Is it not plain, to the common sense mind, that the second year is the more profitable of the two?

My opponent continually wanders from the subject. We are discussing what policy will most advance the *material* wealth of our country and not what will most benefit morality, or religion or decorate our galleries of fine arts. This being so, and I think he will not deny it, what sense is there in saying that it is right for the rich man to indulge in luxuries but very wrong, "little short of a crime," for the poor man to do so. Will not the same policy that is good to add to the poor man's means, do the same for the rich one? Is it not just as advantageous to a merchant to Cr. "merchandise" by "Bills Receivable" as by "Bills Payable." In other words, will not the same policy that will make the poor man rich, make the rich man richer, or that is good to pay debts, good to accumulate wealth after the debts are paid? J. P. thinks not. It is very true that a thing is worth just what it will bring in the open market to the *seller*, but to the *consumer*, it is not always so. It makes a great difference to the consumer, whether in the loss of consumption, he get reproductive value back in its place, or whether, as in the consumption of intoxicating libuors, and many other luxuries, he gets nothing, or less than nothing back.

All his talk about my proposition, that all consumption is loss, is only the most idle kind of hair splitting. Since we both agree that by some kinds of consumption we suffer a total loss, and by others we get back a reproduction that more than makes up for the loss. If a boy loses his knife I call it lost, though in looking for it he finds another of greater value. It makes no kind of difference, to our argument, whether it would, or would not have been better, to say his knife was *not* lost, since the boy is better off than before. I call the consumption, even of necessaries, loss, because the more we consume of them for a given amount of reproduction, the greater our loss, and the less our profits. This is just why extravagant consumption and waste impoverish, because the consumption or loss, overruns the production, or gain. It seems to me, according to J. P., if Vanderbilt were to buy Lancaster city, set fire to it, and, like Nero, fiddle while it burned up, he and the country would both be richer, because he paid the market price for it, and had some fun looking at the fire.

My esteemed friend appears to stand in continual and mortal terror from "meat axes" and "epithets," dotes on "argument." Your readers will therefore understand his nice little fling at "Delaware," and such sentences as "The Balance of Trade delusion," and his scathing irony at me for presuming to disagree with the "God-like Daniel," contain nothing but pure "argument."

I have noticed that your Lancaster correspondent is always *saying* he is willing to leave his readers to judge between him and his opponents, but never lets them *do* it, without repeating over and over his arguments, for fear they might decide against him.

I have also noticed that with all his many antagonists in this discussion, running through his six or seven long articles, he has always

managed to get the last word and I suppose it will be so with me, for wind and words never seem to fail him, while I confess (and I think you will be glad to learn it) that I am getting tired.—*S. P., Lincoln, Del., Feb. 26, 1883.*

FOR THE LANCASTER FARMER.

DEEP OR SHALLOW PLANTING.

DR. S. S. RATHVON—*Sir*: Your correspondent, Warwick or Oregon, is in favor of shallow planting, but there are generally two sides to a question. When the ground is moist, and no prospect of a drouth, shallow planting, at least of seeds, may answer, but in dry ground, seed very frequently fail to make their appearance above ground; when planted deeper, there is usually more moisture and they can stand a dry spell much longer.

Many years ago, a man in Perry county, Pa., had a corn planter, which he wished me to try planting corn. He sent it to Columbia, where I got it. In the fall it was placed on exhibition at our local agricultural fair at Lancaster, from where he removed it. We planted some twenty rows, the length of the field, and then again resorted to our old plan of furrowing out deep and dropping the corn by hand and covering with a heavy two-horse harrow. That planted with the machine came up before the rest of the field, and grew much faster for a time, but when the weather became more dry, the other part of the field soon caught up, and got ahead. The part planted with the corn-planter, also got more weedy, as the soil was not so much disturbed as with large harrow. At husking I found considerable difference in yield, in favor of that that was planted deeper.

I also well remember planting an orchard of apple trees, sixty years ago—I dug large holes, three feet in diameter, put the top soil on one side, and dug another spade deep, put that on the other side—then returned the top soil to the bottom, and on that planted the trees, with the yellow clay on top, careful not to plant deeper than the trees stood in the nursery (according to directions in Cox on fruit trees, a work long since out of print.) A neighbor also planted a small orchard about the same time. His plan was to dig post holes; less than a foot square and nearly two feet deep, if the hole was too small to spread the roots, he would force them down with his foot. He told me trees must be planted deep, so that the wind could not sway them about and they would grow much better. Result, my trees grew vigorously for a few years, while my neighbor's trees made very slow growth at first, but after a few, say six years, his trees got even with mine, and I am confident that my neighbor's trees bore twice if not four times as much fruit as mine did. Both orchards have long since been past their prime. I might mention many other cases, where deep planting had the advantage. Another subject in corn planting, which is being strongly advocated, which is to keep the ground level, and not to hill up the plants. I differ with this plan, for the following reasons: It requires more work to keep the weeds down; it is far more liable to be prostrated by gales of wind; it cannot produce so large a crop as the upper roots, or stolons, coming from the stocks, two and three joints above

ground fail to reach the earth in dry weather, as these roots if hilled up will at once take hold of the soil, give nourishment to the stock, and act as braces to stiffen the stem, thus very much preventing the wind from blowing it down. Thus I am in favor of rather deep planting of either trees or seeds, as we usually get "dry spells," sooner or later every season, and when trees or seeds are so near the surface they are very liable to suffer.—*J. B. G., Columbia, Feb. 3, 1883.*

SELECTIONS.

ARTIFICIAL INCUBATION.

How Some Successful Experiments at Hammonton, N. J., Were Conducted.

In order to thoroughly test the matter of artificial incubation several gentlemen residing at Hammonton, N. J., determined to construct a number of incubators, fill them with eggs, experiment with them at different places, and otherwise manage them in such a manner as to leave no doubt as to their value, and settle conclusively whether they were reliable or inefficient.

The first incubator was constructed by Mr. George W. Pressey, who made several improvements as he progressed, and the result was 115 chicks from 200 fertile eggs, or 57½ per cent. Mr. Pressey, however, was not satisfied with so small a percentage—arising from obstacles not contemplated, but which have been rectified—the second lot of eggs showing indications of a larger number when the period of hatching arrives. This incubator holds 300 eggs.

The second incubator, made in the same manner, was constructed by Mr. Ezra Packard, its capacity being 300 eggs. Owing to a false registry of his thermometer Mr. Packard kept the heat two degrees lower than he supposed it was; nevertheless, 175 chicks were hatched from 244 eggs, or about 72 per cent.

The third incubator made on the plan of Mr. Pressey's, but constructed by Mr. John Crowell, holds only 150 eggs, and was filled with that number. Of the eggs, 85 proved to be infertile and worthless. From the remaining 65 fertile eggs Mr. Crowell secured 60 chicks, or about 91½ per cent.

The fourth incubator was constructed by Mr. Harry Little; but owing to some unknown cause, supposed to be an excess of moisture, only 15 chicks were hatched from 360 eggs. Up to this period, however, the actual figures had not been obtained, but the result was a very small number.

The fifth incubator, constructed by Mr. Pressey for Mr. Frederick S. Robbins, and operated by Mr. Robbins, hatched 160 chicks from 250 eggs, without regard to their fertility. This is 64 per cent, of the gross number, but the percentage is much larger when compared with the above incubators, as the number of fertile eggs was not observed.

The sixth incubator, constructed by Mr. Pressey for Mr. D. B. Berry, and operated by Mr. Berry, is due to hatch the latter part of this week, and the indications are in favor of a good hatch. The seventh, constructed by Mr. Pressey and Mr. P. H. Brown, is also almost due to hatch.

So many incubators being in operation at nearly the same time caused quite a scarcity of eggs, about 3,000 being required. Although this number is easily obtained at times, the demand was rather sudden at a season when they are not plentiful. The operators were compelled to procure eggs from all sources, the consequence being that many of them were unfruitful (unimpregnated) and utterly unfit for the purpose. Not one of the above parties has had any previous experience in constructing or managing an incubator, nor have they ever seen incubators in operation except at exhibitions. They engaged in the work for purposes of experiment, and, as the result has been so satisfactory, other incubators are being constructed for many other citizens of Hammonton, so that in a few weeks, with the experience derived from the first attempt, the sitting hen is liable to perpetual banishment from that locality.

The incubator used by these gentlemen is a very simple affair. The one operated by Mr. Crowell, capacity 150 eggs, derives its heat from one lamp, the larger ones being heated by two lamps. The outer dimensions show Mr. Crowell's incubator to be about three feet wide and four feet in length, the larger sizes being about four wide and five in length. They can be made, however, of any dimensions desired. The lower part is simply a box with no top, the bottom of which is perforated with twelve one-half inch holes, into which are inserted tin pipes for the purpose of admitting air to the eggs. It is called the ventilator-box. Directly over the ventilator-box is the egg-drawer, the bottom of which is covered by strong, coarse muslin, tightly drawn, upon which rests the eggs, which are separated into narrow rows by slats, the slats being fastened at the ends by strips on each side. A space of two inches at the front of the incubator drawer allows the slats to be moved backward or forward, which turns the eggs. The egg-drawer has no top, but is covered by the heater, which is again only a box, but the bottom is constructed of zinc, fastened to the wood by a double row of nails. On the right side, near the front, an elbow, made of tin, projects from the heater and bends directly over a lamp inclosing the globe. The heated air and gaseous impurities from the lamp pass into this tin tube, and turning at the elbow go into the heater, being there diffused by being compelled to pass over the zinc to the opposite side, where they pass out through three tin chimneys placed at a distance of one foot from each other. On the left side of the incubator, near the rear, is placed an oil lamp, the heat from which is made to pass over the zinc by tin chimneys on the opposite side to the lamp. The small incubator has the lamp at the rear, as only one is required, the chimneys being near the front of the incubator. The incubator is then covered with a larger box, a space of eight inches being allowed all around, which is filled with sawdust—bottom, sides, back, front and top. No boards need necessarily cover the sawdust on the top. The chimneys must be high enough to extend above the sawdust on the top of the incubator, and the pipes at the bottom of the ventilator must be left free for admission of air, or rather, must extend below the sawdust. The chimneys begin

within one inch of the zinc and extend to the top, passing through the sawdust. The inside of the egg-drawer is six inches in depth; the ventilator underneath, eight inches, and the heater, six inches. The front of the egg-drawer, to a distance of eight inches, is partitioned off and filled with sawdust, the result being that the incubator, when closed, is completely surrounded with a layer of sawdust eight inches thick. Thus we have three boxes—ventilator, drawer and heater—one above the other and fastened on the sides, the whole making a complete box covered by a larger one.

The eggs are undisturbed for the first three or four days. At the end of that time they are assorted, or tested, by holding them to a strong light, such as the sun, or lamplight in a darkened room. The eggs, if dark objects appear within, are probably fertile; if the eggs are transparent, or clear, they are probably unfruitful. To make sure, the operator waits until the eighth or tenth day, when the difference between the fertile and unfruitful eggs will be very marked. When tested the whole of the egg should be darkened except that portion through which the light passes. A tester can be made by using a tube of pasteboard, placing the egg at one end and the eye at the other, and directing the egg-end of the tube toward the light. The eggs are springled once a day after the fourth day to the tenth, then twice a day to the fifteenth day, and then three or four times daily till the twenty-first. The eggs are turned every four hours during the day, and, if convenient, also during the night. Strong chicks (the only ones worth saving) are left to themselves when coming out, no assistance being needed; but a damp cloth is kept over the eggs when about to hatch, and pie-pans of water are kept on the bottom of the ventilator-box for furnishing moisture. From 80 to 105 degrees is the heat required, the regular temperature to maintain being 103. The eggs are allowed to cool down to 75° at least once a day. The tubes in the ventilator box do not extend up to the eggs, but the air passes in, absorbs moisture from the water, passes through the muslin bottom of the drawer, is there heated, and usually remains until it passes out when the drawer is opened. Five gallons of oil are used during the three weeks to each large heater. About two days are required to get the apparatus thoroughly heated to the requisite temperature; but this slow generation of heat is balanced by a corresponding reluctance in parting with it, which accounts for the even temperature so easily obtained. No regulator of any kind is used. The incubator is merely heated and operated for a few days in order that the handler may become familiar with it, when the eggs are then placed in the drawer. The difficulty is rather too much heat instead of too little. It may injure the eggs to raise the temperature too high, but the danger is less than when the heat is deficient. Two of the above incubators for a short time were heated to 110°, but the results were good.

After the chickens are hatched they receive no food for twenty-four hours. They are then fed on finely-chopped hard-boiled eggs, the refuse ones from testing being good for the purpose. In two or three days the food may be

varied so as to consist of fresh milk, oat meal well moistened with milk, moistened corn meal, screenings, and, as they get older, with chopped cabbage, boiled potatoes and such other food as may be relished. Avoid feeding dry meal or bran. They are cared for by an artificial mother, made on the principle of the incubator, except that the zinc is at the top instead of the bottom of the heater, the heat passing in and finding an outlet through pipes at the side instead of the top. Above the heater a stream of air passes, is heated in its passage over the zinc, and comes out in an inch tube into the brooder, which is a box with a woolen fringe extending all around it, through which the chicks push and pass in or out. The air thus is pure, and, as the tube extends to the top of the brooder, the warm air is above the chicks, and diffuses itself all around them. Some operators intend to experiment with hot water tanks for this purpose. So far Mr. Pressey has not lost a single chick from any cause except accident, and they are nearly four weeks old. The other operators have not had the care of their chicks but little over a week, and the latest report from Mr. Crowell was that he had sustained no loss. Mr. Packard, however, lost a few, owing to mistakes in management.

Whether incubators are reliable may perhaps be decided by studying the above results. When comparing these with the work of hens there may be cited the case of Mr. Samuel Draper, of Hammonton, who places eggs under hens, the eggs being procured wherever he could get them, as was done in the case of the incubators. Not a chick came out. The chicks hatched in Mr. Pressey's incubator have been compared with others hatched under hens, and the incubator chicks are larger, more vigorous and in every respect superior. This is due to freedom from vermin, regularity in feeding and excellent care. They were all active and strong as soon as dried, not a weak chick appearing among the whole lot of 115, and the unanimous conclusion is that the chicks hatched in the incubators can be more easily raised than with the use of hens.

The vitality of eggs has something to do with good hatches. But few people stop to consider what kind of eggs they place under hens, and they are never tested for fertility, the hen being as liable to bring off one chick as a dozen hens will lay at all seasons of the year, but the eggs will not always hatch, whether in an incubator or under a hen.

One of the principal causes of a failure is the mating of too many hens with one cock. The eggs may be fertile, but the result of lack of vigor in either of the parents is that the chick progresses during all the stages of incubation well enough until it is compelled to work its own way out, when it dies in the shell from weakness. The hens in a yard may be laying, but the cock may have been frosted during cold weather, especially if he has a large comb and wattles, and many of the eggs from the hens will, through his lack of vigor, be unserviceable for incubation. To get the best results not over seven hens should be in company with one cock. The hens should not be too fat, but must be well fed and well sheltered. Two cocks must under no circumstances be permitted in company with the

same hen. The eggs must be fresh, collected as often as possible, in order to guard against freezing, and no reliance should be placed on fowls in neighboring yards, it being best for the operator to breed his stock personally, paying strict attention to the variety, and infusing new blood every year by procuring cocks from a distance. The best chickens for market are those from Longshan and Plymouth Rock cocks crossed on large hens of any breed. If the hens are crossed and the cock pure the chickens will be uniform, as well as strong and healthy. Such fowls as Leghorns, Hamburgs, Black Spanish and pure-bred Games are not fitted for quick growth and large size combined, but the Brahmas and Cochins do well if the hens of these breeds are mated with cocks of the Langshan, Plymouth Rock, Houdan or American Sebright (not the bantam) breeds. Incubators require careful watching, and so do the chicks; but if any one will take the trouble to figure out the prospective profit from the above hatches, to suit the locality and market, some kind of an estimate can be made of artificial hatching as a profitable investment.—*Philadelphia Record.*

CONRAD BUCHER.*

BY PROF. J. H. DUBBS, D.D.

(From the Guardian.)

We have read full oft of the heroes grand
Who live in the annals of Switzerland;
Of the courage high and the warlike deed
Of Tell, and Melchthal, and Winkelried;

But in rhyme the story has ne'er been told
Of the little band of Switzers bold,
Who across the sea, to its Western shore,
The precious faith of their fathers bore.

Names uncouth in the English tongue—
Goetschius, Schlatter—remain unused;
But as brave were they as the men who fell
On the fields of Uri or Appenzell.

Have you read the story of one who came
Across the ocean in quest of fame,
From the place where over the rocky wall,
At grand Schaffhausen, the waters fall?

Have you heard how he wielded his valiant sword,
But laid it aside to serve the Lord?
It was Conrad Bucher! Let me tell
How he served the king and his Maker well.

In the quiet cloisters of old St. Gall
He had heard in his youth his Master's call;
He had sat at the feet of godly men
In the schools of Basle and Göttingen.

But, it was said, in the land of the setting sun
There were battles fought and honors won;
And there came a message across the main
That Braddock was beaten at Fort Duquesne.

Could he hear the sound of the rolling drum
That to distant battles bade him come?

*Rev. John Conrad Bucher, a minister of the Reformed Church, was born in the canton of Schaffhausen, Switzerland, June 10, 1730; died at Lebanon, Pa., August 15, 1780. He studied for the ministry at St. Gall, Basle, Göttingen and Marburg, but, about 1756, came to America, and entered the British military service. His promotion was rapid, but in 1763 he resigned his commission and he became a minister of the Gospel.

Rev. Dr. T. C. Porter, of Easton, our former honored associate in the Linnean Society, is a great grandson of the hero of this ballad, and his maternal grandfather bore the same name.

Did he heed the music far away,
When he followed the fortunes of bold Bouquet?

Have you heard of the German regiment
That was furthest into the forest sent?
How in summer's heat and winter's snows
They freed the land from its dusky foes?

There, bright in the forest's darkest shade,
Was the flash of Bucher's battle-blade,
And the painted chiefs, the legends tell,
Knew the hand that smote them when they fell.

It was when they lingered, to rest awhile,
In the famous barracks of fair Carlisle,
That the soldiers prayed him to preach the Word,
So precious of old, so long unheard.

For there comes a day in the soldier's strife
When he hunger's anew for the Bread of Life,
And he longs, like the scion of Jesse's stem,
To drink of the waters of Bethlehem.

Once more the Master's call had come,
And louder it sounded than fife or drum;
"Renounce thy laurels and sheath the sword?
Take up thy burden and serve the Lord!"

Ah! where was the soldier's dream of fame?
To his Saviour's altar he humbly came,
And the "Fathers" ordained the captain there,
With benediction and heartfelt prayer.

To his faithful soldiers, and fair Carlisle,
As a Royal Chaplain he preached awhile;
But then, until life's work was done,
He served his Master in Lebanon.

And wherever our ancient churches stand,
From bright Swatara to Maryland,
The hearts of the people were deeply stirred
When his voice like a trumpet-blast was heard.

All hail to Bucher! For him, we know.
No drums are beaten, no bugles blow;
But 'tis well! For he cast his laurels down,
And took up the cross to win the crown.

A NEW FRUIT LIST.

Our regularly published list is always more or less slightly changed, for sufficient reasons, either in taking 'for or adding to it; but in regard to the list as a whole we can see no just grounds for disturbing it. Indeed, we do not see how much it can be improved for this section of country, or as a general list for all the Middle states. Some of each of the separate selections may not do well upon other premises that will succeed admirably on another, even if separated by only a single farm or a line fence. Hence, each grower must find out for himself the particular apples, pears, &c., especially adapted to his soil and location. This can be easily done by inquiries of those who within a reasonable circuit are successful fruit growers and whose soil is somewhat similar to his own.

According to our present preference, we should select the following for our own planting, and nearly all of which we are now growing more or less successfully:

Standard Pears.—1. Giffard; 2. Doyenne d'Éte; 3. Early Catharine; 4. Bloodgood; 5. Summer Julienne; 6. Tyson; 7. Brandywine; 8. Bartlett; 9. Belle Lucrative; 10. Manning's Elizabeth; 11. Seckel; 12. Howell; 13. Anjou; 14. Shelden; 15. Lawrence; 16. Reading; 17. Kieffer.

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; 10. Kieffer. They ripen

in about the order they are arranged, except as to the three latter. The Lawrence, which begins to ripen, or can be made to ripen early in November, will keep until April, it being the only winter pear which with us keeps beyond February.

In the above list, from No. 1 to 7 are summer varieties; from 8 to 14 autumn (early and late); and 15, 16 and 17 winter, thus affording a sufficient number for each of the periods of the best known sorts for this region.

We have dropped Kirtland, which, though a constant heavy bearer, rots so rapidly at the core as to interfere with its profitable marketing. We have also dropped St. Ghislain, not because it is not most excellent in quality, but because it is a shy bearer and small. We would also add that the Brandywine, Belle Lucrative and Reading are not profitable market pears. As to the Kieffer, opinions differ greatly, but it is no doubt owing to the difference in the nature of the soil; the principal characteristics in its favor, and they are important, are its early and abundant bearing, and its excellence for canning, which make it a profitable pear to grow.

Dwarf Pears.—1. St. Michael d'Archange; 2. Bartlett; 3. Comice; 4. Bostiezer; 5. Diel; 6. Tyson; 7. Belle Lucrative; 8. Lawrence; 9. Ott; 10. Louise Bonne; 11. Bosc; 12. Boussock; 13. Glout Morcean.

Apples.—1. Maiden's Blush; 2. Baldwin; 3. Smokehouse; 4. Northern Spy; 5. Smith's Cider; 6. Fallwater; 7. Cornell's Fancy; 8. Red Amsterdam; 9. Wagner; 10. Porter; 11. Gravenstein; 12. Thompson's King; 13. Roxbury Russet.

Peaches.—1. Crawford's Early; 2. Hale's Early; 3. Troth's Early; 4. Mixon; 5. Crawford's Late; 6. Ward's Late; 7. Smock's Late; 8. Admirable, late.

Grapes.—1. Telegraph; 2. Concord; 3. Hartford; 4. Clinton; 5. Salem; 6. Rogers' No. 32; 7. Brighton; 8. Prentiss. The Prentiss, so far, is the best of all white grapes. Clinton is expressly for wine.

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. Del. 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.

Although there are so many new raspberries yearly announced, there is not one that has been long enough tested to go upon our list, while the "Philadelphia" has lost its original reputation. There is a number of varieties found in our markets, some of which are very good for canning and preserving, but they have no solid character.

Strawberries.—1. Captain Jack; 2. Seth Boyden; 3. Sharpless; 4. Triomphe de Gand.

New kinds of strawberries are constantly appearing, but thus far we know of no improvements on the foregoing.

Currants.—1. Black Naples; 2. Red Dutch; 3. White Grape. These three 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, and is not profitable for market.

Gooseberries—1. Houghton; 2. Downing. These are the two best gooseberries grown in this country. They bear every year heavy crops, are free from mildew, and are of excellent quality. They are large enough for all practical purposes. We cannot recommend the giants and their giant prices, and especially those of foreign origin. There is one, however, now grown for some years, that has become free of molding, and promises well.

Blackberries—1. New Rochelle; 2 Missouri Cluster; 3. Wilson's Early; 4. Snyder. The Snyder is a new Western blackberry, is highly spoken of at distant points, and from the very respectable endorsers which it has we have no doubt of its value, at least in the West. But with ourselves, as well as with a friend with whom we shared some of our plants, we have not yet discovered any superiority over the others named in our list.

It is better that those who intend to cultivate fruit and have to make purchases, should 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 with smooth, healthy-looking bark, have entirely shed their leaves, and have plenty of small 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.—*Germantown Telegraph*.

OUR COUNTY'S WEALTH.

The following statistics relating to the products, farms, stock, values and other matters pertaining to Lancaster county will be found of more than usual interest to farmers and the community generally. They are abstracted from the just published report of the Secretary of the State Board of Agriculture for the year 1882. They tell briefly but emphatically the story of our county's great wealth. No wonder she is called the "Garden of the Union;" never was title better deserved, and every Lancaster county man will congratulate himself that his lines have fallen in a place literally "overflowing with milk and honey."

Number of farms, 9,070; acres of improved land, 490,922, value of farms, buildings and fences, \$69,004,919; value of farm implements and machinery, \$2,210,393; value of live stock on farms, \$4,605,945; cost of building and repairing fences, \$329,790; expended for fertilizer in 1879, \$349,684; value of farm products sold, consumed or on hand, \$9,320,202; wheat, 1,929,767 bushels; corn, 3,293,292 bushels; oats, 1,412,694 bushels; rye, 77,818 bushels; buckwheat, 5,281 bushels; barley, 967 bushels; value of orchard products, \$99,847; Irish potatoes, 345,375 bushels; sweet potatoes, 47,555 bushels; hay, 117,059 tons; tobacco, 23,946,326 pounds; number of horses on farms, 24,431; mules, 3,054, oxen, 383; cows, 35,291; other cattle, 26,636; sheep,

7,064; swine, 59,027; wool, 38,354 pounds; milk sold, 371,558 gallons; butter sold, 3,381,046 pounds; cheese sold, 100,991 pounds.

CULTURE OF SMALL FRUITS, OR BERRIES.

Perhaps some remarks upon *small fruits*, strawberries, currants, and gooseberries, may be useful and interesting to some of the readers of THE NATIONAL FARMER.

I do not think that these delicious and healthful fruits are sufficiently appreciated, or receive the attention their value deserves, by most of our farmers, which they may soon learn, if they will carefully cultivate them more largely.

They all like a good deal of shade, and moisture in the soil to do their best. In this, to a large degree, nature is a good guide to follow; that is, the locations and conditions in which they are found, in their native *habitat*, to flourish best, are safe indications, for the most part, to follow in cultivating them.

Strawberries were early found by the first settlers in the fertile Genesee country to flourish in large quantity and of good size, on the rich, moist, flat-land along that river. Best cultivators have found that strawberries thrive and yield the best where the plants are sheltered or mulched in the winter by leaves, fine straw, chaff or sawdust; and where liberally irrigated by flooding the grounds frequently during the flowering and dry season. There are different opinions as to whether planting in rows or hills gives best results; both modes have been adopted with profitable success.

The Charles Downing, Wilson, Monarch of the West, the Sharpless, Seth Boyden, Juncudas and Kentucky will give succession, from early to late, for several weeks of this healthful, delicious fruit. Some prefer one kind, some another—as they like sweeter or more acid sorts. There are some 20 good sorts.

Mr. T. T. Lyon, a prominent pomologist of Michigan, gives the following in regard to some new varieties:

Miner's Great Prolific is vigorous and very productive. In fact we are inclined to consider it the most prolific large berry among the 60 or more varieties we have fruited this year. The fruits are very large, conical or cockscombed, dark crimson, rather soft, moderately juicy, acid: but not rich. We think it very promising for near markets. Ripe, June 15.

Excelsior is vigorous and moderately productive. The fruit is large, ovate conical; often with a slight neck; dark scarlet in color, moderately juicy; mild acid; berry rich. The recent drought caused it to be imperfect, with a hardened tip. We class it among the dessert varieties, along with Victoria, (Golden Queen.) Black Defiance, Duncan, and Cumberland Triumph; all save the last comparing closely in flavor and texture with Bidwell. The last two, however, are far more productive than the others. Excelsior ripens June 13.

Centennial Favorite suffered sadly by the winter and has yielded nothing satisfactory. Our own experience and the lack of favorable

notices from others, creates the suspicion that its sudden notoriety was due to a favorable concurrence of circumstances, such as may not be often hoped for.

Laurel Leaf is vigorous and productive. Fruit medium to large, conical rounded; color, light crimson; moderately firm, lacking juice; aromatic; sprightly acid. It cannot be regarded as very promising. Ripe, June 17.

Frontinae—a pistillate—originating with the late Mr. A. Russell, of N. Y., is ripe this year, June 17. It is of fine size and quality, but too unproductive even for amateur uses.

Marvin is yet unripe (June 18) and cannot be expected to mature even its earliest specimens before about the 20th or 23d. It has not come through the winter as well as most others: although quite as well as Shirts and Monarch of the West, growing in adjacent rows. Sharpless, in the same vicinity, and under the same circumstances, is in far better condition.

Currants, coming about the time strawberries are done with, are very convenient and wholesome, and capable of being used in a variety of forms, as every housekeeper knows. The bushes may be grown in close bunches, or be cleared of many branches and succors, and trimmed up in tree-form, allowing air and light the better to pass through bushes. The latter mode gives larger and finer berries, though, perhaps, not quite so much fruit from the same space. The long, even, well-filled clusters of currants, either red or white, present a most beautiful sight, equal to anything in nature. Strings of corals, garnets, or pearls are not richer or more handsome, while currants also furnish wholesome food, which the gems do not. Among desirable varieties the old Dutch Red stands high; the Cherry Red is the favorite with some; besides, there are some very beautiful, delicious, white or cream-colored currants, greatly esteemed by those who grow them largely. The musky, black, currant is prized by many as a very healthy or medicinal fruit. They are delicious to my palate.

A correspondent of the *Germantown Telegraph* inquires as to the best currant to plant for profit, saying he has been advised to plant the Versailles, and the editor says: "This variety of currant has been before the American people for twenty years, as well as the cherry currant, and yet we do not find it grown anywhere that we know to any great extent for its fruit. The Red Dutch is yet the currant in almost universal use by market men—the oldest of all—and yet, it stands its ground. It may be said that it takes some time for the merits or a new kind to become well known, and therefore it is no argument against its value that it is not found yet in common use in market-gardens; but market men do not usually show such backwardness in taking hold of really good things. They were not long in dropping the many seedling strawberries, the old red raspberries, and many other things when they thought they had something better. It is not their way to hang back when a really good thing is brought before them. The Versailles and the Cherry currants have been persistently advertised, and whatever of merit they have has been

continually kept before the public in books and periodicals.

The fruit of both of these two varieties are larger than the Red Dutch; and this we take to be the only advantage they have. The cherry is a very sour variety, and it would have been far more characteristic of its qualities if it had been compared with a sour cherry instead of the simple cherry of the whole. Though the berries are large, the bush does not produce the same weight of fruit as a bush of Red Dutch will. The Versailles has a longer bunch than the cherry, and the fruit is rather more acid and perhaps a trifle larger than the Red Dutch; but the flavor is not quite as "curranty," and it will not produce the same weight of fruit. Hence, until we can discover a better variety than the old Red Dutch, we shall stick to that.

But *Gooseberries*, in highest excellence, are rare and less known, in this country, than the other berries named. They are less cultivated, and seldom eaten or seen in this country when fully ripe, being very generally gathered and used in their green state, but when allowed to become perfect, grown under favorable conditions, they become sweet, juicy, and highly flavored, with a delicious aromatic taste.

Being very liable to mildew, they are less grown here than in Europe. This can, in a goodly degree, be avoided by having the bushes thinned out and pruned high, so as to allow the air and wind to circulate freely among them. While they like moist, mulched soil to grow in, they also need to have free, dry air among the bushes and foliage, in order to secure good berries, free from mildew.—*By D. S. Curtiss.*

BEES ON THE FARM.

We have often heard people say, "I mean to have some bees, and I meant to have had them long before this." Yet these persons live on, year after year, without them, while their fruit bloom is poorly fertilized, and the nectar secreted in the flora of their fields and hedges is left to waste its sweetness. Bees seem especially designed, in the economy of nature, to gather up the remnants "that nothing be lost." This was forcibly illustrated the past season, by the reports coming in from different parts of the country of the large yields of honey gathered from wheat stubble. When the wheat was cut, before the straw was fully ripened, a sweet juice oozed out of the straw where it was cut; in some instances the juice was so plentiful that a clear drop of juice ran out of every stubble, and some filled the upper joints and ran down the stubble.

It is a very rare season indeed that bees cannot secure enough honey from some source to support themselves. We have many times been despondent, thinking that we would get no surplus, and have to feed our bees their winter store, when, all at once, there would come a flood of nectar from some unlooked for source. A cool, wet spring and summer will produce no honey, although the bloom may be abundant, and yet it may be just the condition suitable to produce many honey-yielding fall flowers. During the last autumn a large amount of surplus honey was gathered from the different varieties of smart-

weed (*Polygonum*). This honey was beautifully white, and of a fine minty flavor. These plants flourish on overflowed lands, and damp lands generally, although they are found abundantly in this locality, growing in corn fields, and where early potatoes have raised.

Sweet corn is growing in favor as a honey plant. A sweet syrup is secreted in the axils of the leaves, near the stalk, and bees gather pollen from the tassel.

It is surprising that farmers will go to town and buy miserable glucose syrup, when a heaven-born sweet syrup can be had at their doors, "not for the asking, but for the taking."—*Mrs. L. Harrison, in Rocky Mt. Rural.*

WHY HEAVY HORSES ARE WANTED.

A careful look into the way the shipping and transfer business of the country is now carried on, and a due consideration of the magnitude of this, will show to any one that the nearer a shipper can get his truck, and the team that hauls this, to approximate to the capacity of a freight car, the nearer the requirement of the trade will be met. Coal is now the common fuel, almost entirely so in the larger cities, mainly so in places of less size, and on many farms wood has been supplanted by coal. This very heavy article requires to be handled and transferred two or three times before it reaches the consumer, and the heavier and less numerous the loads, the less the expense of transferring. The wages of competent teamsters, especially in the larger cities, is higher than formerly, and a saving in the number of men employed is one source of economy in making these transfers.

Two light teams cannot be advantageously used upon one heavy truck in a crowded city. Business streets upon which wholesale transactions are carried on are, as a rule, narrow, and only one pair of horses can work to advantage to a heavy load. A light team of wheel horses cannot do the backing often required, and in an emergency, growing out of soft going, worn out pavements, or an acclivity to ascend, four horses are not likely to work in such accord as to render the work reasonably easy for all. A team required to move without undue strain the very heavy loads to which they are often hitched, namely, three or four tons, must have such weight of body that when they lean forward upon the collar, a full truck load can be moved without too great muscular effort being required.

As a heavy locomotive moves a full train of loaded cars with but very little strain upon its parts, so a horse with ample weight, large bones, heavy tendons, and wide hocks, is the only kind of animal suitable to be hitched to a three or four ton load. And as stated above, the absence of power cannot be compensated for by an increase of numbers. This would be bad economy, as much so as to attempt habitually haul heavy trains by attaching two or three locomotives of moderate capacity as to strength. Let it be borne in mind, also, that the fuel and attendance required for two locomotives of moderate power is materially greater than what is needed for one heavy engine, though the latter may have the motive power of the other

two. So, also, in the matter of stable room, care by the groom, expense of harness and fixtures, taxes, etc., the one-team rule is the correct one. In the item of stable rent alone, on the basis of \$8 a month for a stable for two horses—and this is not a high estimate in a populous city—a fair addition for two teams would make the added rent alone sufficient in amount to furnish a heavy team with the best quality of timothy hay for a year.

A light-made horse is in no wise better adapted to the heavy work referred to than is a light wagon, and no amount of care can be expected to compensate for the absence of strong material and plenty of it. It is idle to plead that the finer and harder texture of the bone of the thoroughbred fully compensate for the lesser bulk. When it comes to a dead pull, at a four-ton load, up an acclivity, nothing will compensate for the absence of weight and power—that kind of power that comes largely of the ability to move a heavy load by putting the weight forward upon the collar.

On farms where what is termed the skinning process—in other words scarifying the surface of the soil to the depth of three or four inches—is regularly practiced, a light team will answer, but where vigorous tillage is carried on, that vigorous growth and abundant crops may be secured, the heavy horse becomes a necessity. If it is required to sink the plow an inch deeper than the year before, this cannot be done with a single pair of light, or even medium horses, without great risk to the team, but with the heavy horse, 1,400 to 1,600, the task is comparatively easy, and is quite likely to be well done. So, it is the conviction in the minds of farmers generally that their tillage must be more thorough, that prompts, in many cases, the rearing of heavier horses than they have heretofore bred. And while they in this way provide their own farms suitable teams, they at the same time place themselves in a position to meet a growing demand for a class of horses more and more required for the purposes referred to above.

The influences that bear upon the question of heavy horses for heavy work, are not of the character that change, but they will increase as the business interests which render the use of horses of the class referred to indispensable, grow in magnitude. It will be observed that it is with draught horses as with beef cattle, the interest grows with the demand, and has not at any time assumed a speculative turn; nor is it likely to do so in the future. Adaptability settles all questions of this kind. Farmers who are back of nearly all questions of supply, as a rule, move a little slow. It may not be quite possible to tell just when a new and useful move with them takes root, but it is none the less sure to do so. In the interest under consideration "pools" cut no figure. The heavy draught-horse, as to solidity and usefulness, occupies the same position as roast beef on the table. It is not a question of sport or luxury with him, but as a plow for use in a tenacious soil, or an axe for felling heavy, hard-wood timber, adaptability to solid business is the question upon which demand finally rests.—*Chicago Live Stock Journal.*

SMOKE-HOUSE AT SMALL COST.

Every farm should count among its out-houses a good smoke-house. The necessity for such a house is too obvious to call for argument in its favor. When the farm is a small one, and the meat produced thereon is for home consumption only, a large and elaborate smoke-house is, however, not required; in fact, a cheap one serves every purpose, and when meats are to be smoked in a small way an expensive building is a needless extravagance.

The object in smoking meat is to expose the meats to the action of creosote and the vapors resulting from smouldering wood. This is done not only to gain sundry flavors imparted by the smoke, but to gain the preservative principle given by the creosote. All that is necessary to bring this about is space enough in which to hang the meat, that can be filled with smoke and shut up tight, with conveniences for suspending the pieces to be cured. In some smoke-houses the fire is made in the center of the house on a stone slab; in others the fire is placed in a pit in the ground about one foot deep; again the fire oven is built outside the smoke-house.

The very cheapest form of smoke-house is what is termed the hogshead or cask house. This is made, as the name suggests, of a hogshead or large cask. It is familiar to old readers, but is again described for the benefit of beginners who have no dollars to spend on the construction of a regular house. First, dig a small pit; place a flat stone or a brick across it, upon which the edge of the cask can rest. This pit ought to be about one foot deep and nearly one foot wide, and say three feet long. Remove both head and bottom of the cask. Pass two cross-bars through holes bored in the sides of the cask near the top; upon these rest cross sticks from which the hams are suspended. Then replace the head of the cask and cover with sacks to confine the smoke. Set the cask so that half the pit will be beneath it and half of it outside. Place some live coals in that portion of the pit outside of the cask and feed this fire with damp corn cobs or hardwood chips. The pit must now be covered with a flat stone by which the fire may be regulated and may be removed when necessary to add more fuel. This fire must, of course, burn slowly, so as to produce smoke and not flame.

When a larger house is required than a cask affords, this may be constructed of wood or brick, as best suits the convenience of the builder. A favorite plan is to have fire ovens of brick, built on each side of the house; these are constructed upon the outside, but space left between the bricks on the inside, through which the smoke escapes. The outer part of the oven is open at the front, but may be closed by an iron door or a piece of flat stone. When the fire is kindled in these ovens the doors are closed and the smoke has no means of escape except through the inside spaces. Being so confined, the fire of necessity slowly smoulders, making a steady smoke. Smoke-houses with these outside fire-ovens are very clean, there being no ashes inside. The floors to such a house may be of cement or of hard brick laid in cement or mortar. These outside ovens, by the way, can be fitted to any

kind of a smokehouse by cutting the necessary openings at the bottom of the walls and protecting the wood work with strips of sheet iron around the bricks.

Meat, to be perfectly smoked, must be continually surrounded by smoke produced from material that imparts a pleasant odor. Corn-cobs and good hickory wood furnish admirable material. While the smoke ought to be continuous, the smoking process should not be hastened to such a degree as to raise the temperature sufficiently to make the fat ooze out of the meat or prevent the creosote in the smoke from thoroughly permeating it. In a word, the fire must neither be permitted to die out nor blaze up. It is the slow combustion of the wood that permits the escape of most of the wood acids which impart their flavor and antiseptic properties to the meat.

Old smokehouses should be thoroughly cleansed previous to use, and the contrivances from which meats are suspended, looked after and repaired to prevent their breaking down and bringing the meat in contact with the fire and ashes.—*N. Y. World.*

WHY A KEROSENE LAMP BURSTS.

Girls as well as boys need to understand about kerosene explosions. A great many fatal accidents happen from trying to pour a little kerosene on the fire to make it kindle better; also, by pouring oil into a lamp while it is lighted. Most persons suppose that it is the kerosene itself that explodes, and that if they are very careful to keep the oil itself from being touched by the fire or the light there will be no danger. But this is not so. If a can or a lamp is left about half full of kerosene oil the oil will dry up—that is, “evaporate”—a little and will form, by mingling with the air in the upper part, a very explosive gas. You cannot see this gas any more than you can see air. But if it is disturbed and driven out, and a blaze reaches it, there will be a terrible explosion, although the blaze did not touch the oil. There are several other liquids used in house and workshops which will produce an explosive vapor in this way. Benzine is one; burning fluid is another; and naphtha, alcohol, ether, and chloroform, may do the same thing.

In a New York workshop lately there was a can of benzine, or gasoline, standing on the floor. A boy sixteen years old lighted a cigarette, and threw the burning match on the floor close to the can. He did not dream there was any danger, because the liquid was corked up in the can. But there was a great explosion, and he was badly hurt. This seems very mysterious. The probability is that the can had been standing there a good while and a good deal of vapor had formed, some of which had leaked out around the stopper and was hanging in a sort of invisible cloud over and around the can; and this cloud, when the match struck it, exploded.

Suppose a girl tries to fill a kerosene lamp without first blowing it out. Of course the lamp is nearly empty or she would not care to fill it. This empty space is filled with a cloud of explosive vapor arising from the oil in the lamp. When she pushes the nozzle of the can into the lamp at the top, and begins to pour, the oil, running into the lamp, fills the empty

space and pushes the cloud of explosive vapor up; the vapor is obliged to pour out over the edges of the lamp, at the top, into the room outside; of course it strikes against the blazing wick which the girl is holding down by one side. The blaze of the wick sets the invisible cloud of vapor on fire, and there is an explosion which ignites the oil and scatters it over her clothes and over the furniture of the room. This is the way in which a kerosene lamp bursts. The same thing may happen when a girl pours the oil over a fire in the range or stove, if there is a cloud of explosive vapor in the upper part of the can, or if the stove is hot enough to vaporize quickly some of the oil as it falls. Remember, it is not the oil, but the invisible vapor, that explodes. Taking care of the oil will not protect you. There is no safety except in this rule: Never pour oil on a lighted fire, or into a lighted lamp.—*By a Civil Engineer, in Christian Advocate.*

WHERE TO ECONOMIZE.

A mother who was particularly successful in keeping her children at home of evenings, so much so that it was with difficulty they could be induced to accept an invitation to spend an evening away from home, was asked if she had any particular secret for doing so. She replied that she could think of none, except that she kept her sitting-room and parlors very light. “We always have all the light we want; we put the gas on, full blaze, in both back and front parlors; then we keep the house comfortably warm all over, and this is the only secret, if it is a secret.” To this it was objected that it would be very expensive. She replied, “Oh well, we will economize in something else, if necessary, but a cheerful light at evening we will have.”

Her remark was very suggestive, not only of the great difference in the cheerfulness of a well lighted house and the gloom of one when the light is poor and stinted, but of the choice there is in matters of economy. In these times nearly every one has to study economy in some directions, but in family life it ought to be directed so anything rather than the curtailing of family comforts or of the quality and quantity of children's food. Better wear the plainest clothes, better have no extra suit, better put up with old and patched furniture than to deprive any one of real comfort, especially the children. Warmth and light are the most essential of these. Warmth and light are the attractions used by the saloons and other places of like sort to draw our children from us. We must counteract these by providing better of the same kind. We cannot afford to economize too much in these.

So in regard to children's food and clothes. There are two articles of food of which children are very fond, and which are nutritious and wholesome, which are often economized in unwisely. These are milk and sugar. Better to do without desserts all the time and let the children have their milk to drink and plenty of sugar on their oatmeal and stewed apples. Better a dime's worth of good, pure candy occasionally, than the costly and too often indigestible mince pie. In clothing also the same discrimination should be observed. Plenty of good, warm underclothing, good stockings and stout, well-fitting shoes, will

make presentable the plainest dress. If economy must be studied in children's clothes, let it be in trimmings and ruffles, and not in those things which give warmth and comfort.

To practice economy successfully requires a great deal of study and experience. It is generally not a very encouraging or pleasant thing to do, and yet there are those who have become enthusiastic in it. It has seemed to have almost the fascination of a game to some to see how little they could live on and live comfortably. If one has to do it, it is better to do it such a spirit, than complainingly and fretfully. And, as to accomplish something is always a satisfaction, there may be a certain satisfaction in the study and experimenting that leads to a knowledge of how to economize in the best way and places, how to live well, and at the same time live cheaply.

—*Chicago Weekly Magazine.*

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The Lancaster County Agricultural and Horticultural Society met steadily on Monday afternoon, March 5th. The following members and visitors were present: H. G. Rush, West Willow; John C. Linville, Gap; H. M. Engle, Marietta; Casper Hiller, Conestoga; Joseph F. Witmer, Paradise; J. G. Rush, Willow Street; S. G. Engle, Marietta; E. B. Brubaker, Elizabeth; David M. Eyre and wife, Schock's Mills; Johnson Miller, Lititz; W. B. Paxson, Colerain; F. R. Diffenderffer, city; W. W. Griest, city; C. A. Gast, city; J. M. Johnston, city; John I. Carter, Chatham, Chester county; John Musser, East Donegal; John Huber, Pequea; S. P. Eby, Esq., city; Levi S. Reist, Warwick; Cyrus Neff, Mountville; M. D. Kendig, Creswell; C. L. Hunsacker, Manheim; — Herr, Pequea; Peter Hershey, city; Calvin Cooper, Bird-in-Hand; John H. Landis, Manor; Peter S. Reist, Lititz; J. T. Clark, Chestnut Level; E. H. Hershey, Manheim; J. B. Reist, Manheim; G. W. Hunter, city; B. K. Miller, Millersville; A. B. Bruekhart, West Hempfield; Amos Bushong, East Lampeter; W. B. Stewart, city; J. S. Eshleman, Wayne county, Ohio; D. B. Keeperts, city.

The meeting was called to order by H. M. Engle, who assumed the position of President at the request of the President elect, Mr. Rush.

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

Mr. J. M. Eaby, of Paradise, was elected a member of the society.

The regular order of business was, on motion, dispensed with, and Mr. John J. Carter, of Chester county, introduced. The gentleman delivered the following address on the subject of

Creameries.

The subject assigned to me to write upon to-day, had to be accepted with some little latitude, because I have very little experience with the practical workings of creameries, proper—a creamery, meaning a butter and skim milk cheese factory—and further, I thought a wider range given to the subject, embracing other classes of dairy product manufactories, and various systems of cream raising might be equally interesting and instructive.

The manufacture of butter and cheese, etc., in one establishment of the milk of a number of dairies, is certainly an advance over the old plan, of every dairyman making his own butter. The farmer, making but 25 to 50 pounds per week cannot afford that complete equipment necessary in an establishment making 1,000 to 1,500 pounds. With these better facilities, a better article is made, and one much more regular in quality than if made in the 20 or 30 different lots by the farmers themselves.

The opportunities for effecting good sales and securing a steady market are greatly increased when large quantities are to be disposed of, and better terms of shipment, and in fact, all advantages are enhanced by buying a large amount of products to dispose of in one transaction. The testimony of our

marketmen shows that there has been a rapid advance in the average value of our butter product, since the advent of the creamery system in Eastern Pennsylvania. Creamery or factory butter has a quotable price, whereas the butter made in small dairies is very uncertain both in quality and price, much of it selling below the cost of production.

The late introduction of imitation butter from suene and oleomargarine, has very greatly depreciated the price of these cheap butters, and the creameries came in very opportunely, offering an outlet for the milk of these unprofitable dairies.

Butter making by farmers has also been unsatisfactory from the uncertainty of prices to be realized; nothing but the vaguest of guesses as to the probable price from one week to another.

This uncertainty intimidated farmers from stocking with cows, that could have judiciously used up their surplus provender. Creameries and butter factories have more regularity as to prices. They can give a pretty definite idea of the probable average price of milk for a year or for the varying seasons.

This enables the farmer to make calculations of probable profit, and he can safely decide, how he shall stock his farm. For instance, in my factory, which is only a butter factory, I find the average price for milk, during the year, reckoning it every two weeks to be 3½ cents per quart, or \$1.33 per hundred pounds. Some creameries may return more than this, but I presume it is a fair average. It will vary a little with defunct years, but not more than the price of other staple farm products. A farmer having a milk-dairy, can speedily turn it into some other line of farming, should anything occur to make a change desirable. Cows are a merchantable article, at any time or condition. There can be no loss on dairy appliances, for but little is invested in them. Perhaps, one of the most serious items of expense for the farmers to consider before going into the milk business is the hauling. Two-and-a-half miles is quite far enough for the farmer to haul, or safe for the creamery to receive. To be sure it is sometimes drawn much farther; but the circumstances should be favorable, such as good roads, a cheap driver, and to points where there are also shops, mills, postoffices, etc., where the daily visit could do other errands. Such distant farmers should also have a suitable place to cool and keep the evening's milk over night—as very little tainting will spoil it for any purpose. These remarks bring me to the location of creameries—they should be near some public place accessible by good roads—situated on some stream, with water power, or at least with plenty of water. Water is a good absorbent of odors, as well as a cleanser, and milk refuse is a very offensive thing. Ice is a necessity also, and is expensive to haul. They should be situated in a good farming district, where good pasture and pure water will insure sound milk. There must be cows enough, present or prospective, within a radius of 2½ miles, to support it. It will not be safe to calculate on many farmers making a specialty of dairyming. Mixed farming will probably be the rule in Eastern Pennsylvania for many years yet. The dairies will probably run from 5 to 25 cows.

A cooperative creamery possesses some advantages. Less individual capital is required, and the milk patrons, if stockholders, are interested in keeping up a good supply of milk and its quality, and would not be so tempted to water it. On the other hand creameries or factories, run by individual enterprise, are likely to have conflict of counsel and troubles of management. An exclusive owner will be likely to give it his fullest attention; to act with more promptness, and to carry out more effectively a settled line of policy. A good price paid will mostly bring good milk, whether the dairyman is a stockholder or not. But all factories suffer more or less from adulterated milk.

Taking all together I rather favor the plan of individual enterprise. Whatever plan is adopted, it should be borne in mind that from the nature of things, the business is limited in extent, and there can be no great bonanza in it as a speculation. For reasons given before, the area of supply is limited. Hardly any vicinity would afford a yield of more than 1,500 to 2,000 pounds of butter per week, or its equivalent of butter and cheese. A margin of 4 to 5 cents per pound above the cost of the milk is considered a reasonable profit for a butter factory. This does not include the value of skimmed milk. As this advance is to cover the cost of labor, running expenses, and interest and loss on investment, it is easy to see that the investment in buildings and appliances should not be too great if a reasonable profit is expected.

And this brings me to the consideration of the kind of a factory. We have in our vicinity three kinds: butter and cheese; butter and curd, and butter and hogs.

Butter and cheese factories, or what are usually called creameries, are the most popular. If they are well located, and judiciously run, and are fortunate in having a good cheese maker, they are doubtless the most profitable.

To make a well-managed skim-milk cheese, is perhaps the best use that skim-milk can be put to. The product is healthy, palatable, and profitable. But it

is almost a science to make them so. Many failures have occurred among creameries from the employment of unskilled cheese-makers.

Expensive appliances as well as skilled labor are required to run a creamery profitably. An outlay of \$6,000 to \$8,000 will be needed, and the equipment rather perishable. The routine of their management is so well known that a detailed description would be superfluous. Butter and curd factories are few, as the market for the curd is somewhat limited. They are equipped somewhat like a butter and cheese factory, but without the presses and cheese rooms.

They take all the cream out of the milk, and clabber the skim milk, by heat or otherwise, which is broken and drained of its whey, somewhat like cheese-curd. This smear-case is branded and shipped to a factory in Philadelphia, where it is made into Duteb hand-cheese, weighing from one to two pounds. The curd brings two cents per pound—less freight. One hundred pounds of milk will make at this time of the year about 3¼ pounds of butter and 8 pounds of curd. The advantages over creameries are less, and cheaper labor, as well as less machinery and outlaying capital. The whey is also worth more than creamery whey, as it contains the buttermilk. Creameries usually use their buttermilk to give body to their cheese. A simple butter factory can be a much cheaper establishment. Less room is needed and the outlay for appliances need not exceed \$1,000 or \$1,500. Still less labor is required, of course, than in either of the other kind of factories. A man and boy can make 1,000 to 1,500 pounds of butter per week, and only employ half their time. The pork in this case stands against the curd and the skim cheese. Hogs will not only grow but fatten on skim milk alone, particularly during warm weather. Under favorable circumstances, they will gain from 1½ to 2 pounds gross per day. It is not judicious to feed a hog too long on an exclusive milk diet. I prefer to buy shoats, weighing 50 to 75 pounds and feed until they weigh 250 pounds, at which weight they are sold. A hog will drink from 3 to 4 gallons per day, and should be fed four times at least. An occasional feed of meal or bran, is needed as a corrective to a disposition to costiveness. In connection with our factory I keep about 100 head of hogs, changing them off every three or four months. This is done on the skim milk, from the average make of 600 pounds of butter per week. Probably the skim-milk contained a good deal of fat. It was good for the hogs but bad for the butter-maker. Our average of milk to a pound of butter for the whole year was eleven quarts. This was too much, and this brings me to the best plans for raising cream or extricating fat from milk. The old-fashioned shallow pan is very seldom used in factories. Creameries use large, deep vessels arranged for rapid cooling with ice, the object being to get a portion of cream off, before the milk turns, else its value for cheese is lessened. Many different patents are used, all having the same object in view. Some factories tried underground air-ducts, proposing to cool the milk with cold air—but the plan proved inefficient and expensive. Simple butter factories usually use spring water as the cooling medium, with the small deep cooling can, or other water bath pan.

The latest and perhaps the best cream-raiser is the Centrifugal Creamer, a late Danish invention now being manufactured and introduced by the Philadelphia Creamery Supply Company of that city. I have had one of these machines in operation a few weeks, and am confident that it will take out 10 per cent. more fat or butter than my annual average, which was a fair one. This will be a large item to butter factories where the aim is to take out all the butter they can. Not only is more butter taken out, but the cream is in excellent condition for butter, ice cream, or any purpose whatever. The new milk just from the cow is run through the machine, thus avoiding any risk from exposure to taints or odors while settling in the milk-room waiting for the cream to raise. It gives perfect control of the cream, as you can churn at any stage of ripeness, from perfect sweetness to bitter sour. Accidental impurities in the milk have less time to injure the whole mass, as the cream is separated rapidly and all dirt or sediment thoroughly separated from the milk and cream. A large proportion of the space now required for setting the three milkings can be saved, as the milk runs through the machine as delivered at the factory. So far we have discovered no injury to the grain of the butter, on the contrary, the quality is very good and regular. The machine consists of a horizontally revolving cylinder twenty-five inches in diameter and 18 inches deep, holding, when running, about 30 quarts. It runs at a speed of 2,000 revolutions per minute. It is fed by a half-inch pipe, delivering the milk at the bottom of the cylinder, with outlet pipes for cream and skim-milk. It requires about a 3-horse power to drive it, but so far shows no signs of giving out, notwithstanding its great speed. We run through 1,000 pounds of milk per hour, and are now able to make a pound of butter from 23 pounds of factory milk. I should not wonder if it revolutionized butter-making to some extent. It will at least place butter factories on a par with creameries. They cannot

make their cheese much poorer, with safety to its quality, while the gain, in the butter factory of 10 per cent. more butter, will add largely to its profit. As I have lengthened this paper much beyond its intended limits, you will excuse me if I close the subject abruptly.

Inquiries on the Subject.

In answer to a question by Mr. Witmer in reference to whether there was any difference to the creamery in the quality of milk delivered, Mr. Carter replied that the milk was tested by cream gauges, specific gravity, etc., and if milk did not come up to the standard, the patron would be paid a less amount for his milk than if the milk was good. He said creamery butter was not as high as what is called "fancy dairies," but he got a better price than the average dairies. The average price throughout the year was 41½ cents per pound, less freight. There are two sizes of machines, the largest size costing about \$550. He advised the use of machinery because there was no doubt that it would extract more fat from the milk than could be procured by any other process. The cream also churns more readily, churning about 140 pounds in fifteen minutes. By the action of the machine, the cream is thrown upon the outside, together with any sediment or dirt. Any good agricultural community, he thought, would be benefited by having a creamery or butter factory in the vicinity. A creamery would make from 30 to 35 pounds of cheese per day, nearly all of which could be sold in the neighborhood. Too many creameries would, no doubt, overstock the market and would not prove a profitable investment. Butter factories, however, do not cost so much, and will pay farmers better for their milk than they could make if they would manufacture their butter themselves.

In answer to a question as to whether creameries, by taking away the rich qualities of the milk, would not tend to have a bad effect on the fertility of the land, Mr. Carter replied that, while it would, theoretically, they would tend to induce the better feeding of cows, which would no doubt prove a compensation for the loss.

Experience of a Lancaster Dairyman.

Mr. Eyre said his experience with cotton seed meal was that it made white butter, and was not as good as linseed. This latter seed should be fed very judiciously, his ration being about one-ninth. Last winter he received about 45 cents per pound, net weight, for his butter, and this winter his lowest price was 40 cents per pound. If a person wants to make a good article of butter, he wants good, clean stables, thoroughly sewerred. Then you want good Jersey or Guernsey cows, and such only as will make from 12 to 15 pounds per week. They require close attention in reference to feed. He feeds four parts of corn chops in ears, four parts of oats shorts and a small quantity of linseed meal. Last year he sold \$1,050 of butter from eleven cows, besides feeding a family of eleven persons. Of this sum \$500 was profit. This winter he was making 100 pounds per week, which netted him about \$30 per week.

Mr. Eby wanted to be informed what the nutritious qualities of dried corn cobs were, and Mr. Eyre replied that he found if he fed his cows chopped corn alone, they would make too much beef, whereas by mixing the chopped cob with the corn, you could feed greater bulk without having a bad effect on the animal. The mixture should be thoroughly moistened before it is fed.

Mr. Hunsecker said it was a matter of great importance that the product of the cows should be well prepared, and it was important that our cows should be fed good food. They should also have pure, good water, and good stabling, and great care should be taken that the butter is made in a cleanly manner.

On motion of Johnson Miller, the thanks of the society were tendered Mr. Carter for his valuable paper.

The State Fair.

Mr. Cooper stated that he had received a letter from the Secretary of the State Agricultural Society, stating that the society had two points in view for

the next fair—one being Philadelphia and the other Lancaster. The committee preferred Philadelphia, but there was some trouble in reference to a suitable place there, and the Secretary would give Mr. Cooper a definite answer by the 1st of April. In reference to holding a county fair, he had seen Mr. McGrann, the owner of the fair grounds, and had been told that terms could probably be made.

The Question of Fertilizers.

Mr. W. B. Paxson, to whom had been referred the question, "Which is the most profitable fertilizer, clover, home-made manure or commercial fertilizer," read the following essay in answer to it:

It is with reluctance that I endeavor to answer this question, which is of manifest interest and the source of great anxiety to every tiller of the soil, "Which is the most profitable fertilizer—clover, home-made manure or artificial fertilizer?" We are all aware of the fact that when the farm yields a crop of any kind there is extracted from the soil those elements that principally constitute its riches or fertility, and unless there is returned to the soil those elements of fertility and richness it will in course of time be exhausted and fail to repay for the labor required in its cultivation. Fertile soil is the gift of Providence to the human race, and, although it may be rich in those elements that constitute its fertility, yet a full benefit cannot be derived from it for any length of time without exhaustion. We have within our power however, the means by which the exhausted soil can be recuperated and restored to its former fertility, and every practical and prudent farmer takes advantage of these opportunities in order that his farm may be brought to the highest degree of productiveness. In former years clover was used extensively as a fertilizer, with satisfactory results. It is an acknowledged fact that when a crop of clover is ploughed down, it adds to the soil an additional food plant to the succeeding crop, but when a field will yield a good crop of clover, is it not too valuable for the plow? It could, I think, be better utilized by cutting it and feeding it to the stock on the farm, for the object of raising stock is the chief aim and support of the farmer, and thus it could be returned to the soil in the shape of manure, which contains all the elements necessary for all crops, and yet we have still the sods and roots which are very enriching. One of the most serious objections to clover as a fertilizer is the too frequent failure of getting a field well set. It is said that clover takes from the soil lime and potash principally. Whether our soil is deficient in these valuable ingredients, I am unable to say, but I have attributed the failure in a great measure to the drought and cold springs. One of the serious mistakes which we, as farmers, too often make is that we invariably sow too small a quantity of clover seed on our fields, and I think we would obtain better results if we sowed a third more seed.

Farmers, in general, do not devote enough attention to the cultivation of this indispensable crop, and there would be less fluctuation in the yield of the crops if farmers would use it more as a fertilizer, instead of resorting to artificial fertilizers. I am fully aware that we cannot succeed very well without using more or less chemical fertilizers, but have we not been paying great deal higher prices for these materials than we ought to pay? And has not this been a source through which passes much of the profits of farming? It is not wise, therefore, for farmers to depend upon the fertilizers of some particular brand, that are offered for sale so largely in our State. Analyses have already demonstrated the fact that those inferior brands have been selling for one-fourth more than they are worth. Thus, it behooves farmers to be careful and deal with responsible parties, and buy only on guaranteed analysis. In regard to homemade manure, we know it is adapted to all soils and contains those nourishing elements intended for plant food. Nothing will restore the exhausted soil to its former fertility as well as home-made manure, and upon which too much value cannot be placed or too much care cannot be exercised to collect as large a quantity as possible.

The question was discussed by several members of the society, after which Mr. H. M. Engle, who had been asked to prepare a good list of small fruits for farmers, reported the following, which he said he thought would prove satisfactory: Strawberries, Charles Downing, Cumberland, Sharpless and Crescent. Raspberries—Black-caps, Dorlittle, Miami, Gregg, Reds, Brandywine, Turner and Culbert. Blackberries—Kitatinoy, Lawton and Snyder. Currants—Cherry, Red Dutch and White Grape. Gooseberries—Houghton, Downing and Orange.

On motion the treasurer was instructed to pay to the Secretary of the State Society the sum of \$5 towards defraying the expenses of printing the proceedings of a recent convention of delegates of the county societies, held at Harrisburg.

The following questions were referred for answers at the next meeting: "Is there any feasible plan for farmers to avoid boarding the 'hands'?" to Calvin Cooper. "Has agriculture kept pace with the other industrial pursuits?" to W. B. Paxson. "Is it good policy to turn the cows on the early grass before plowing for corn, and afterwards be compelled to restrict them to dry rations?" to Jos. F. Witmer. Adjourned to meet on the second Monday in April.

POULTRY ASSOCIATION.

The Lancaster Poultry Association met stately on Monday morning, March 5th, with the following members present: George A. Geyer, Florin; J. B. Long, city; F. A. Diffenderfer, city; J. B. Lichty, C. A. Gast, city; H. A. Schroyer, city; H. S. Garber, Mt. Joy; A. S. Flowers, Mt. Joy; J. W. Brueckhart, Salunga; H. T. Shultz, Elizabethtown; H. Schmidt, city; J. M. Johnston, city; John E. Schum, city; Charles Lippold, city; Wm. Powden, city.

The minutes of the previous meeting were read and approved.

Mr. J. B. Long, of the committee appointed to devise ways and means for the liquidation of the debt, reported that he had made an effort to procure subscriptions, and had only succeeded in obtaining \$100. As this was far below the sum required, the committee came to the conclusion that it would be necessary to ascertain at the present meeting how many members would take shares in a new association at \$10 per share, and in this manner incorporate a new society which will take the place of the present one. The committee had only arrived at this opinion after mature deliberation, and they did it for the purpose of awakening more interest in the society. This method, they thought, was the only practicable one that they could devise, for paying the debt of the society. He had drawn up a paper to which he asked signatures of persons obligating themselves to take a certain number of shares at a par value of \$10, the whole number of shares being 35.

The amendment to the by-laws changing the time of meeting from the first Monday to the first Friday in each month, at 10:30 o'clock A. M., which was offered at the last meeting, was then taken up and lost by a vote of 9 to 3 against the amendment.

After some discussion it was resolved to double the number of shares, and reduce the par value of each share to \$5. The paper was then circulated among the members present, and 50 shares were at once subscribed for. Peter S. Goodman, city; Chas. J. Rhodes, Safe Harbor; H. A. Schroyer, city; F. M. Sourbeer, Mt. Joy; and R. J. Myers, Mt. Joy, were elected to membership in the society.

On motion of Mr. Long, a committee of seven was appointed to make the necessary arrangements for turning the society into an incorporated stock concern, prepare constitution, by laws, etc. The committee was appointed as follows: Messrs. J. B. Long, John Seldomridge, George A. Geyer, J. B. Lichty, F. A. Diffenderfer, John E. Schum, and H. S. Garber.

On motion, the society adjourned to meet Monday, April 2.

LINNÆAN SOCIETY.

The Linnæan Society met in their rooms on Saturday, February 24, 18-3, President J. P. Wickersham in the chair. In absence of secretary and assistant secretary, Prof. J. S. Stahr was appointed secretary pro. tem. The minutes of previous meeting were read in part and dues collected.

Donations to Museum.

Mr. Dibble, of North Queen street, Lancaster, through Mr. Wm. Roehm, specimen of an abnormal chicken, subject to withdrawal on one week's previous notice. The specimen is a good one of the kind. These monstrosities may have their scientific value, but somehow they are all more or less revolting to cultured feeling. They are out of the line of orderly development, and must be the result of organic violation.

C. A. Heinisch donated one of Rogers' sand boxes, imported in 1790.

Donations to the Library.

Three additional volumes of the Second Geological Survey of the State of Pennsylvania, from W. A. Ingram, secretary of Board; the *Lancaster Farmer* for February, 1883; the *Boston Daily Advertiser*, a 20-page folio, its 70th anniversary number, and gives a history of its career during that period; proceedings of American Philosophical Society, from June to December, 1882; an essay on "Demoralizing Literature and Art;" illustrations of rare coins; three catalogues and three circulars; one envelope containing thirteen historical and biographical scraps.

Reports from the consuls of the United States on the commerce, etc., of the Consular Districts. A partial report of committee appointed to collate the amendments to the constitution and by-laws, was handed in and the committee continued to the next meeting. Dr. Rathvon reported that his arrangements in regard to keys were not yet perfected. The President then appointed the following chairmen of the respective committees:

Mammology—Dr. M. L. Davis.
Ornithology—Wm. L. Gill.
Herpetology—W. S. Bolton.
Ichthyology—C. A. Heinisch.
Entomology—S. S. Rathvon.
Botany—Mrs. L. D. Zell.
Geology—Prof. J. S. Stahr.
Paleontology—Dr. T. R. Baker.
Microscopy—Dr. H. L. Knight.
Mineralogy—J. B. Kevinski.
Archæology—Prof. J. H. Dubbs.
Natural and Historical Miscellany—Mrs. P. E. Gibbons.

After some remarks by the President, the society adjourned to meet on Saturday, March 31st, at 2 P. M., in Museum Room.

AGRICULTURE.

Treatment of Heavy Soil.

If the Indiana inquirer's clay land has become "exhausted," I think it is the result of shallow ploughing, for no soil will endure for wheat like a strong clay, under proper treatment. A good summer fallow is what his land first needs, and it should be a thorough work. Let the plough down not less than nine inches; plough in June before the soil becomes too dry, but not when so wet as to be adhesive. Very soon after ploughing it should be harrowed, so as to fine the surface; then rolled, and if at all lumpy, harrow and roll until it is fine. Then, within three or four weeks go over the field with a gang-plough, turning the surface about four inches deep, after which harrow again, and if yet coarse, use the roller once more, and afterward, at regular intervals, repeat the work with gang-plough and harrow two or three times over, and if necessary to make the land perfectly fine and mellow to the depth of about four inches use the pulverizing harrow oftener, until the surface is perfectly fine for a seed-bed. Keep the soil under frequent cultivation up to seedtime, but do not plough a second time or work it deeper than four inches. Drill $1\frac{1}{2}$ bushels of clean seed with 200 pounds superphosphate of good quality per acre between September 10 and 15. Lands treated in this way when thought to be exhausted have not failed to be renewed and produce large crops.

I have clay land on my farm that has been under cultivation over fifty years, without any barnyard manure applied, that produced last season thirty bushels or more of wheat per acre. There is fertility in our heavy soils, beyond our conception, which is only developed by disintegration and fine pulverization. It is quite common for farmers to say, when a crop fails to be abundant, that the land is exhausted, when really it is only their method of cultivation that is at fault. When land is new, or when kept rich with barnyard manure, it readily yields to the plough and barrow, and becomes fine

and mellow, an indispensable condition to plant growth; but after years of slight cultivation it becomes tenacious and coarse, but when by thorough working it is made equally fine and mellow there is no lack of plant food to produce abundant crops. Thorough and deep cultivation of heavy clay soils, with proper drainage, will render them almost inexhaustible. As to green manuring, I have never, in long experience, known a good crop of clover grown that did not greatly benefit a following wheat crop, whether ploughed in or taken off the land, but have seen other vegetable growth ploughed under showing a decided injury to following crops, by its leaving the soil so light and loose as to cause heaving by the action of frost to the destruction of the wheat plant.—*F. P. Root, Monroe county, N. Y.*

How to Mulch.

Mulch is profitably applied to fruit trees, both summer and winter. Mule peach trees in winter with coarse manure close around the trunks, then as soon as the buds swell and blossoms appear: but before the peach moth deposits its eggs. It should be "tied" to the tree by throwing a furrow toward the tree on two opposite sides; or, by shoveling the surface soil, so that the mulch embraces the stem a foot above the level of the ground. The peach moth, finding its way to the soft bark below the surface of the earth bared by the mulch, deposits its eggs in the manure—where they either fall a prey to birds, or, the grubs are unable to penetrate the hard bark, and suffer the consequences of misplaced confidence in barking up the wrong tree. The peach tree is subject to many disorders, but it need not "have worms." Plenty of manure keeps the tree vigorous and thrifty and in proportion as a tree is vigorous, it, like an animal, has a higher temperature than the air in winter; but when weak for insufficient nutrition it has less ability to resist cold—and not only the germ in the bud, but the whole fruit spur is frequently destroyed.—*Quincy, Illinois, Agriculturist.*

Effect of Cultivation.

The common potato probably shows the effect of cultivation as much as any plant ever introduced into our fields or gardens. But it is not generally known that the change from its normal to what we may term improved state is quite rapid, requiring only a very few years to produce large tubers of various colors from the wild ones by careful culture. Where the wild plants grow abundantly in New Mexico and some parts of Arizona, the ranch men assure us that when they plow up the wild plants in putting in cultivated crops, the effect upon the potatoes is quite marked. The tubers at first are about the size of small marbles, or a half inch or a little more in diameter, but the second season after being disturbed they will become nearly or quite double the original size, and the next season still larger, if not killed out in plowing and hoeing. The size of the plants also increases, and the leaflets, which at first are only about a half an inch wide by an inch in length, increase in the same proportion as the tubers. We have ourselves gathered the tubers from the wild plants in the undisturbed soils of the valleys of New Mexico, as well as from the disturbed or plowed land, and noted the difference in size as claimed by many of the residents of the country.—*N. Y. Sun.*

The Muck and Peat Supply.

With many farmers peat or muck is the cheapest and best addition they can make to home-made manures. We have tried these for many years, even within a short distance of the tide water and the wreck of the seashore, and found them always a paying investment. The fall when the swamp or peat bog is comparatively dry, is usually the best season to get out a year's supply. Dig it in broad trenches, six or eight feet wide, and go down at least six feet if there is that depth of muck. In this way you can work with little trouble from the water below the water level in the bog. Thrown out upon

the bank, the material will soon become dry, and will be improving under the action of the frosts and the atmosphere all through the winter. Six inches of dry peat covered with leaves or litter of any kind, makes excellent bedding in a stall, and when mixed with the urine and dumping of the cattle produces a valuable fertilizer. The success of a farmer is generally measured by the length, breadth and height of his compost heaps. Study the arithmetic of your muck and peat beds, and work out the salvation of your soil.—*American Agriculturist.*

Increased Culture.

Intelligent men are beginning to see the folly of increasing the size of the farm at the expense of its culture. A few see what multitudes could not be brought to realize, that it is better to raise 500 bushels of wheat on ten acres rather than on fifty. The latter is the practice by the majority of farmers in some whole districts, especially where the land is let to tenants. It is one of the blessings connected with the high price of labor that it forces the farmer to economize the time of his men and means by cutting short the number of acres plowed, harrowed and harvested, and increasing the fertility of the fewer acres gone over. One man and one team may thus be made to answer when ten acres are put into wheat, where four men and four teams would be necessary to put in fifty acres. By sowing clover on a heavily manured field the product is enormous. The aftermath turned under, and the surface harrowed and rolled and rolled and harrowed, and well coated with manure, will insure a heavy crop of wheat. Seed again with clover and turn under after cutting one crop of clover, and manure again and sow to wheat. Large yields will be certain and sure to increase from year to year, until fifty bushels will be as common to the acre as five are now. A man can afford, perhaps, to thus bring up ten, if not ten five, two or one acre, but when fifty acres are to be thus treated, he is either a bold, wealthy or enterprising man who will dare attempt it.—*Practical Farmer.*

The Methods of Farming.

With the wonderful improvement that is going on in all departments of human labor it is safe to infer that progress in agriculture will keep pace with that made in others. There is need of active brains, as well as of hands, in the attainment of so desirable a result. By taking advantage of new methods, as published in our agricultural papers and books, we can appropriate the thoughts of others, and by the practical application of them, reap the resulting benefits. Novelty is as necessary in farm life, in order to render it attractive, as it is in other pursuits. Profit and attractiveness can be made inseparable. In nearly doubling the yield per acre, and by adorning and beautifying the home, we not only make farm life more profitable and attractive, but success in these directions makes the future appear brighter, the hearts of every member of the household lighter, and the resulting effect is a benefit to the family, the neighborhood, the State and nation.—*Rural Record.*

Tile Draining.

Do not forget that swales, swamps and any wet land with hard pan near the surface, pays very small interest, if any, in their present condition. If drained three feet deep with tile, they will pay a very large interest on the original cost, and on the drainage besides. It is not unusual to get back the cost of drainage in two crops after the tiles are laid. Where tiles can be had near, or at a cost for freight not exceeding their price at the kiln, it is cheaper to drain with tile than with stone. If tiles are not available and stones are upon the ground, use these. Draining will open a new world to the farmer who has never tried it. Put down the "crockery" this fall, and make your capital in land draw a good interest.

HORTICULTURE.

Seasonable Hints.

When fruit trees are grown with root or other crops, it is well known that such root crops will not do without manure. In this operation the trees steal a little intended for the root crops. Hence trees so grown are very likely to have a green, nice color, in strong contrast with neglected trees in grass. It must not be forgotten that trees need as much food as any other crop and that there is no better way to feed them than by applying at this season on the surface; give them something, if only ditch cleanings. Pruning of fruit trees should be completed as soon as possible, and as a general thing the less pruning the better. In apple or pear trees, strong stout sprouts are apt to come out along the main branches of the tree. These are best cut out, as in time they take to themselves the food destined for the branches beyond, and in this way injure those branches. At other times a branch for some time bearing becomes weakened by some cause, in which case it is often a benefit to cut this off back to a vigorous sprout. This is particularly the case when bark gets what the gardeners call hide-bound. In this case the branches are bettered by slitting the bark longitudinally, or by cutting back to a young sprout aforesaid.

Some have found injury to the trees from slitting hide-bound bark. The writer practiced it for years on apple and pear trees, and always with excellent results. In pruning dwarf pears cut out the weaker branches where pruning is believed to be at all desirable, even to thinning out the spurs, rather than cut back the strongly vital wood which many do.

The grape is very apt, when trained on trellises, to get its bearing wood weakened. In this case it is always wise, in pruning, to watch for a chance to get a strong young branch from near the base as a renewal cane.

Manuring of grapes should be regulated by the nature of the soil. If it be damp—in most cases a bad condition for grape growing—stable manure in great quantities means diseased vines. In dry ground, it has a beneficial effect. Many persons of small places have grapes in damp ground, or can have none. They must take care to keep the roots near the surface; never crop the ground about them to destroy the small fibres, if it can be avoided; and even good may often follow, when the vines seems failing, to carefully follow up the roots, lift near the surface and encourage, as much as possible, those remaining there. Wood-ashes, bone-dust, and such like fertilizers are best for grape vines in low ground.

In the vegetable garden the work for February will for the most part consist of preparations for future operations, and particularly for dealing with the manure question. All those kinds that are grown for their leaves or stems, require an abundance of nitrogenous manures; and it is useless to attempt vegetable gardening without it. To this class belong cabbage, lettuce, spinach, etc. The other class, which is grown principally for its seeds or pods, as beans, peas, etc., do not require much manure of this character; in fact they are injured by it. It causes too great a growth of stem and leaf, and the earliness—a great aim in vegetable growing—is injuriously affected. Mineral manures, as wood ashes, bone dust, etc., are much better for them. For vegetables requiring rich stable manure, it is best that they have it well rotted and decayed. Nothing has yet been found so well fitted for the purpose as old hot-bed dung; though to the smell no trace of "ammonia" remains in it.

Parsnips and Salsify.

The same treatment in winter will not answer for all root-crops alike. Beets and carrots are the least bardy of all, and when frozen lose their sweetness to a marked extent. The parsnip is not only not injured, but many think it is greatly improved by freezing. If the amount of sugar is not actually increased, its flesh is so modified that it tastes sweeter. The parsnip and salsify are our hardiest roots (though we

should include horse-radish), and may be left without harm in the soil where they grew. But as we cannot depend upon finding the ground open at all times, a share should be dug to supply the table. These may be packed in boxes or barrels, and if they are to be kept in the cellar, should be covered with sand to prevent them from shrivelling. They can as well be placed in some shed or other out-building.

Potato Sports.

It is not a very rare occurrence that potatoes of different colors and of different form even, grow from the same parent tuber. When we consider that the potato tuber is but an underground stem, and that its eyes are analogous to the buds of trees and shrubs, it appears not more surprising to find "bud variations" in one case than in the other. Flowers of different colors are sometimes found on one plant, and several distinct and permanent varieties have originated and been propagated from sporting buds. In roses such sports are not rare. The well-known *Bouvardia Hendersonii*, a variety with white flowers, is a sport or bud variation from a red variety, and the double *B. Alfred Neuner* is in the same manner derived from the single variety, *Davidsonii*. Variegated leaved branches are sometimes found on green leaved shrubs, and when propagated by cuttings do often perpetuate their special characteristics. Leaf variations occur also among potatoes, as an instance, of which the variegated *Early Rose*, or "Harlequin" may be cited. The *Late Rose*, *Late Snowflake* and *late Beauty of Hebron* are notable sports or bud variations. Buds are more nearly related to seeds and possess more individuality than is generally supposed by the superficial observer. Either may produce individual plants which may vary in some features from their parents. *Dr. F. M. Hecamer.*

A California Tree.

The region around Guerneville, in Sonoma county, is somewhat noted for its remarkable growth of large timber. The following account of the saw-logs cut from one of the "giants of the forest," recently felled, will no doubt be found especially interesting to our Eastern friends. The details can be relied upon, as they were furnished by Mr. W. L. Doren to the editor of the *Petaluma Argus*.

The standing height of the tree was 347 feet, and its diameter near the ground was 14 feet. In fall, the top was broken off 200 feet distant from the stump, and up to the point of breaking the tree was perfectly sound. From the tree saw-logs were cut of the following lengths and diameters: 1st, 14 feet long, 9 feet diameter; 2d, 12 feet long, 8 feet diameter; 3d, 12 feet long, 7 feet 7 inches diameter; 4th, 14 feet long, 7 feet 6 inches diameter; 5th, 16 feet long, 7 feet 6 inches diameter; 6th, 16 feet long, 7 feet diameter; 6th, 16 feet long, 6 feet 10 inches diameter; 7th, 16 feet long, 6 feet 6 inches diameter; 8th, 16 feet long, 6 feet 4 inches diameter; 9th, 16 feet long, 6 feet 3 inches diameter; 10th, 18 feet long, 6 feet diameter; 11th, 12 feet long, 5 feet 10 inches diameter; 12th, 18 feet long, 5 feet 6 inches diameter. It will thus be seen that 180 feet of this remarkable tree was converted into saw-logs. As the length and diameter of each log is given, the reader can, at leisure, figure out the quantity of inch lumber the tree contains. If, instead of being cut into lumber, it had been worked up into 7 foot pickets, it would have afforded fencing material to inclose a good sized ranch.

Can any of our mill men in the East furnish us with statistics exceeding those of the above-described "giant?"—*San Francisco Architect.*

The Sweet Brier Hedge.

Sweet brier is found wild on commons and roadsides in many places, and the hips or seed vessels remain on for a long time and are usually numerous and conspicuous, but it is doubtful whether any containing meaty seeds would be found on the bushes so late as mid-winter. The plant is quite hardy and

grows in any soil, but seems to prefer what is dry without caring much whether it is rich or not. Botanically it is the *Rosa rubiginosa* (from rusty glands on the under side of the leaves), and poetically it is the *eglantine*. Its numerous stout stems rise crowding to a height of four to eight feet, and are covered with strong hooked prickles. It is safe from cattle even in the most exposed places; the fragrance of its leaves, so delightful and exhilarating to us, seems offensive to them and they will not browse even its tender young shoots. It does not sucker, and propagates only by seeds, but in that way very readily. The garden roses take on it freely by budding, and grow with more than their natural vigor if shoots from the root cellar are kept down. Plants are quoted in Peter Henderson's catalogue at \$10 per 100, which is rather a high price for general hedge plants. In answer to inquiry he says that 10,000 plants were ordered in England, but only 500 were sent, showing them to be scarce there at present. A gentleman who had charge of a large farm in Ireland, told many years ago, in the course of some talk about hedging, that he found the sweet brier to be the best plant to fill a gap in a hedge soon, being able to maintain itself and grow even among the already established roots of the older plants. He always kept a little nursery of the plants on hand for use as a means of keeping the lines of his hedges completely filled with strong growing plants.

Sand in Garden Soil.

A light, loamy, sandy soil, is by far the best for a garden, and especially is this the case for roots. All garden vegetables to be succulent and tender must grow fast, and a rich soil is the main requisite, but moisture is equally essential. So long as we have showery weather in the spring and early summer, vegetables will grow right along, but when the hot dry weather sets in, the difference in soils becomes apparent. A garden that is ever so rich, with no sand in its composition or other good material to hold moisture will soon dry up, the plants will cease to grow as rapidly as they should, and become hard and tough; of course some plants are able to withstand more drouth than others, while others do as well as if some good mulching is put around them that will hold moisture, while often it is a very hard matter to keep growing during dry weather. Sand is especially valuable to this class, as it is hard to excel for retaining moisture. With roots sand is an almost invaluable ingredient. We have found by experience that with all roots crops sandy soil is by far the most preferable.—*Farm and Garden.*

Few persons know how closely related to the potato are many other well-known plants. Botanists know them all as solanaceous plants, and under the more familiar name as "night shades." In this class of plants are to be found the potato, the tomato, egg plant, pepper and tobacco plant. Then among the poisonous plants are the belladonnas and the Jimson weed; the beautiful petunia also belongs to it. A large portion of the plants of this solanaceous family are permeated by a narcotic principle rendering the leaves and fruit poisonous. At the same time some afford nutritious food, not because free from the narcotic principle, but because the latter is expelled in the process of ripening and cooking, as in the case of the potato and tomato.

HOUSEHOLD RECIPES.

TO COOK CHICKEN.—The following is highly recommended to housekeepers: Cut the chicken up, put it to a pan and cover it with water; let it stew as usual, and when done, make a thickening of cream and flour, adding a piece of butter and pepper and salt; have made and baked a pair of short cakes, made as for pie crust, rolled thin and cut in small pieces. This is much better than chicken pie and more simple to make. The crust should be laid on a dish, and the chicken gravy put over it while both are hot.

CRANBERRY SAUCE.—Pick over and wash the cranberries and put in the preserving kettle with half a pint of water to one quart of berries; now put the sugar—granulated sugar is the best—on top of the berries. Set on the fire and stir about half an hour. Stir often to prevent burning. They will not need straining, and will preserve their rich color cooked in this way. Never cook cranberries before putting in the sugar. Less sugar may be used if you do not wish them very rich.

TURKEY GRAVY.—To make the gravy, put the gizzard, neck and liver, into a saucepan with a quart of water, a little pepper, salt and mace; put it on the fire, and let it boil to about a half pint. When done, braid up the liver very fine with a knife, and put it back into the water it has boiled in; then add the drippings of the turkey and a little flour, and give it one boil, stirring it all the time. Dish the gizzard with the turkey.

CABBAGE SALAD.—To a dish of chopped cabbage, four teaspoons of celery seed, or one bunch of celery. Put in a bowl yolks of two eggs, one teaspoonful of sugar, one teaspoonful of butter, one teaspoonful of pepper, one teaspoonful of made mustard, one half teaspoon of vinegar. Set the bowl into hot water, stir carefully until it begins to thicken. Let it get cold. Pour over the cabbage. If it does not moisten it enough, put in a little more vinegar.

VEAL CHOPS.—A good way to prepare veal chops is to dip them in beaten egg, then in fine cracker crumbs, seasoned with pepper and salt, and a little sifted sage; a few thin slices of onion add to the flavor. Fry the chops in hot lard.

BEEF TEA.—A quick way to prepare this is to chop a pound of lean beef fine and put it in a bowl, covering with cold water. Let it stand for fifteen minutes onward—that is longer if you have time. Then pour beef and liquid in a saucepan and boil from fifteen to thirty minutes. Strain off the liquid; season slightly with salt. It is better to let it cool and take off the fat; also to let the beef soak a long while, as that draws out the juices. Soak in cold water.

BAKED CODFISH.—Baked codfish is an excellent breakfast dish; cut the fish in small pieces and let it soak all night in cold water; in the morning pick it in shreds and let it simmer on the stove until it is tender, then draw off the water, and add to one-third mashed potato put two-thirds fish; stir it so that the potato will be evenly distributed. Bake until it is a rich brown on the top; serve with a sauce of drawn butter, in which cut two hard boiled eggs.

SCALLOPED HALIBUT.—Take cold flakes of halibut after it has been boiled, put them in a vegetable dish and season well with salt and pepper. Pour over them a layer of bread crumbs and bits of butter; then another layer of fish well seasoned, and on top put bits of butter and bread crumbs; turn in three or four table-spoonfuls of milk at one side of the dish, and bake for half an hour. Chopped onion can be added.

MEAT BALLS.—Chop fresh meat very fine—beef, veal, mutton or chicken; beef is the nicest—roll dried bread very fine, add salt, pepper, cloves and mace, and one egg, mix this with the meat. Pound all well together, and make into balls a little larger than a hen's egg. Roll in bread crumbs and egg, and fry in hot lard. Dish with a nice gravy flavored with walnut ketchup. Any cold meat prepared in this way is very good.

BROWNE POTATOES.—Boil potatoes of a uniform size till two-thirds done; pour off the water, remove the skins, place in a hot oven and bake till done. When baked potatoes are wanted in haste this is a quick and excellent method.

TO CLEAN SILK.—To clean and renew black silk, use one quart of soft water and an old kid glove. Boil down one pint and then sponge the goods with a piece of soft flannel, and iron on the wrong side while it is damp, and the silk will be as stiff and glossy as new. For a light-colored silk use a white glove.

LEMON AND ORANGE TINCTURE.—Never throw away lemon or orange peel; cut the yellow outside

off carefully and put it into a tightly corked bottle, with enough alcohol to cover it; let it stand until the alcohol is a bright yellow, then pour it off, bottle it tight, and use it for flavoring when you make rice pudding; add lemon and alcohol as often as you have it, and you will have a nice flavor.

DUCKS STEWED WITH RED CABBAGE.—Cut the cold ducks into convenient pieces, and warm them very gradually in a good clear gravy by the side of the fire. Shred some red cabbage very fine; wash it, and drain it on a sieve; put it to stew with a good proportion of butter, and a little pepper and salt, in a stewpan closely covered, shaking it frequently. If it should get too dry, add a spoonful or two of the gravy. When well done and tender, add a small glass of vinegar; lay it on a dish; place the pieces of duck upon it, and serve.

TENDERLOIN STEAKS WITH MUSHROOMS.—Take four large tenderloin steaks, flatten, pare nicely and season with salt and pepper; heat four ounces of beef fat in a sautoir, place the steaks into it, fry briskly, slight brown on both sides and rather rare, drain the meat on a plate and the fat off; put half a gill of Madeira wine in a pint of Espagnole sauce in the sautoir, boil a little and add sufficient cooked mushrooms; dish up the steaks in a row, one overlapping the other, range the best of the mushrooms on the top, pour the sauce over the rest of the mushrooms around and serve.

ROAST DUCK WITH WATERCRESSSES.—Prepare and roast a pair of ducks, and serve them with a border of a few watercresses, and a salad bowl containing the rest of a quart, prepared as follows: Grate half an ounce of onion, and use two table-spoonfuls of vinegar to wash it off the grater; to these add a salt-spoonful of sugar, a table-spoonful of lemon juice, three table-spoonfuls of olive oil, six capers chopped fine, as much cayenne as can be taken up on the point of a very small penknife blade, a level salt-spoonful of salt and a quarter of a salt-spoonful of pepper; mix well, and use for dressing watercresses, or any other green salad.

TO MAKE TOUGH BEEF TENDER.—To those who have worn down their teeth masticating poor, old, tough cow beef, we will say that carbonate of soda will be found a remedy for the evil. Cut your steaks the day before using into slices about two inches thick, rub them over with a small quantity of soda, wash off next morning, cut into suitable thicknesses, and cook to notion. The same process will answer for fowls, legs of mutton, etc. Try it, all who love delicious, tender dishes of meat.

SWEET BREAKFAST MUFFINS.—Sift two table-spoonfuls of baking powder with one quart of flour; add one cup of sugar; rub into the flour a piece of butter the size of an egg, then stir in one pint of milk. Beat free from lumps to a smooth batter. Bake in muffin rings on the top of the stove, or in gem irons in the oven.

FORCE-MEAT BALLS.—Mince boiled veal or chicken very fine, add the same quantity of salt pork scraped very fine and about as much bread; season with sweet herbs, cloves, allspice, pepper, mace and nutmeg; mix it well with eggs and make into balls; fry in batter.

IRISH STEW.—Sir Garnet Wolseley is so minute in his "Soldier's Pocket Book" that he gives even a receipt for making an Irish stew: Sixteen and one-half pounds of meat, 16 pounds of potatoes, 4 pounds of onions, 6 ounces of salt, 1 ounce of pepper, and one-half pound of flour. Cut the meat away from the bone, and then into pieces of one-quarter of a pound each, the loin and neck of mutton into chops, disjoint the shoulder and cut the blade bone into four pieces (if leg, cut into slices) one-quarter of an inch thick, rub them with the salt, pepper, and flour, and place the meat in the boiler with some fat, brown it on both sides, then add the onions whole, and then the potatoes, stew gently for two hours; keep the fire down and well covered during the cooking.

APPLE PUDDING.—Stew a half dozen large apples into a nice, smooth sauce, and add while warm

a half table-spoon of fresh butter, and sugar enough to make thoroughly sweet. Heat a little butter in the frying-pan, and then pour in a cup of bread crumbs, which must be stirred over the fire until they are a pale brown. Then sprinkle these on the bottom and sides of a buttered mould; put three well beaten eggs and half a table-spoon of lemon-juice into the apple-sauce, then pour it into the mould, strew some of the bread-crumbs over the top, and bake fifteen minutes. Turn out on a hot dish and serve with wine sauce.

CHEESE FRITTERS.—Take three ounces or three table-spoonfuls of flour, one ounce of butter, one gill of tepid water (two parts of cold and one of boiling), a little pepper and salt, one egg, three table-spoonfuls of grated cheese. For this the old hard pieces of cheese may be used. First place in the bowl the flour, then the pepper and salt; melt the butter and pour it upon the flour. Next add the water, drop in the yolk of an egg, and then stir in the cheese. Beat the white of the egg to a stiff froth, and when light mix with the other ingredients. Put in by spoonful into hot lard or clarified fat, and cook for three minutes. When they rise toss them over, so as to brown both sides. When done, take out and place first upon a sheet of white paper, then pile on a hot napkin.

SLICED APPLE PIE.—Line pie-pan or plate with crust, sprinkle with sugar, fill with tart apples sliced very thin, sprinkle sugar and a very little cinnamon over them, and add a few small bits of butter and a table-spoonful of water, or not, as you please—it depends upon the juiciness of the apple—dredge in flour, cover with the top-crust, and bake about three-quarters of an hour; allow four or five table-spoonfuls of sugar to one pie. Or, line pans with crust, filled with sliced apples, put on top-crust and bake; take off top-crust, put in sugar, bits of butter and seasoning, replace crust and serve warm. It is delicious with sweetened cream. Crab-apple pie, if made of the "Transcendents," will fully equal those made of larger varieties of apples.

FLOATING ISLAND.—Scald one pint of milk, stir together with the yolks of two eggs, well beaten, three table-spoonfuls of sugar, and one of corn starch, dissolved in a little cold milk. Add this carefully to the hot milk, so it will not lump. As soon as it has well thickened pour it into the dish designed for the table, and add a table-spoonful of essence of lemon. Put some water to boil in the spider, then heat up quickly the whites of three eggs until very stiff; put a spoonful at a time into the boiling water until you have what can be cooked at once. A few seconds will cook them. Do not turn them. Take them out carefully, one at a time, with the skimmer, and lay carefully in the dish of float. Serve in a saucer, or small, deep plate.

FLUMMERY.—Boil one quart of new milk, and add to the grated peel of one large lemon, three table-spoonfuls of fine sugar, and six eggs beaten for ten minutes. Let it boil for five minutes, stirring it rapidly, so that the eggs will not curdle. Set the dish in a pail of ice-water, and strain it when nearly cold. Soak two ounces of gelatine in one pint of cold water for half an hour, add to it one table-spoonful of white sugar, and set it over the fire to boil, stirring it often. Put the dish of jelly into a pan of ice, and whip it with an egg-beater to a froth. When nearly cold, beat in the custard, a little at a time, and when all is beaten in, turn in a wineglassful of white wine and beat together. Wet two molds in ice-water, and fill them up with the flummery. This should be made the day before it is needed.

GERMAN CHARLOTTE RUSSE.—One ounce of gelatine dissolved in half a pint of milk; when well dissolved, add a cupful of white sugar; when the sugar is dissolved put in extract of lemon and vanilla, and strain. Let it cool. Take one quart of cream cooled on ice, whip it to a stiff froth; then if the gelatine is cool enough, which must not be more than blood warm, stir in the cream gradually. Line moulds with sponge cake and fill with the above.

LEMON PIE.—First make your crust as usual; cover your biscuits (I use my jelly-cake tins) and bake ex-

actly as for tart crusts. If you make more than you need, never mind, they will keep. While they are baking, if they rise in the centre, take a fork and open the crust to let the air out. Now make the filling as follows: For one pie, take a nice lemon and grate off the outside, taking care to get only the yellow; the white is bitter. Squeeze out all the juice; add one cup white sugar, one cup water, a lump of butter the size of a small egg. Put in a basin on the stove. When it boils stir in a heaping tablespoonful of flour and the yoke of an egg, beaten smooth with a little water. When it boils thick take off the stove and let it cool. Fill your pie crust with this. Beat the white of an egg stiff; add a heaping tablespoonful of sugar; pour over the top of the pie. Brown carefully in the oven, if you choose.

MILK ROLLS.—One pound flour, one ounce butter, one ounce sugar, one full tablespoonful Cleveland baking powder, one pint new milk and a little salt. First put in the basin the flour, then the butter and half the sugar; rub altogether with the hands till the batter is smooth; then add the salt, next the baking powder, then the milk, a small quantity at a time. Turn it out on the board, and knead quickly together—the quicker it is done the better and lighter it will be. Cut into six or eight parts; shape the dough into long, high pieces; make two cuts across the top; place in a floured tin, and bake in a quick oven for fifteen minutes. When done, take out, glaze over with white of egg, or a little milk, dust the remainder of the sugar over them, and return to the oven for a short time.

FRIED OYSTERS.—Have ready a skillet and boiling lard, dip your oysters, one at a time, in beaten yolk of egg; then in grated bread crumbs; lastly in sifted meal, and then drop into the lard. Turn, and allow them to become only slightly browned. Drain upon a sieve and send to table hot.

FILET DE BŒUF CHATEAUBRIAND.—Take a large or double tenderloin steak and broil it; have some Parisienne potatoes, sauté with butter, which put around the dish. Have some good butter melted, and a little parsley cut fine; add the juice of half a lemon, mix thoroughly and pour over your steak.

SPICED CORN BEEF.—To ten pounds of beef take two cups salt, two cups molasses, two tablespoonfuls saltpetre, one tablespoonful ground pepper, one tablespoonful cloves; rub well into the beef; turn every day and rub the mixture well into the beef.

A VERY WHOLESOME FAMILY SOUP.—Two pounds of neck of beef, one pound of peeled potatoes, four onions, one stock of celery; cup of beef and vegetables, and put them into a sauce pan, with three quarts of cold water; next add two ounces of pearl barley and let it all simmer two hours; then add half a pound of bread crusts, with pepper and salt to taste and simmer two hours longer; then rub the whole through a wire sieve; add one teaspoonful of browning and one of mushroom catsup; boil all up again and serve.

SPONGE FRITTERS.—A soft and spongy sort different from the common made with a broiled paste. One pint of water; eight ounces of flour; one ounce of sugar. Boil the water, sugar and butter together, then put in the flour all at once, as if making queen fritters, and let the paste cook about five minutes. Then take it from the fire, and work in the following and beat well; two ounces of flour; half cup of water; five eggs, flavoring of nutmeg or vanilla; one teaspoonful of baking powder. Fry spoonful in a saucepan of hot lard. Serve with wine or brandy sauce.

VEAL STEW.—Cut four pounds of veal into strips three inches long and one inch thick; peel twelve large potatoes, and cut them into slices one inch thick; spread a layer of veal on the bottom of the pot, sprinkle in a little salt and pepper, then a layer of veal seasoned as before. Use up the veal thus; over the last layer of veal put a layer of slices of salt pork, and over the whole a layer of potatoes. Pour in water till it raises an inch over the whole; cover it close, heat it fifteen minutes and simmer it an hour.

LIVE STOCK.

Comfortable Barns Save Food.

A writer in the *Christian Union* says: "Comfortable barns save fodder and at the same time promote the growth and thrift of the stock. Cattle kept in warm barns require less food to keep up the temperature of their bodies than do those who are kept in cold ones. The temperature of the body must be maintained at its normal position, ninety-eight degrees. If the surrounding temperature is down to zero it is evident that there must be a great loss of heat from the animal. Every one knows that if the animal were killed the temperature would soon fall to nearly the same degree as that of the surrounding air, yet the great change that would then take place is no more rapid than is constantly going on from the body of the animal. This great loss of heat has to be supplied by the burning up in the system of some of the food taken in the fat of the body. If the animal is exposed to a very low temperature it will require nearly all the food ordinarily eaten to keep it from freezing. This is a method of keeping cattle warm that does not pay. Farmers are realizing the truth of this, and are making barns warmer than they were accustomed to formerly."

Success with Lambs.

Over-feeding ewes with heating grain, such as corn, and no exercise, has a tendency to make lambs small and weak; if fed heavy on grain, half oats or wheat bran mixed with corn is better than clear corn; clear oats is better still; it is not heating and makes muscle, and is healthier, while corn produces heat and makes fat. When feeding very light with grain, corn does well enough. With full feeding on hay and cornfodder, (if you have it,) with a small grain ration once a day, and plenty of exercise, with plenty of water, and an open shed, well bedded down with straw, to run in and out of at pleasure, and bred to a vigorous ram, ninety per cent of Merino lambs ought to be raised in large flocks, without any trouble. When a ram runs at large in large flocks, the first get is largest and best, and more ram than ewe lambs. It takes more pains to raise highbred Merino lambs than of common or runout breeds.

Last spring I had a good many lambs dropped that were strong enough to get up, but did not know enough to find the teat, but after catching the ewe and putting teat in lamb's mouth two or three times while the ewe was standing, the lamb would go along and take care of itself. Most any lamb just dropped that has any life in it, with proper care can be raised; it is astonishing how much vitality an almost dead lamb possesses. When too far gone to try to suck when chilled, place close to the fire where it is quite warm, feed a little warm milk containing a little hog's lard, and it will soon be on its legs bleating; have its dam close by; place the teat in its mouth while the ewe is standing, and it will feed itself. In some cases this may have to be repeated two or three times before the lamb gets a good send-off. The lard in the milk, as everyone skilled in raising lambs well knows, prevents costiveness, which cow's milk in a young lamb has a tendency to produce.

A lamb that has strength enough to get up and get hold of the teat, will start the milk without any help; but when so weak it can't do this, it may be well with the thumb and finger, after being wet with a little saliva, to gently start the milk, but if they will suck they generally have power enough in the jaws to accomplish the desired result. It is not profitable to breed Merino ewes until they are coming three years old; if bred younger, are apt to run off and leave their lambs. In such cases shut sheep and lamb in a small enclosure, and while holding the unnatural mother for the lamb to suck, have the dog in the pen with you, which will in many cases frighten her to her senses, and after keeping her up for a day or two, she will own her lamb. To make a sheep that has lost her lamb own the lamb of another, skin her own dead lamb, and wrap the skin around the lamb you wish her to raise; in this way, it is said, many an old sheep has been fooled.—*Carlos Mason, Lake Co., Ohio.*

Kindness to Stock.

Occasionally, we see domestic animals that are as wild as foxes, and at the approach of man manifest the greatest alarm. This is usually caused by ill-treatment on the part of some one in the past. It is a positive disadvantage to have animals treated unkindly; it matters not whether they be horses, sheep, or cattle, the results are the same. They will not eat so well; they are likely to be restless; they will not grow as fast as they should, and there is a constant loss from this wholly unnecessary cause. Therefore, we say, treat your animals with the greatest kindness, and don't allow any one to strike, kick, or abuse them. Your animals will always give you a cordial welcome when they have no reason for expecting abuse. Treat them kindly, and they will reward you well for it by bringing into your pockets more profits for their keeping.—*Farmington, Maine, Journal.*

Oil-Cake for Young Stock.

There is probably no food better adapted to forcing a healthy, rapid growth of young stock than ground oil-cake, and in fact we might say there is no food better for all kinds of stock. Old broken down horses are made to look sleek and fat by feeding oil-cake, while young stock can be forced in growth to a wonderful extent. Corn and oats are hard to digest for young stock, and often cause disease both in the stomach and mouth. We frequently hear complaints that calves and colts are not doing well, although fed an abundance of grain, and have invariably found in such cases that they were troubled either with sore mouth or constipation, or both. The first year's growth on a calf or colt is worth more than the two following, and should be crowded as fast as possible. During the first year the foundation is laid, and if dwarfed and cramped from starvation or neglect, can only make a scrub at maturity. The time to make large frames is during the first year, and without large frames the prospect for draft or beef are by no means encouraging.—*Lincoln, Nebraska, Farmer.*

Corn Feeding—Coarse or Fine.

Professor J. W. Sanborn, now of the Missouri Agricultural College, with year-old pigs gets 26.5 pounds gain in live weight for 100 pounds of whole corn fed, against 21.7 pounds with very coarsely ground meal, and 15.5 pounds gain for 100 pounds of corn and cob coarsely ground together. The value of a bushel of each kind of feed in the gain in live weight that it produced was estimated to be at the price paid then (October, 1882) for fat hogs, 103.5, 83.3 and 60.8 cents respectively. In two other sets of experiments, later to the season and in colder weather, and with meal ground much finer, less profitable results, and somewhat different results, were obtained; 100 pounds of whole corn, of clear corn meal, and of corn-and-cob meal, gave 15.8, 18.4 and 15.8 pounds increase, and the gain in weight produced by a bushel of each kind of feed was worth, at the same rates as before for pork, 62, 72 and 62 cents respectively. Professor Sanborn recalls results formerly obtained in New Hampshire with growing pigs, wherein 100 pounds of clear corn meal and of corn-and-cob meal gave nearly the same increase, or 28.7 and 28.5 pounds, and states that he has never found the corn-and-cob meal so productive with fattening as with growing animals. As there is almost no experimental evidence on these points touched by the Professor, it is hoped that he will continue his useful investigations as promised; and he ought certainly to have the State aid needed for his purposes.

Potatoes for Hogs.

Economy in feeding should be one of the first principles. When one kind of grain is high and another low, the lower priced grain should be substituted, so far as possible. There was never a more favorable opportunity for doing this than at present. Corn is worth 35 cents per bushel, while potatoes are worth 20 to 25 cents; at the same time it is a thoroughly demonstrated fact that one bushel of potatoes will make as many pounds of pork as one bushel of corn—

the potatoes to be boiled. This being the case, the saving would be 50 per cent, after allowing five cents per bushel for boiling the potatoes, while the advantage of cooked food in a sanitary point are very great. If more cooked food and less hard, dry corn were fed, there would be much less of the so-called cholera among hogs.—*Lincoln, Nebraska, Farmer.*

POULTRY.

Raising Early Chickens.

One who has a love for the business and who possesses the right disposition, may soon learn the details, if they start with a full understanding of the general principles, among which may be named, First, location, which should be warm, dry and sheltered from the cold winds, but at the same time dry and filled with sunshine. Second, the eggs should be from healthy birds that have been kept under the most favorable conditions. Third, the mothers should be not only healthy, but pet birds that are tame and possessing good dispositions. Fourth, the nests should be so located that the air will not draw under them and also where dampness will not be gathered. A great mistake is often made by setting a hen in a barrel laid down; this gives the air a chance to draw under the nest, to a degree that usually prevents the eggs from hatching, unless dry, earth is drawn up on the outside of the barrel. Fifth, the hen while sitting should be kept as quiet as possible, and provided with everything for her comfort. Sixth, when the chicks begin to hatch the temperature of the house should be kept 10 or 15 degrees above the freezing point, and while the air should be kept as pure as possible, no cold blasts should be permitted to reach the chicks until they become strong and old enough to care for themselves.

Sunflower Seed for Poultry.

The esthetic craze may not be so productive of practical results as some other ideas that suddenly take hold of the public mind, but the sunflower being the standard, as it were, of this new idea, may receive the attention it deserves, and become, not only a fashionable fable, but also a profitable plant. The mammoth Russian is one of the most profitable varieties, and should be cultivated in rows about six feet apart, with the plants four feet in the rows. The result will be a yield of seed at the rate of from fifty to 100 bushels per acre, and, for poultry, makes the best feed of anything we have ever tried. They should be fed about three times a week during the laying season, and will give the best results in eggs. During cold weather the oil in the seed serves the same purpose as in the lamp, and furnishes fuel to keep up the animal heat.

For show birds on exhibition a short diet of sunflower seed gives the feathers an extra glossy coat, and a clean, bright look to the combs and gills. The advantage of a small plot of sunflowers near the house in warding off malaria is worth all the trouble of cultivating them, as well as the ornament and development of the esthetic among the young.—*American Dairyman.*

Warm the Water.

Don't forget to put warm drink in the poultry-house these cold mornings. We know you have always given it to them cold, but we hardly think the change will cause intoxication, unless it be of joy. If they have the water warm in the morning, with a little cayenne pepper put in to keep it so, it will be very grateful to the birds, and is a beneficial corrective as well, while such "peppered drinks" will not congeal so quickly as water will without it, in the coldest weather. But the clean, fresh water in ample supply, within the chicken-house, is a *desideratum*, and its value cannot be over-estimated in the severe wintry day. Don't forget this. It pays.

LITERARY AND PERSONAL.

THE FLORIDA DISPATCH. Devoted to the Agricultural, manufacturing and industrial interests of Florida and the South. New series—published by ASHMEAD BROTHERS, Jacksonville, Fla., January 29, 1883, at \$2.00 a year, in advance, postage free.

Vol. 2, No. 1. Agriculture, floriculture, miscellany, commerce, scientific, manufactures, live stock, poultry, apiary, horticulture, editorials, new publications, and elaborate advertisements; all find ample encouragement in this spirited journal, conducted with more than ordinary ability.

A handsome 16-page royal quarto with a characteristic title-head, illustrating the natural productions of Florida—in part—the orange grove, the stately palm, the fern, the cactus, the swamp, the crane and the alligator, and makes us wish we were domiciled there, at least during this blustering and frigid weather. This journal is printed in very fair type and on good calendered paper. In its scientific department it publishes an excellent illustration of a species of *Chrysopa*, belonging to the HEMEROBIANS, or "Lace wings," a good insect friend but too delicate even in its larvæ state to contend with the larger mail clad foes of the luscious orange. We like the plan of eliciting entomological knowledge through the inquiries of intelligent patrons—it is practical, and furnishes just the information that is needed—knowledge reflected from the plane of inquiry, and saves the editor from the trouble of initiating subjects, without knowing whether they will be appropriate or not. We have frequently urged our subscribers to the same course, but it has only been feebly responded to.

SCIENTIFIC AND LITERARY GOSSIP. Published by S. E. Cassins & Co., 32 Hawley street, Boston, Mass. Vol. 1, No. 3, Jan. 15, 1883. A monthly 16-pp. 8 vo. Magazine of notes, news, and reviews in science and literature, at 50 cts. a year. Edited by J. S. Kingsley, Melrose, Mass. A fairly printed, nicely gotten-up, and interesting little journal, and the medium of a fund of literary information on many useful topics. Its circulars, advertisements, lists, and notices of new books is worth more than the subscription price.

FARMER AND MANUFACTURER, a journal devoted to the farming and manufacturing interests of the country. Published by the company of the same name, at Cleveland, Ohio, at 50 cts. a year. This is 16 pp. royal quarto issued monthly, and undoubtedly the cheapest paper published in the Buckeye State, so far as quantity, quality and variety are concerned, comprising wit, sentiment and general literature, in addition to its leading specialties.

OSTRICH FARMING in the United States. Reports from the consuls of the United States at Algiers, Cape Town, and Buenos Ayres, on ostrich raising and ostrich farming in Africa, in the Argentine Republic, and in the United States. Published by the Department of State according to Act of Congress. 47 pp. octavo. We are indebted to our Congressman, Hon. A. Herr Smith, for a copy of this interesting pamphlet, on an industry that is now looming up in the southern portions of our country, with apparent indications of ultimate success.

REPORT ON INSECTS for the year 1881 by J. Henry Comstock, Professor of entomology in Cornell University, N. Y., with seven full-page plates, containing 80 figures. Author's edition, from the Annual Report of the Department of Agriculture for the year 1881. 22 pages octavo. We gratefully acknowledge the receipt of this report from the author, although by reference to the literary columns of our February number, it will be perceived that we had already received the Report of the Department of Agriculture for 1881 and 1882, which includes Prof. Comstock's report.

We believe it would be a good plan for the Department to publish pamphlets on all the specialties contained in the General Report separately, and send them to such persons as stand most in need of them. The binding could be saved, at least. That, however, may be a small matter, but there are many people who care very little about anything in those reports except the specialty they are interested in.

THE ACADIAN SCIENTIST. Published in the interest of the "Acadian Science Club." An 8-page demi-quarto monthly. A. J. Pineo, general editor.

Wolfville, Nova Scotia. No. 1, Vol. 1, January, 1883. 25 cts. a year. A new venture in journalism, and doubtless poorly compensated. The matter is good and interesting to scientists, the quality of paper and general typography only ordinary.

THE ROCKY MOUNTAIN RURAL.—A 16-page quarto published in the interest of agriculture, horticulture, and kindred subjects. Monthly, at \$1.00 a year. Denver, Colorado, D. S. Grimes, editor and publisher, No. 333 Holladay street. A creditable make-up and edited with ability by one who knows how. This is also a new enterprise in Agricultural journalism, and ought to succeed.

THE SUGAR BEET, devoted to the cultivation and utilization of the sugar beet. Fourth year, No 1, February, 1883, illustrated, royal quarto Lewis S. Ware, M. E., Editor. Henry Carey Baird & Co., publishers, 810 Walnut street, Philadelphia. Quarterly, 50 cents a year. Should the sugar beet, and its conversion into sugar, ever be abandoned, this journal will be a fitting monument to perpetuate its memory.

FARM, HERO AND HOME.—A royal quarto of 24 pages, in tinted covers, published by BROWN & ANROMET, No. 15 Bates Block, Indianapolis, Indiana, at \$1.00 per year. Six copies, \$5.00. Liberally illustrated, and enriched in solid literature, relating to its specialties. Typography and material unexceptionable.

ROCKY MOUNTAIN RURAL, a 16-page quarto (size of THE FARMER) published monthly, devoted to horticulture and the rural interests of Colorado, Wyoming and New Mexico, 286 Holliday street, Denver, Colorado, at \$1.00 a year, D. S. GRIMES, editor and publisher. A valuable auxiliary in the field it occupies. The March number contains 52 good practical articles. The impression is remarkably clear, and easy to be read by the aged and weak-sighted.

SWINE BREEDERS' JOURNAL.—A semi-folio of 10 pages, published monthly at \$1.00 a year by Morris Printing Co., W. H. Morris, editor, Indianapolis, Ind., 467 South Illinois street. It has numerous contributions on its specialty, and is doubtless a plain and practical exponent of all that is worth knowing about swine.

NORTH AND SOUTH.—An 8-page small folio devoted to emigration and the development of the agricultural, manufacturing and industrial interests of the South. Buffalo, N. Y., 60 cents a year. J. T. McLaughlin, editor and manager, No. 191 Main street.

WESTERN FARMER, a weekly journal for the farm, orchard and home. A double folio, 8 pages, Madison, Wis. Published by T. D. Plumb & Son, at \$1.50 a year. Full of good practical matter on domestic and miscellaneous subjects.

SILK CULTURE.—A monthly magazine of 32 large pages at \$1.00 a year in advance. W. B. Smith & Co., New York, publishers. 1,000 silk-worm eggs free to all who subscribe before the 1st of April, 1883. An entirely new enterprise and ought to be liberally sustained—especially by those who propose to engage in the culture of silk.

JUSTICE comes to us this week illustrated by a double folio map—"Showing how the people's land has been squandered upon corporations." Somebody has said—whether wise or otherwise—that the government must own the railroads, or the railroads will ultimately own the government, and looking upon this map, such a contingency seems more than probable. The older States seem free from the railroad meshes, but the newer, Western and Southern States seem bound hand and foot. No man can form any conception of the magnitude of these grants in relation to the entire territory of the country; some States and Territories are literally covered by them. Michigan, Kansas, Dakota, Wisconsin, Washington, etc., are almost literally covered by these grants. Unless they pass entirely out of the possession of the railroads and become the property of independent yeomen, in fifty years they may carry a yoke "too grievous to be borne."

A KNABE IN THE WHITE HOUSE.

There was seen yesterday at Messrs. Knabe & Co.'s factory a magnificent concert grand, just finished by them for the presidential mansion. President Arthur, who is a thorough connoisseur of music, in selecting a piano for the White House decided in favor of the Knabe Piano as his preference, and ordered accordingly the instrument referred to. It is a concert grand of beautiful finish in a richly carved rosewood case, and of superb tone and action—an instrument worthy in every respect of the place it is to occupy. It was shipped to its destination yesterday.—*Baltimore American.* It.

COLMAN'S RURAL WORLD.

This sterling Agricultural paper entered its thirty-sixth year on the first of January, and appears in a new dress, and gives evidence of increased prosperity. To the Farmer, Stock Breeder, Fruit Grower and Cultivator of Sorghum for Syrup and Sugar, it is almost indispensable. It should be read by every one owning a farm. It is published weekly, in the best style, at only \$1.00 per annum, by NORMAN J. COLEMAN, St. Louis, Mo. It

COMPLIMENTARY NOTICE.

We desire to call attention to the advertisement in another column of D. M. FERRY & Co., Detroit, Mich., the great seedsmen, whose mammoth establishment is one of the sights of the chief city of Michigan. They do the largest business in their trade in the United States, reaching across the Atlantic and Pacific oceans. The house is entirely reliable, and if you wish to get exactly what you order, you cannot do better than send to them for your seeds, and you may depend upon it you will get the best that the market can supply. Their seeds have become known over the entire civilized world for purity and fertility, and have gained for them an enviable reputation. Their Annual Seed Catalogue just issued for 1883, replete with information and beautifully illustrated, will be sent free on application. It

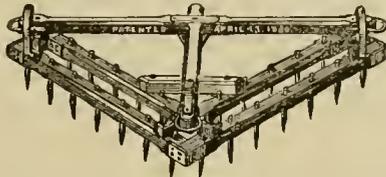
SEND FOR SPECIAL PRICES

On Concord Grapes, Transplanted Evergreens, Tulip, Poplar, Linden, Maple, etc. Tree Seedlings and Trees for timber plantations by the 100,000
J. JENKINS' NURSERY,
 3-2-79 WINONA, COLUMBIANA CO., OHIO.

By removing the wings and wheel from the original you have a complete one-horse "A" Harrow.

The Penn Harrow

CHANGED TO DOUBLE "A" HARROW.

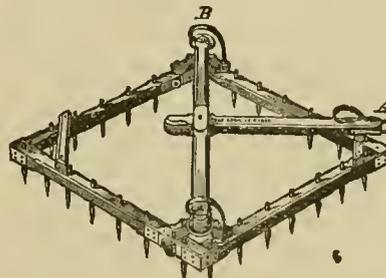


A

Remove the wheel from the original, reverse the wing, and it makes the most complete Double "A" Harrow in the market.

The Penn Harrow

CHANGED TO A SQUARE HARROW.

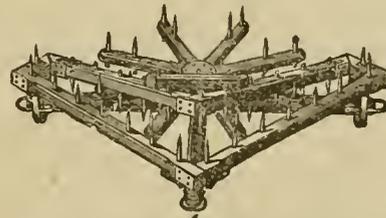


B

By removing the wheel from the original you have a Harrow with three points to hook to. By hooking to B or C you can harrow in a furrow, and harrow the bottom and both sides, or over a ridge and harrow the top and both sides, or you can lift either point and have three points on the ground—something that cannot be done with any other Harrow.

The Penn Harrow

ON ITS SLED.



C

It has always been a great inconvenience to get the Harrow to and from the field. The Penn Harrow obviates this, no matter which Harrow you wish to use in the combination, it has its own sled to haul it on.

The Penn Harrow

Is made of the best white oak, with steel teeth, well pointed, in every way first-class. Formerly a harrow was the most unhandy implement on the farm; with our improvement it is the most convenient, will do double the work of any other harrow and save the farmer half his labor, and is warranted to do all we represent or money refunded. ORDER AT ONCE AND BE CONVINCED.

Price of the light draft Combination Penn Harrow, \$30. Send for a Catalogue and see what farmers say.

AGENTS WANTED IN EVERY COUNTY.

PENN HARROW MANUFACTURING CO.
 CAMDEN, N. J.



Fruit, Shade and Ornamental Trees.

Plant Trees raised in this county and suited to this climate. Write for prices to

LOUIS C. LYTE.

Bird-in-Hand P. O., Lancaster co., Pa.

Nursery at Smoketown, six miles east of Lancaster. 79-1-12

WIDMYER & RICKSECKER, UPHOLSTERERS,

And Manufacturers of

FURNITURE AND CHAIRS.

WAREHOUSES:

102 East King St., Cor. of Duke St. LANCASTER, PA.

79-1-12]

Special Inducements at the NEW FURNITURE STORE

OF **W. A. HEINITSH,**

No. 15 1-2 E. KING STREET (over Bursk's Grocery Store), Lancaster, Pa.

A general assortment of furniture of all kinds constantly on hand. Don't forget the number.

151-2 East King Street, Nov-ly] (over Bursk's Grocery Store.)

For Good and Cheap Work go to

F. VOLLMER'S

FURNITURE WARE ROOMS,

No. 309 NORTH QUEEN ST.,

(Opposite Northern Market),

Lancaster, Pa.

Also, all kinds of picture frames. nov-ly

GREAT BARGAINS.

A large assortment of all kinds of Carpets are still sold at lower rates than ever at the

CARPET HALL OF H. S. SHIRK,

No. 202 West King St.

Call and examine our stock and satisfy yourself that we can show the largest assortment of these Brussels, three plies and ingrain at all prices—at the lowest Philadelphia prices.

Also on hand a large and complete assortment of Rag Carpet.

Satisfaction guaranteed both as to price and quality.

You are invited to call and see my goods. No trouble in showing them even if you do not want to purchase.

Don't forget this notice. You can save money here if you want to buy.

Particular attention given to customer work.

Also on hand a full assortment of Counterpanes, Oil Cloths and Blankets of every variety. [nov-lyr.

C. R. KLINE,

ATTORNEY-AT-LAW,

OFFICE: 15 NORTH DUKE STREET, LANCASTER, PA.

Nov-ly

SILK-WORM EGGS.

Amateur Silk-growers can be supplied with superior silk-worm eggs, on reasonable terms, by applying immediately to

GEO. O. HENSEL,

may-3m] No. 238 East Orange Street, Lancaster, Pa.

LIGHT BRAHMA EGGS

For hatching, now ready—from the best strain in the county—at the moderate price of

\$1.50 for a setting of **13 Eggs.**

L. RATHVON,

No. 9 North Queen st., Examiner Office, Lancaster, Pa.

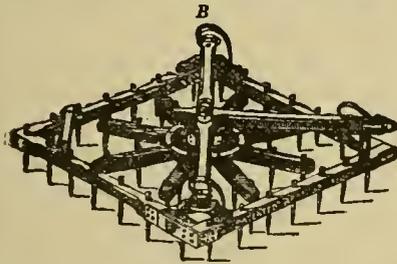
WANTED.—CANVASSERS for the LANCASTER WEEKLY EXAMINER

In Every Township in the County. Good Wages can be made. Inquire at

THE EXAMINER OFFICE,

No. 9 North Queen Street, Lancaster, Pa.

THE PENN HARROW BEST IN THE WORLD IT HAS NO EQUAL



Patented April 13, 1880.

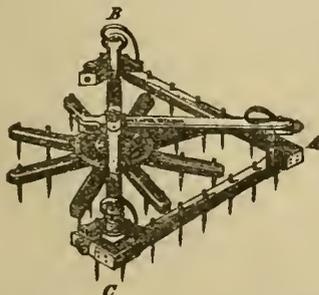
The above cut represents the Penn Harrow complete, with all its combinations of Five Harrows and a sled for each Harrow; and each succeeding change is made from this Harrow without the least additional expense. By hooking the team to either point, B or C, the center revolves and gives the ground Two Strokes and Two Crossings in passing over it once, making it the most effective pulverizer in the market.

THIS HARROW HAS ONLY TO BE USED TO BE APPRECIATED.

See it before purchasing and you will buy no other.

The Penn Harrow

CHANGED TO A THREE-CORNER ROTARY HARROW.

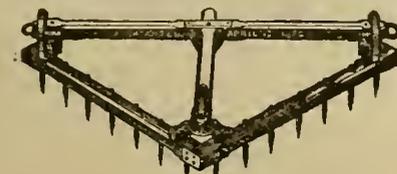


C

Indispensable for Orchards, as the revolving wheel harrows right up to and all around the trees without barking them.

The Penn Harrow

CHANGED TO SINGLE "A" HARROW.



A

**Where To Buy Goods
IN
LANCASTER.**

BOOTS AND SHOES.

MARSHALL & SON, No. 12 Centre Square, Lancaster, Dealers in Boots, Shoes and Rubbers. Repairing promptly attended to.

M. LEVY, No. 3 East King street. For the best Dollar Shoes in Lancaster go to M. Levy, No. 3 East King street.

BOOKS AND STATIONERY.

JOHN BAER'S SON'S, Nos. 15 and 17 North Queen Street, have the largest and best assorted Book and Paper Store in the City.

FURNITURE.

HEINTSH'S, No. 15 1/2 East King st., (over China Hall) is the cheapest place in Lancaster to buy Furniture. Picture Frames a specialty.

CHINA AND GLASSWARE.

HIGH & MARTIN, No. 15 East King st., dealers in China, Glass and Queensware, Fancy Goods, Lamps, Burners, Chimneys, etc.

CLOTHING.

MYERS & RATHFON, Centre Hall, No. 12 East King St. Largest Clothing House in Pennsylvania outside of Philadelphia

DRUGS AND MEDICINES.

G. W. HULL, Dealer in Pure Drugs and Medicines, Chemicals, Patent Medicines, Trusses, Shoulder Braces, Supporters, &c., 15 West King St., Lancaster, Pa

JOHN F. LONG & SON, Druggists, No. 12 North Queen St. Drugs, Medicines, Perfumery, Spices, Dye Stuffs, Etc. Prescriptions carefully compounded.

DRY GOODS.

GIVLER, BOWERS & HURST, No. 25 E. King St., Lancaster, Pa., Dealers in Dry Goods, Carpets and Merchant Tailoring. Prices as low as the lowest.

HATS AND CAPS.

C. H. AMER, No. 39 West King Street, Dealer in Hats, Caps, Furs, Robes, etc. Assortment Large. Prices Low.

JEWELRY AND WATCHES.

H. Z. RHODES & BRO., No. 4 West King St. Watches, Clock and Musical Boxes. Watches and Jewelry Manufactured to order.

PRINTING.

JOHN A. HIESTAND, 9 North Queen st., Sale Bills, Circulars, Posters, Cards, Invitations, Letter and Bill Heads and Envelopes neatly printed. Prices low.

DISSOLUTION OF PARTNERSHIP.
The co-partnership in the merchant tailoring business heretofore existing under the firm of Rathvon & Fisher, is this day dissolved by mutual consent. All persons in any manner indebted to said firm, are respectfully solicited to make immediate payment to S. S. Rathvon, who is hereby authorized to receive the same, and those having claims against said firm, will please present them for settlement.

S. S. RATHVON,
M. FISHER,
101 North Queen Street, Lancaster, Pa.

Until further announcement, the business, without interruption, will be conducted by the und-signed, who solicits a continuance of the patronage heretofore bestowed upon the firm, and which is hereby greatly acknowledged.

S. S. RATHVON,

PRACTICAL TAILOR,

No. 101 North Queen Street,
LANCASTER, PA.

\$66 a week in your own town. Terms and \$5 outfit free
Address H. HALLET & Co., Portland, Maine.
jan-1yr*

ERISMAN. GLOVES, SHIRTS, UNDERWEAR. **ERISMAN.**
SHIRTS MADE TO ORDER,
AND WARRANTED TO FIT.
E. J. ERISMAN,
56 North Queen St., Lancaster, Pa.
(79-1-12)



Thirty-Six Varieties of Cabbage; 26 of Corn; 28 of Cucumber; 41 of Melon; 33 of Peas; 28 of Beans; 17 of Squash; 23 of Beet and 40 of Tomato, with other varieties in proportion, a large portion of which were grown on my five seed farms, will be found in my **Vegetable and Flower Seed Catalogue for 1882.** Sent FREE to all who apply. Customers of last Season need not write for it. All Seed sold from my establishment warranted to be fresh and true to name, so far, that should it prove otherwise, I will refill the order gratis. The original introducer of **Early Ohio and Burbank Potatoes, Marblehead, Early Corn, the Hubbard Squash, Marblehead Cabbage, Phinney's Melon,** and a score of other New Vegetables, I invite the patronage of the public. New Vegetables a specialty.

JAMES J. H. GREGORY,
Marblehead, Mass.

Nov-6mo]

EVAPORATE YOUR FRUIT.

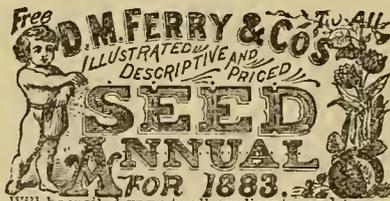
ILLUSTRATED CATALOGUE

FREE TO ALL.

AMERICAN DRIER COMPANY,

Chambersburg, Pa.

Apr-1f



Will be mailed FREE to all applicants, and to customers of last year without ordering it. It contains about 175 pages, 600 illustrations, prices, accurate descriptions and valuable directions for planting 1500 varieties of Vegetables and Flower Seeds, Plants, Fruit Trees, etc. Invaluable to all, especially to Market Gardeners. Send for it!
D. M. FERRY & CO. DETROIT MICH.

jan-4m]

SAVE MONEY! Every Farmer should know that 8 cts. per bushel can be saved in raising Corn, 25 cts. in Wheat, and 2 cts. per lb. on Cotton by the use of

THOMAS SMOOTHING HARROW
Also manufacture the **Perfected PULVERIZER** which contains 72 sharp steel blades, covering 10 feet at each sweep. Warranted the most powerful Pulverizer ever invented. For pamphlet containing illustrations of both machines at work, and hundreds of names of those who use and recommend them, address **THOMAS HARROW CO. Geneva, N. Y.**

j-3m]



**Queen OF THE South
PORTABLE
FARM MILLS**

For Stock Feed or Meal for Family use.
10,000 IN USE.
Write for Pamphlet.
Simpson & Gault M'fg Co.
Successors to STRAUS MILL CO.
CINCINNATI, O.

nov:3t

A HOME ORGAN FOR FARMERS.

THE LANCASTER FARMER,

A MONTHLY JOURNAL,

Devoted to Agriculture, Horticulture, Domestic Economy and Miscellany.

Founded Under the Auspices of the Lancaster County Agricultural and Horticultural Society.

EDITED BY DR. S. S. RATHVON.

TERMS OF SUBSCRIPTION:

ONE DOLLAR PER ANNUM,

POSTAGE PREPAID BY THE PROPRIETOR.

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

Dr. S. S. Rathvon, who has so ably managed the editorial department in the past, will continue in the position of editor. His contributions 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 always worth much more than the price of this publication. He is determined to make "The Farmer" a necessity to all households.

A county that has so wide a reputation as Lancaster county for its agricultural products should certainly be able to support an agricultural paper of its own, for the exchange of the opinions of farmers interested in this matter. We ask the co-operation of all farmers interested in this matter. Work among your friends. The "Farmer" is only one dollar per year. Show them your copy. Try and induce them to subscribe. It is not much for each subscriber to do but it will greatly assist us.

All communications in regard to the editorial management should be addressed to Dr. S. S. Rathvon, Lancaster, Pa., and all business letters in regard to subscriptions and advertising should be addressed to the publisher. Rates of advertising can be had on application at the office.

JOHN A. HIESTAND,

No. 9 North Queen St., Lancaster, Pa.

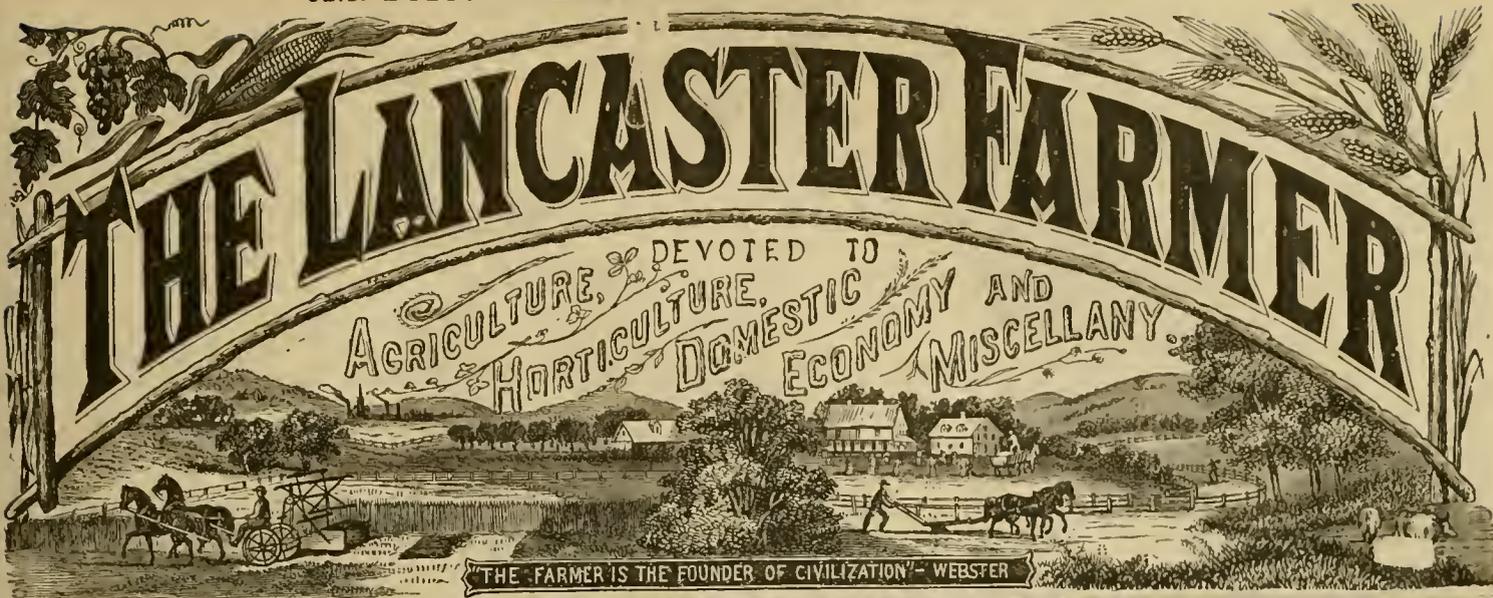
\$72 A WEEK. \$12 a day at home easily made. Costly Outfit free. Address TRUE & Co., Augusta, Maine.

Pedigree

What my customers say: "The Onion Seed was superior to any I ever had."
—S. W. Seaman, *Motts Corners, N. Y.* "I can get seed in my own neighborhood, but, prefer yours at double the price."
—N. P. Watts, *Perry, Ohio.* "Your seed is the only seed from which we can raise good Onions the first year."
—J. M. L. Parker, *Alpena Wis.* "I have used your seed for six years and had rather pay \$2.00 per lb. extra than have seed from any other Iowa. The Danvers Onions from your seed grew from setts."
—James McGowan, *early Red Globe yielded at rate of 948 bush, Mich.* This is just the kind of onion seed I have to offer. Last year planted as a test side by side with seed from eleven different growers, the onions from my own markedly surpassed all in roundness, earliness and fineness. If those of you who grow red onions will try my Early Red Globe you will not be likely to raise any other for the future. Early Round Yellow Danvers by mail per lb. \$2.65; Early Red Globe \$3.00; Yellow Cracker (earliest of all) \$3.00; Large Red Wethersfield \$2.50. My large Seed Catalogue free to all. **JAMES J. H. GREGORY** Marblehead, Mass.

ONION

Seed



Dr. S. S. RATHVON, Editor.

LANCASTER, PA. APRIL, 1883.

JOHN A. HIESTAND, Publisher

Entered at the Post Office at Lancaster as Second Class Matter.

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HOW WE HAVE ALWAYS

TESTED SEEDS.

FROM SMALL TESTS BEGAN IN 1784 THIS PRACTICE HAS EXTENDED TO ACRES.

OUR trial ground embraces the entire list of vegetables from A to Z; not one sample of each, but comparative lists of sometimes two hundred of each sort. Samples of our own, samples from the counters and seed lists of American Seed Merchants, samples from Canada, England, France, Holland, Germany, Italy and other more remote parts of the world, all classified, ranged side by side.

Each family of vegetables planted the same day and under precisely the same circumstances, each trial distinguished by a label bearing specific numbers; these recorded in a book, giving date of planting and origin of sample.

The books of record are volumes of practical observation, and may be seen in the office stacked away, extending far back into the years, ready at all times to testify to the merits or demerits of every vegetable known to the trade.

All conditions and disturbing causes are taken into account, and in this case the whole history of the growth and characteristics of the plant are discovered by means of the comparative method. We know the history and quality of what we sell. The trial ground is at once a "sample room," a "register" of kinds of stock, a "laboratory," a record of kinds sold, with dates and particulars.

Landreth's Rural Register and Almanac,

Containing full catalogue of LANDRETH'S CELEBRATED GARDEN, FIELD AND FLOWER SEEDS, with directions for culture, in English and German; also, catalogue of IMPLEMENTS AND TOOLS, free of charge.

Price lists wholesale and retail, furnished upon application. Landreth's seeds are in sealed packages with name and full directions for culture. Prices low.

D. LANDRETH & SONS,

Nos. 21 and 23 SOUTH SIXTH STREET,
 [Between Market and Chestnut],
 And Southwest Corner Delaware Avenue and Arch St.,
 PHILADELPHIA.
 mar-ly

PHILIP SCHUM, SON & CO.,

38 and 40 West King Street.

We keep on hand of our own manufacture,
 QUILTS, COVERLETS,
 COUNTERPANES, CARPETS,

Bureau and Tidy Covers, Ladies' Furnishing Goods, Notions, etc.
 Particular attention paid to customer Bag Carpet, and scowring and dyeing of all kinds.

PHILIP SCHUM, SON & CO.,

Nov-ly Lancaster, Pa



CIDER
 PRESSES! ELEVATORS, GRATERS, &c.
 BOOMER & BOSCHERT PRESS CO.
 SYRACUSE, N. Y.
 or 219 Fulton St., New York.

ap-11



BEST MARKET PEAR
 PEACH, PLUM, PEAR, APPLE,
 QUINCE and other trees; 50 sorts
STRAWBERRIES Wilson, Bid-
 well, Miner,
 Downing, Crescent, Kentucky, Sharpless,
 \$2 per 1000. Raspberries, Black-
 berries, Currants, 20 sorts of grapes.
 Lowest cash prices. Send for Catalogue
 J. S. COLLINS, Moorestown, N. J.

apl-31

PIERCE'S

Improved Cahoon Broadcast Seed Sower

Sows all kinds of Grain and Grass Seed. Does as much work as five men can do by hand. Does better work than can be done by any other means whatever. Worth its cost every year. Will last many years. Nobody can afford to sow grass seed or grain by hand. Price only \$6.00.

D. LANDRETH & SONS,
 Sole Agents, Phila.

\$66 a week in your own town. Terms and \$5 outfit free
 Address H. HALLETT & Co., Portland, Maine.
 Jan-lyr



REID'S CREAMERY
 ALWAYS MAKES GOOD
 BUTTER.
 SIMPLEST AND BEST.

BUTTER WORKER

Best Effective and Convenient, also
 Power Workers, Butter Printers,
 Shipping Boxes, etc.

DOC POWERS.
 Write for Illustrated Catalogue.

A. H. REID,
 26 S. 16th Street, Phila. Pa.



Jan-301]

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

	Leave Lancaster.	Arrive Harrisburg.
WESTWARD.		
Pacific Express*.....	2:40 a. m.	4:05 a. m.
Way Passenger*.....	5:00 a. m.	7:50 a. m.
Niagara Express*.....	..... a. m.	11:20 a. m.
Hanover Accommodation..	11:45 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy.....	10:20 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:25 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:40 p. m.
Fast Line*.....	2:30 p. m.	3:25 p. m.
Frederick Accommodation.	2:35 p. m.	Col. 2:45 p. m.
Harrisburg Accommodation..	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express.....	7:30 p. m.	8:40 p. m.
Pittsburg Express.....	8:50 p. m.	10:10 p. m.
Cincinnati Express*.....	11:30 p. m.	12:45 a. m.
EASTWARD.		
Cincinnati Express.....	Lancaster. 2:55 a. m.	Philadelph. 3:00 a. m.
Fast Line*.....	5:08 a. m.	7:40 a. m.
Harrisburg Express.....	8:05 a. m.	10:00 a. m.
Columbia Accommodation..	9:19 p. m.	12:00 p. m.
Pacific Express*.....	..... p. m.	3:40 p. m.
Sunday Mail.....	2:00 p. m.	5:00 p. m.
Johnstown Express.....	3:05 p. m.	5:30 p. m.
Day Express*.....	5:35 p. m.	7:20 p. m.
Harrisburg Accommodation..	6:25 p. m.	9:30 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.

NORBECK & MILEY,



PRACTICAL

Carriage Builders,

COX & CO'S OLD STAND,

Corner of Duke and Vine Streets,
LANCASTER, PA.

THE LATEST IMPROVED

SIDE-BAR BUGGIES,

PHÆTONS,

Carriages, Etc.

THE LARGEST ASSORTMENT IN THE CITY.

Prices to Suit the Times.

REPAIRING promptly attended to. All work guaranteed.

79-2-

S. B. COX,

Manufacturer of

Carriages, Buggies, Phaetons, etc.

CHURCH ST., NEAR DUKE, LANCASTER, PA.

Large Stock of New and Second-hand Work on hand very cheap. Carriages Made to Order Work Warranted or one year. [7-9-14]

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DEALER IN
AMERICAN AND FOREIGN WATCHES,

SOLID SILVER & SILVER PLATED WARE,
CLOCKS,
JEWELRY & TABLE CUTLERY.

Sole Agent for the Arundel District

SPECTACLES.

Repairing strictly attended to.

ZAHM'S CORNER,

North Queen-st. and Centre Square, Lancaster, Pa.
79-1-12

E. F. BOWMAN,

Watches & Clocks
AT LOWEST POSSIBLE PRICES.

Fully guaranteed.

No. 106 EAST KING STREET,

79-1-12] *Opposite Leopard Hotel.*

ESTABLISHED 1832.



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Manufacturers and dealers in all kinds of rough and finished

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LANCASTER, PA.

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LANCASTER, PA.

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., APRIL, 1883.

Vol. XV. No. 4.

EDITORIAL.

THE GRANGE.

"The Grange is a family when the father's manhood, the mother's devotion, the brother's affection, and the sister's love are so cultivated and developed that they reach out beyond the purview of the family circle, and embrace with fraternal kindness every member of the order; practically obeying the injunction of our Saviour when he said: 'Thou shalt love thy neighbor as thyself.' This is the fellowship to be found in the Grange, and it is the fellowship of the noblest character. Twenty-nine days in the month social differences, moral convictions or political prejudices may estrange patrons of husbandry: but when on the thirtieth day of the month they meet on a common level in the Grange, all these alienating features are dissipated."

The foregoing is the concluding paragraph of Hon. D. W. Aiken's address before the convention of Agriculture, held in Washington City on the 23d of January last, and no doubt it is just as truthful, as any professions poor humanity will permit to be. So far as *theory* is concerned, there is no substantial difference between the professed inculcations of the Grange and any other of the avowedly fraternal and benevolent orders that are now thickly dotted over the whole area of our vast country, and the civilized countries every where on our globe. Any one, however, who has been a member of any of these institutions for a series of years, and is sufficiently observant to look behind the veil, must be painfully impressed with the great lack there is in the *practice* of these inculcated virtues. True, this is not the fault of the fundamental doctrines and principles of these various brotherhoods. They are to be attributed to the brother's themselves, who, in spite of their fraternal vows, have not forgotten self—have *not loved* their neighbor as themselves—have *not even tried* to do unto others as they would that others should do unto them. Why is this so? Is it not because "social differences, moral convictions, and political prejudices, indulged twenty-nine days in one month, cannot be subordinated to godly affections, in a few hours, on the thirtieth day?" "A long face on Sunday cannot atone for the cruelties and the injustices of a whole week." The true fraternal relations between men cannot be cultivated so long as they are regarded merely as something to be occasionally *put on* externally, and *not as* benevolent outgoings, or out flowings from the mind and soul. To be brotherly, we need to *live* brotherly.

The Grange *ought* to be a medium of fraternal affiliation in a greater degree, and in a more practical sense, than any other organization existing among men, except, perhaps, the church itself; in that its operations are conducted more immediately upon the domestic plane—a plane of use which has a

more universal recognition in the social and material world, than any other of which we can form an intelligent conception. Civilization is unanimous in its recognition of agriculture and agricultural productions, as the basis of human subsistence, and without which there could be no such phenomenon as human existence in a civilized state. Nearly all the benevolent organizations among civilized nations are composed of individuals of different occupations, and different social positions, as well as different domestic interests. This is not so, fundamentally, with the organic structure of the Grange. Farmers, farm owners, or those pecuniarily interested in farming, compose its membership, and the more single they are in their occupations, the more free is their sympathy with the interests of the Grange. There is less apparent ambiguity in its principles, its aims, its objects, and its ends, than usually obtains among other benevolent organizations. It ought, therefore, in its visible manifestations, be able to realize what Mr. Aiken so eloquently and so feelingly claims for it, in the concluding lines of his address, quoted above: or, in view of human weakness, under circumstantial stress, at least a visible approximation to it. Does this harmony, this unadulterated brotherhood then exist in the Grange, or is it in this respect akin to other similar associations? Has it its "wheels within wheels," the *inner* of which are selfseekers, and foster interests and aspirations, with which the *outer* are not in fraternal sympathy! If it has, it is not the fault of the Grange as a social and benevolent institution, but rather that of its integral composition, who are but erring human beings at best. Perhaps, the agricultural population of any country possesses more sterling integrity than any other class of citizens; but with all that, they may be lovers of self more than comports with the inculcations of pure christianity, and this selfishness is the social wall against which the battering ram of the Grange is intended to be directed, in order to effect a fraternal union.

ST. PATRICK'S DAY AND BEE PASTURE.

We are not intending to couple Erin's patron saint with *bees*, but the day on which he is said to have been born—the 17th of March—which has come to be a sort of weather point in this latitude; indeed, in our boyhood, we at least had practical knowledge of one man, who invariably took down all the stoves in the house on St. Patrick's day, and put them up again on the second Tuesday in October—general election day—no matter how cold or warm it might happen to be, earlier or later than those days. It is only necessary to say that, like Vennor and Wiggins, he was often very faulty in his reckoning, if he reckoned on the subject at all.

This year (1883) the 17th of March was bright, blustery, sunshiney, and withal bracingly cool, but the following day (18th) was calm, clear and genial all day, and was succeeded by a brilliant moonlight evening and night. We noticed a straggling bee or two, about noon on the 17th, but on the 18th they came in hundreds, and continued coming and going nearly all day.

We have on our premises growing a "Black Hellebore," which blooms from the 1st of December until nearly the 1st of May. This season it has about one hundred buds and flowers. These flowers do not all "blow" at the same time; every genial day brings out a few, but when they are out, they *stay* out, from the beginning to the end of their season, and, like the common Hydrangea, they change color two or three times before their final end.

It was this plant (*Helicoborus niger*) sometimes called the "Christmas Rose," that attracted the bees. In near proximity were many modest "Snow-drops," with opening blooms, but these were only daintily touched by a few bees; the mass rushed in among the Hellebore flowers, and could not be driven away; they seemed not only fearless but slightly irritable. We, of course, did not wish to drive them away, but were facilitating their access to the flowers, for some of them were covered with the leaves.

It impressed us that the bees must have been very hungry, or that the nectar of the plant must contain some alluring or intoxicating quality, which is specially agreeable to apian taste.

It might be worth while to make a chemical analysis of the nectar of this Hellebore, and have its quality determined; for we know that under the name of "White Hellebore," a poison is sold.

Supposing the nectar of the black hellebore to be harmless, what is there to prevent beekeepers from having an enclosure of it for winter, late autumn and early spring pasture. Once permanently rooted, it will take care of itself, and any day, from the first of December until the first or middle of April, that is warm enough for bees to fly abroad, they will find ample pastures in the opening bloom of this plant on such days. There is not nearly enough attention paid to bee-pastures. Men who keep bees should also provide pasture for them. We are not sure that there should not be some legislation on this subject. Much complaint is made against bees for destroying grapes, peaches, and other fruits, by those who keep no bees, which would not be the case if sufficient pasture was provided for them. Bees are very busybodies; even if there is sufficient in their hives to feed upon, they instinctively fly abroad in search of nectar, as early and as often as the temperature will permit, and this being the case, autumn, winter and early spring-blooming flowers should be provided, and if the Hellebore is harmless, no better flower, for such a purpose can be found during its blooming season. It possesses a singular adaptation to

the physical economy of the bee. It will bloom in a temperature much lower than that required to animate a bee; hence when the bees go abroad in search of food or nectar, to store up, they always will find it in the flowers of the "Black Hellebore." The editor of the *American Bee Journal*, emphasizing the necessity of bee-pasture, says: "We have just issued a new pamphlet giving our views on this important subject, with suggestions what to plant, and when and how. It is illustrated with twenty-six engravings, and will be sent postpaid to any address for ten cents."

A writer in the March number of the same journal, says: "For ten years or more I have had fine Virginia grapes in front of and very near my apiary, and to my surprise and deep regret, the bees do not "injure" the grapes. I wish I could get them to "go for grapes, peaches and all other fruits." This writer doubtless believes in furnishing bee-pasture, but seems to be disappointed that the bees do not appropriate what is so bountifully provided. The italicising is ours, and we quote the lines only for their bearing on the question of *pasturage*. Nevertheless, it does seem queer that one man condemns certain characteristics in bees, which another man as emphatically commends.

CHARCOAL AS A FOOD.

Whatever increases the power of laying on fat or promoting the rapid and healthy production of flesh must be food or equivalent thereto. This pure charcoal does most effectually, as recently proved by taking the live weights of two lots of sheep, and simply separating them by an ordinary net, the artificial food, corn and cake being carefully weighed out to each lot alike daily, one pint of charcoal being added to one lot only. When reweighed prior to selling to the butcher, the increase in weight was in favor of charcoal by 16½ per cent. Sanitation causes easy and complete digestion, and assimilation only can account for these results, which charcoal alone can accomplish. The charcoal should be given mixed with the food, except in urgent cases, when it may be mixed in water or thin gruel and given as a drench. The dose is one pint to every twenty-five head of sheep or lambs. One quarter-pint per head for full-grown cattle, horses or pigs; half the quantity for young cattle, and two teaspoonfuls to one dessertspoonful for young calves, daily, when suffering from disease or in ill-condition. To keep in good health and fortify against disease the dose should be given two or three times per week, according to the class of food they are having and the state of the atmosphere. The best plan is to wet a quantity of bran, pollard or malt combined; mix the charcoal among it, and then amongst the food you give them. For rapid and healthy fattening of cattle it should be used daily amongst their food. Charcoal for internal and medicinal purposes must be pure vegetable charcoal, free from all irritating and injurious foreign matter. The charcoal, when coming into the user's possession, must be kept perfectly dry and free from any ill-smelling surroundings, such as the vapors of a stable or artificial manures, etc., or it will absorb them and thus become septic, and of no medicinal value. It is better kept in a closed bin or tin canister, with a closely fitting cover.—*Farm and Home*.

Our experience in stock-feeding has been very limited—very limited, indeed—very long ago, and confined mainly to swine feeding, but limited as it was, it was still an *experience*, and one too that seems to be somewhat in harmony with the above paragraph, although

not so systematic and precise. A pig of, apparently, a very ordinary breed, had been palmed off on us as a healthy and thrifty animal, but which subsequently proved to be unhealthy, "stunted," and afflicted with "black teeth." We were advised to administer charcoal with its food. We did so, in this wise: The swill-barrel was kept in a corner under a shed that had been built over an old-fashioned out-door bake-oven, which was used by two families just twice a week. Every time the oven was used for baking purposes, a shovelfull or two of the charcoal drawn out in front, was thrown into the swill-barrel, giving it a dark or cloudy color nearly constantly. Those about the house no doubt dumped the charcoal into the swill often as a matter of convenience. Be that as it may, it became a bi-weekly habit to throw charcoal into the swill, which was composed of the usual "house-slops," scraps, mixed with bran, or "shipstuff" or "chopstuff." This sort of swill, together with weeds—purslain, lambs-quarter, amaranth—and six bushels of corn in the dry grain during the month of November, was all that was fed to that sickly pig. Well, what then? Why this: That pig was incarcerated the first week in April, and languished until the first week in May, after which we commenced dosing it with charcoal, and by the first week in June it was "Fair as a lily and bright as a hunn." Its ribs began to arch, its sides began to distend, its hams and shoulders to "round up," and its neck, snout, and legs to shorten (apparently) and its tail took an extra curl. From being lank, cadaverous and melancholy, it became contented, somewhat lazy, but always hungry at the approach of feed time. It was butchered about the middle of December, and when hung up, haired, scraped and disemboweled, it weighed a little over three hundred pounds, fifty pounds—"better" than the best pig in the litter. A friend told us in confidence, that he would not have taken that pig as a gift, because it was always "left out in the cold," the dam having one pig more than she had teats. We don't say that charcoal did it, any more than we say that the weeds, or the slops, or the corn did it, but it was *done*; and he that has a mind to apprehend, may make such use of it as he thinks best.

At the annual meeting of the Berks County Agricultural and Horticultural Society, held in Reading, Pa., February 5, 1883, the following officers were elected to serve during the ensuing year:

President.—James McGowan.

Vice Presidents.—Joseph L. Stichter, Josiah Lewis, William G. Moore, Ezra High, Reuben W. Scherer.

Secretary.—Cyrus T. Fox.

Corresponding Secretary.—Stephen M. Meredith.

Treasurer.—William S. Ritter.

Auditors.—Matthias Mengel, Ezra High.

The twenty-ninth annual exhibition of the Society will be held in the city of Reading, on the 2d, 3d, 4th and 5th of October, 1883.

The office of the Society is at No. 11 North Sixth Street (*Times Building*), Reading, Pa. All communications intended for the Society should be addressed to the Secretary.

"PEAR-TREE BLIGHT."

Among the many different theories advanced during the past ten or fifteen years, as to the cause and treatment of *tree-blight*—whether of apple, cherry, pear, quince or plum—that advanced by Chas. D. Zimmerman, of Buffalo, N. Y., in a paper read before the "Western New York Horticultural Society," and published in the April number of the *Gardeners' Monthly*, seems to make as near an approach to the true cause of blight as any we have yet seen, and possibly there may be nothing beyond it. But even when the *cause* is known, the application of a prevention or a cure, may be as unavailable as the knowledge of the sailor who knew that the captain's skillet was at the bottom of the ocean; because, the "finer spun" the subject, the theory, and the remedy, the more expert and delicate the manipulations necessary to cure, prevent or counteract the evil. Not even "eternal vigilance and a sharp knife," would avail anything, if they were blindly applied.

Setting aside the frozen-sap, sunburnt, insect, and soil theories, PROFESSOR BURRELL has announced that the "blight" in apple, pear, and quince trees, is caused by a species of *Bacteria*, "the smallest of living organisms," and that bacteria may be carried from one tree to another, and an inoculation effected, through the agency of Suctorial Insects.

Micrococcus amylovorus, Bur, is the species, and so very small that it only becomes visible when it is magnified 500 times, nor does it yet seem to be fully determined whether the blight parasite is animal or vegetable. Whatever or whichever it may be, it destroys the starch grains and causes a fermentation, leaving the cell structure apparently unharmed. With the poisoned sap Prof. B. inoculated healthy trees, of which over sixty per cent. showed signs of "blight," clearly proving that bacteria is the *cause* and not the *effect* of the disease. Twenty years ago DELAINE demonstrated that these organisms increase by "fission," that is by dividing in the middle, under favorable circumstances, once every hour, and sometimes even oftener. This would be, at least, at the rate of sixteen millions five hundred thousand in twenty-four hours. Some species of bacteria also perpetuate themselves by spores, like *fungi*, and these different modes of perpetuation is, perhaps, the "stumbling-block" involving their animal or vegetable origin—a matter of no vital importance.

"It is quite evident that the disease is one of the outer cellular bark, as the bacteria are unable to penetrate through the best cells, and can spread up and down only by working their way through the apparently solid cell walls. There being no such things as sap veins in plants, analogous to blood veins in animals, the spread of the disease from the point of attack must be comparatively slow. Soil, situation, exposure, etc., have little or nothing to do with the disease."

"Of the different modes of cultivation, the one that produces a moderate, healthy growth, should be preferred to that of excessive growth. It is quite apparent that trees highly stimulated by manure, severe pruning, and clean cultivation, are most subject to 'blight.'"

The essayist then alleges that orchard's uniformly most exempt from "blight," that have come under his observation, were those well cultivated in grass, that is, in which the grass was kept short by repeated cutting—never allowing the grass to ripen or go to seed—in short, treated like a lawn. Cold does not kill the blight *animalcula* or *fungi*, as the case may be, but activity ceases at near the freezing point; indeed, FRISCHE claims that 123° Fahr. below zero will not kill them. But in the adult state they may be destroyed with water heated to 150° Fahrenheit: spores have been known to survive a short immersion in boiling water.

Mr. Z. states that the poisoned parts may be prevented by cutting off the outer bark with a sharp knife, and applying linseed oil, but this must be done very soon after the appearance of blight. Trees should be examined at least once a month during summer, and especially after every warm rain, or warm dewy night. Any parts showing disease should be removed immediately; if an ordinary-sized limb it should be cut off, but if on the trunk or larger branches, the outer bark should be peeled off and the spot covered with oil, and all the diseased parts removed should be at once consigned to the fire.

As it has been found that bacteria may be cultivated, whereby it loses most of its poisonous qualities in diseases among *animals*, even so it is hoped that some genius will contrive a way to cultivate the bacteria under consideration, so that by inoculating pear trees with it, they would become proof against "blight." This, he suggests, "would open a field for a new profession—a tree doctor."

We know there are some experienced fruit growers in Lancaster county who would object to the application of linseed oil to trees for any purpose, whatever, as exceedingly injurious to the health of trees. This no doubt is true when applied to the surface of the whole tree, or to any of its branches, but to a small portion where the bark has been peeled off, it would perhaps make but little difference, so far as vegetable respiration is concerned, for it is very likely that that function could be exercised no better under a blighted surface than it could under an oiled one. The objection to linseed oil is that it leaves an impervious coating on anything to which it is applied, when it becomes dry, and this prevents vegetable respiration, and, of course, is very injurious.

"Prof. B., is of the opinion that this kind of bacteria—*micrococcus amylovorus*—is rarely found floating in the air, being extremely viscid, and usually mucilaginous when moist, and that in this condition they would be readily carried about by insects." And also that "the most likely to aid in their dissemination would be the true bugs—"HEMIPTERA." The theory is that by the introduction of their beaks to suck the sap, they come in contact with these sticky, poisonous bacteria, and thus carry them from one tree or branch to another.

It is more likely that these tree-sappers and distributors would belong to the order *Homoptera* than to the one above named, as the species of this order are more essentially "tree sappers" than the others. The "tree-hoppers," "spittle-hoppers," "frog-hoppers,"

cocci, aphids, and many others of the order are usually found on the smooth and tender branches of trees and shrubbery, whilst the *Hemiptera* are more frequently found on succulent plants. But, under any circumstances, perhaps suctorial insects of any order would be as likely to distribute diseases, in the manner referred to, as the common house-fly (order *Diptera*) which is known to distribute a similar disease. But we admonish our readers that if they desire to make any advance in this line of discovery, they must "look sharp," wait patiently, and manipulate with skill if they wish to detect objects of which four united only make about the *twelve thousandths* of an inch in length.

THE PEACH-SCAB.

In response to Mr. D. S., of Lancaster City, Mr. F. H. Z., and Dr. G., of Columbia, and others, we would say that the peach twigs and branches they sent us, are badly infested by the "Peach-Scab," or the *coccus* or "scale-insect" of the peach—*Lecanium persicum*—and, if they desire to know "what to do about it," we would simply recommend the cutting off all branches that are as badly infested as those they sent us, even should it be necessary to trim them as short as the Indian trimmed his dog's tail, when he cut it off immediately back of his ears: for, if every individual scab only reproduces a single young one, the present season, there would not be sufficient surface on the trees and branches to allow them "standing room." This is by no means a new enemy to the peach: they have appeared at irregular periods in various parts of Lancaster county during the last ten years or more; and, two years ago, they were "fatally epidemic" in the City of Reading, Pa.

They are very local in their habits and travel very slowly, frequently being confined to a single tree in an enclosure of trees, for several seasons, especially if the neighboring trees are not to the leeward of them: or, one enclosure may be infested throughout, whilst another, only separated by an ordinary closed fence, may be entirely free from them. Of course, the little brown, intensely convexed scales now upon the branches will not move from their present *locale*; but, when the young are hatched from the eggs, which these dead, or dying, female bodies conceal, the youngsters will travel to new quarters on the same tree or branch; and then too they may be carried to other trees that are to the leeward of them.

Countless numbers of them must perish every season through meteorological contingencies alone; for, if a drenching rain should occur about the period they are excluded from the eggs, millions of them would be carried down to the earth, by such a deluge, from which they never more would rise.

Artificial drenching—even with water—at such a period would have a similar effect. But after the young have located themselves, introduced their beaks into the young wood, and become degraded to a mere "scale," or "scab," neither "winds nor weather" will have any effect upon them. They however succumb to applications of grease, or oily substances. Coal oil, or even linseed oil, are said to be injurious to the trees. But, when a whole orchard is infested, such an application seems impracticable.

IN MEMORIAM.

It is not the province of our limited journal—except in very extraordinary cases—to insert the death notices of the many worthy citizens who are almost daily passing over to that "bourne from whence no traveler returns," but we must claim the privilege of advertizing to the departure of the late JOSEPH PRESTON, who had been for the past eight years more or less connected with the FARMER, as contributor, proofreader, and general supervisor. He died March 29, 1883, in the 73d year of his age.

Mr. Preston was no stranger to us for many years before we formed his personal acquaintance. We first heard of him through our departed friend L. Zublin (born in this county) as early as the spring of 1837—six and forty years ago. They had been "fellow craftsmen" on the *Picayune* in New Orleans, under the employ of "John Gibson, faithful and bold." New Orleans was full of northern printers; who, far removed from their borean domicils, burst through all social and family restraint, and enjoyed a high "old time" in that famous city of "Beauty and of Booty." There was one man among them, however, that had no "wild oats to sow," but was the same man in all the relations of life in the city of New Orleans, that he was in Chester and Lancaster counties, and more recently in Lancaster City, and that man was Joseph Preston. That quaker integrity, and those steady habits which he imbibed with his mothers milk, served him in the hour of dire temptation, and gave tone to his character as a moral hero and a man. Like Nicodemus of old, the knights of the "stick and rule" were astonished, and asked—"How can these things be?"

Had Joseph Preston a premonition of his approaching physical dissolution? If he had, we may be assured it was not a superstitious one, but was rationally founded on cause and effect. He knew that he was failing, and during our last business transaction, he casually remarked with a serene smile, that he thought—"this would be the last time he would need the services of a tailor." We tried to think otherwise, although his appearance was by no means propitious. He must have known himself better than we did. He was not afraid to live the life he did, and hence he had no occasion to fear to die. "He is gathered to his fathers: may he rest in peace."

EXCERPTS.

JEFFERSON COUNTY (N. Y.) farmers now carry their milk to the limburger cheese factories where they are paid 12 and 12½ cents per gallon for it.

PARMENTIER says that the best method of storing thoroughly dry and clean wheat is in sacks isolated from each other, care being taken to keep a sufficiently low temperature in the granary.

THAT "Eastern methods of farming are equally well adapted to the broad prairies of the West is shown in the experience of Mr. A. Reeser, who thirteen years ago moved from the East to the high prairie land in Marshall county, Kansas. Mr. Reeser farms but eighty

acres, but he has been remarkably successful, and his success has, observes the *Topeka Farmer*, in spite of droughts, verified the repeated statement that more grain can be raised from a well-tilled field of ten acres than from forty acres poorly tended.

FARMERS who co-operate together in buying and selling should endeavor to make arrangements with the workmen of the cities, whereby either party may be benefitted from the transactions. All that is needed is organization, and there is no reason why an organized body of farmers may not get larger prices for produce and at the same time cheapen it to the consumer. The workmen are always ready to organize for such purpose, and the farmers should profit by it.

THE parts of animals generally used for glue-making are the paring of hides and skins from tanneries and slaughter-houses known as glue pieces, fleshing, pelts from furrers, hoofs and ears of cattle, horses and sheep. Animal skins in every form, when unacted upon by tannic acid, are excellent material for the glue-maker. It is said that the parings of oxen and other thick hides make the best glue. Fish-bones, the core of horns, sinews and animal membrane are all utilized for the same purpose.

DR. GILBERT, of England, the long-time associate of Sir J. B. Lawes in the Rothamstead experiments, thinks the clover failure in this country, generally attributed to insects, is really due to clover sickness—condition of the soil in which clover refuses to grow. He believes the insects which are generally credited with the failure only come in because of the feeble growth of the plant. This opinion, coming from so high an authority, is worth investigating.

WOOL waste from the shoddy mills in Franklin, Mass., is used and valued quite highly for agricultural purposes. It is composed of the short fragments and fine dust gathered under the machines that prepare the most valuable portions of the wool for use in manufactures. The grease from the scouring mills is quite another substance, containing a large percentage of potash, we believe, while wool waste is valued chiefly for its nitrogenous elements.

MR. JOHN G. LEMMON has reported to the California Academy of Sciences the discovery of two or three varieties of indigenous potatoes among the mountain ranges along the Mexican frontier of Arizona. They grow abundantly in high mountain meadows surrounded by peaks attaining a height of 10,000 feet above the sea level. The tubers were about the size of walnuts. Mr. Lemmon brought home a supply which will be carefully cultivated.

ANDREW BURNETT, of Wellesley, who raises considerable quantities of flat turnips for feeding to his milk cows, writes as follows: "When I grass down on well-manured lands the middle or last of August, I sow quarter of a pound of white flat turnip seed to the acre with the grass seed, harvesting the turnips after about three months growth. Too much seed is commonly used in raising turnips. I should use less than one pound of turnip seed to the acre if I were sowing nothing else at the time."

A TON of London sewage contains only three pounds of solid matter.

IT appears from Pliny's description, that the rhododendron of the ancients, so poisonous to animal life, was what we call oleander.

AN Ohio farmer names the Mammoth Pearl as the potato to take the place of the Peach-blow, against which charges of deterioration are made.

THE drought has so seriously affected the wheat crop of Australia that farmers of this country need not fear from Australian competition the coming year.

SALT is used to destroy the onion maggot with partial success. About the 1st of July, sow two bushels to the acre; the salt also hastens the maturity of the crop.

EVERYTHING points to another period in England of live stock contagion. Both foot and mouth disease and pleuropneumonia are appearing in unexpected places.

THE tendency of modern practice in manuring with commercial fertilizers is to use readily soluble and quick-acting manures, but to use them sparingly at a time. Little and often is the rule.

A GOOD guide for feeding grain to cattle is one pound to each hundred of their weight. Most animals eat in proportion to their weight, and an animal weighing 1000 pounds may receive ten pounds of grain per day.

MARTINDALE CATKINS, a discouraged fruit-grower in Western New York, is digging out a fifty acre apple orchard, planted twenty years ago. It has never borne but one full crop, and then the price was too low to pay for picking.

ARTHUR S. CORE, of Mount Vernon, N. Y., grew two crops of potatoes last year on the same land. The second crop was shortened by drought; but in a good season he thinks two crops may be made profitable where land is scarce.

PROFESSOR J. L. BUDD says the scions of Russian apples sent to the Iowa Agricultural College were judiciously selected from varieties grown in the latitude of St. Petersburg and Moscow, and he prophesies their future success in this country.

THERE are almost a score of incubators in operation at Hammonton, N. J., and there will be more chickens hatched there this season than ever before, the climate and soil, as well as location, being specially adapted to the raising of poultry.

SOOT contains a small percentage of nitrogen, used alone it makes an excellent top-dressing for spring grain and grass, being quick in its action without being too stimulating. It has also the property of destroying slugs on winter grain.

MANY so-called cases of pear blight are due to other causes than blight. Quite often trees are said to be blighted from too much manure, when, in fact, the heavy doses of manure water would have killed an oak or butternut as quickly as it killed the pear.

IT is bad policy to wash harness with soap, as the potash injures leather. If the harness becomes rusty rub off the dirt as well as possible with a soft brush and supply a dressing of grain black, followed with oil or tallow,

which will fasten the color and make the leather pliable.

IN the Island of Jamaica splendid cattle are raised on Guinea grass, many weighing 2000 pounds or more after being dressed. Thousands of acres in Guinea grass can be seen in some parts of the island stretching for miles of the hillsides and plains, and stocked with the finest imported cattle from England.

A SHIPMENT of 300 bushels of red-oak acorns has been made to Germany for planting on untillable hillsides. This tree is found to do well in Europe and its wood is valuable. The acorns were gathered in Missouri at an average cost of \$1 per bushel. The same party has also shipped 180 bushels of pignuts for similar purposes.

A SUCCESSFUL fruit-grower thinks many apple trees are set too near together; two rods apart is near enough. The land for an orchard must be kept in good condition. He top-dresses his orchard once in three years, principally with a thick coating of straw. He allows hogs to run in his orchards, and plows the land until the trees are so large as to interfere with such a practice. Last year he picked forty-five barrels of Greenings from four trees. Orchards thrive best near bodies of water. Trees should be judiciously trimmed while young. Many trees are injured by overpruning. Trees should be graded when they are from one inch to one and one-half inches in diameter.

JUDGE EATON, of Ottawa, Ill., notes, in an article on the history of the Irish potato, a fact which many farmers have observed, despite the assurance by scientists that "mixing in the hill is impossible;" "A curious fact connected with the growth of the Irish potato, and which most farmers have no doubt observed, is that they will hybridize in the hill. Plant a red and a white potato in the same hill, or so near together that their bearing roots will intervene, and part of the tubers of either plant are liable to be marked with red and white patches, or one-half may be red and the other half white. This is an interesting field for the investigation of some one inclined to the work."

IN order to have successive crops of green food for stock small pieces of ground should be sown at intervals for that purpose. Some sections will not produce grass in abundance, but such difficulty may partially be avoided by sowing peas and oats mixed, mustard, radish: collards, kale, or anything else that comes early. Though the quantity may not be large, the green stuff will answer for a change of diet, and serves an excellent purpose in that respect.

THE orchard should be cultivated at least eight years, or till it comes well into bearing in any hoed crop or sown to buckwheat and let fall back on the ground; care should be taken not to plow too near or too deep near the trees; when you seed use red clover. It is advisable to shorten in the branches two-thirds the last year's growth, for the reason that the tree has lost roots in being taken up, and that equalizes the top and root.

A BEE never gathers pollen from more than one variety of flowers on the same trip or visit. If so, why is there such perfect same-

ness of color and appearance of both little pellets carried by the bee. We do not assert that all the bees gather and bring in the same kind of pollen at the same time, but that each bee gathers only one kind the same trip, and may collect various kinds during the day.—*Cunajoharie Bee-Keeper Exchange.*

PETER IVORY, who is an experienced cattle raiser, says the following remedy will cure the blackleg or diphtheria. We give it for the benefit of our farmer readers. He says: "When the animal is first taken it will exhibit lameness in some one of its legs. With a sharp knife open the lame member between the knee and the hoof, where will be found a lump or a sack filled with a white substance; squeeze all this out, then fill the opening with salt and pepper, and bind the limb up with a rag." This is all that is required, and Mr. Ivory vouches for its good effects. The remedy is certainly cheap and simple, and is worthy a trial.

THE Richmond (Va.) *Southern Planter*, relates thus of one-eighth of an acre of lucerne: It has no superior for soiling purposes. On the 11th and 12th of April it was killed down to the ground by a severe frost, when it was fully knee-high, and would have been ready to cut in a few days. On the 22d of May it was first mowed, and again on July 21st and August 14th. The three mowings yielded 4,560 pounds of green food for soiling, from one-eighth of an acre, or at the rate of 36,480 pounds per acre. Fed with a little meal and salt sprinkled over it, it is a wholesome and highly nutritious food for horses and cattle of all kinds.

SIR J. B. LAWYER thus reasons from experiments, as stated in the *Country Gentleman*: "To obtain maximum crops of grain the proper course to pursue is to precede them with a crop of leguminous plants—that is, peas, clover, vetches, etc., to which the minerals should be applied, and this enables these plants to make an unusual growth, which renders them capable of storing up a large amount of ammonia—more than is necessary for the grain crop that follows—and the latter, by this active stimulant, is rendered capable of obtaining all the minerals required from the soil and the decaying vegetation for maximum crops."

The quantity of water which passes through the roots of a plant is enormous. Dr. Lawes, of England, found that an average of 2,000 pounds of water is absorbed by a plant for every pound of mineral matter absorbed by it. At the French Agricultural Observatory, at Montsouris, it was found that 7,702 pounds of water passed through the roots of the wheat crop for 10½ pounds of grain produced, or 727 pounds for each pound of grain, in a rich soil; while in a very poor soil 1,616 pounds were passed through the same quantity of wheat for a product of about half a pound of grain, or 2,693 pounds of water for each pound of grain.—*New York Times.*

To soften water for household purposes, put in an ounce of quick lime in a certain quantity of water. If it is not sufficient use less water or more quicklime. Should the immediate lime continue to remain deliberate, lay the water down on a stone and pound it with a base-ball club.

THE PRESIDENT'S ADDRESS.*

The importance of agriculture has been recognized in all the ages of history. That it is the foundation of civilization there is no dispute, and it may safely be added that the civilization of any people or nation is measured by their rank in agriculture. Manufacture and commerce are but the outgrowth of successful agriculture. It is first in the rank of importance among all the industries, and well deserves to be first in the order of desirable employments.

Among heathen nations the social rank of the farmer was not in the least enviable. Where caste was observed, the soldier, the priest, and the artificer were held in esteem high above the yeoman. A retrospective glance convinces us that primitive agriculture was conducted in the simplest manner. The wooden plow, which was little more than a sharp stick, (and that drawn by human beings), together with wooden hoes, shovels, knives, &c., constituted almost the entire outfit of the ancient oriental husbandman, and the same is true of the savage tribes to-day. In such cases, indeed, the labor of farming (if such it might be called) was all muscle and no brains. Compare with this our present advanced system, with its sulky plow and sulky cultivator, self-binding reapers and steam thrashers, and it is hardly visionary to say that in the near future the management of the farm will be all brain and no muscle.

No wonder that years ago, when farming required a vast amount of muscle, so many young men quit the farm for the workshop or some other congenial employment. Only the most stupid were content with its drudgery. Fathers then had reason to fear educating their sons, lest they abandon the farm.

It is not pretended that the farm of to-day is free from hard work, nor is it probable that it ever will be, yet improved machinery and devices have aided so much that but few of our industries are less tiresome than farming. The period in agriculture is about come when the son is glad for the opportunity of succeeding the father. Children now, instead of quarreling as to who should leave the farm, are more likely to dispute as to who shall run it.

Different Classes of Farmers.

Farmers may be divided into two great classes—the imitative and the progressive. The former embrace the bulk of the community and are highly important in their place. They will execute successfully the plans and systems adopted by their fathers, but carefully avoid untrodden paths. They make good use of what is tested and approved, but they give us nothing new. It is easy to conjecture where agriculture would stand to-day if all were imitators for the last half century. By progressive farmers I mean not only tillers of the soil, but also those who devote their time to the invention and improvement of agricultural implements and machinery, and lastly, but by no means leastly, those who by careful analysis of plants, soils and fertilizers promise to give us much-needed light. Science has so far triumphed as to determine the chemical con-

*Read before the Agricultural and Horticultural Society of Lancaster county, April 9th, 1883, by H. G. Best.

stituents of plants and of soils, and common sense alone assures us that no soil can produce a plant which does not contain all the elements of that plant. But then, as a body, we are ignorant of the real deficiency, and thus spend much time, labor and money in applying perhaps five elements where only one is wanting, and then most likely that one not among the five. Of those who try the same brand of phosphate, one reports favorably, another indifferently, and a third discouragingly—certainly, not the fault of the fertilizer, but the wants of the different soils vary. The reason that stable manure meets with universal favor is that it possesses all the elements of plant life. It seems to be the cure-all of vegetable ills, and should be manufactured and applied as extensively as possible; but even then nearly every farmer under our high pressure system of cropping feels the need of a supplement, and just here comes up the important question, is it better to buy manure even at the present high prices or commercial fertilizers? As a rule, one application of manure must suffice for four or five years. At present prices one application, inclusive of labor, will cost \$50. I have tried, side by side with soil thus treated, an application of Tygert's star bone phosphate, 350 pounds first year (\$8), with 25 per cent. more wheat, and 350 pounds second year with 50 per cent. more wheat, and the present indications of last application are no less flattering. More definitely, I have had in two years from one acre, once manured, at expenses of \$50—20 and 15—35 bushels of wheat, from one acre; two applications, phosphate, \$8—\$16, 25 and 25—50 bushels. Though these figures will not be repeated on every farm, they serve to illustrate the fact that it is not the quantity of applied manure, but the supply of an existing deficiency that benefits the crop.

What would you think of the physician who prescribes for scarlet fever the remedies approved for consumption? or what suppose you to be the fate of the patient? Just such ridiculous blunders we farmers annually commit in our efforts to restore depleted soils. But, you may ask, is there a remedy? Certainly; but it requires more skill and knowledge than the farmer is supposed to possess. The triumph is in chemical analysis, and it is possible that the laboratory will do as much for the farm in the near future as inventive genius is doing now. All that we need is skilled agricultural chemistry, with stations in sufficient numbers to supply the wants of the people. One station under State regulation should be petitioned for at once. Fees should be charged for analysis of soil, and there is no doubt the enterprise would soon be self-sustaining. Every farmer would find himself compensated in a short time for the expense of a test, be it \$10 or \$50. It would appear to me highly proper that this society should start a petition and solicit support wherever accessible.

Progressive agriculture demands new ideas and new methods, aiming always at some definite end. Brain work has done more for the farm in fifty years than the muscle of many thousands. The exchange of the sickle for the self-binder, the flail for the steam thrasher, prove the assertion. Perfection is

the aim of all improvement, which should be continued until our machinery and methods are such as to attain the best possible results at the least possible expense.

Value of Farm Lands.

The value of farm lands depends, firstly, on the demand for farm products; secondly, on fertility, and thirdly, on the cost of cultivation. These propositions are hardly disputed, and it is only to the last I shall add a few observations, the object of which is to show that the producing and the consuming masses are both financially benefitted by every important advancement in agriculture. The six feet cut reaper will do the work of not less than six cradles, costing no less than five dollars per day, while the cradles, inclusive of board, cost twelve dollars. The self-binder, at a cost of about ten dollars, will do work costing twenty-five dollars by hand. In this way it is easily seen that the aggregate of our improvements will save a large percentage in the cost of production. Should all this advantage be credited to the account of the farmer the profits would stimulate to over-production, which is sometimes temporarily the case, but very soon the gain is divided between the producer, in enhancing the value of land, and the consumer, in cheapening farm products. Property of less than 40 acres will be but little benefited by the use of costly machinery, unless several farmers unite in the purchase; for the interest of money spent for a new reaper equals the cost of cutting about ten acres of grain, which is about all that 40 acres will admit. In small fruits and marketing small farms may have an advantage over large, but the cultivation of cereals is certainly most profitable on large farms.

Admitting that invention benefits producer and consumer about equally, some idea may be formed of the enormous gain that results to the nation by reason of advanced systems. Say the reaper has been worth ten per cent. to all wheat producing farms (and I think the estimate is not high,) so it is also worth ten per cent. indirectly to the consumer, making twenty per cent.; the thrasher about as much, making forty per cent. The wire-rake and grain drills ten per cent., making fifty per cent. of the actual value of the grain producing lands depending upon the successful operation of half a dozen machines. Seeing what benefits we derive, it is not enough that the successful inventor enjoys the royalty of his patent. It would well reward the masses to offer inducements in the way of prizes for great inventions; our wants are not yet nearly supplied. There is too much hand work in the cultivating, or particularly in the harvesting, of corn. Machinery that will do for us in the corn field what the reaper does in the wheat would meet with a warm reception, especially on large farms. There has been no material change in the way of harvesting corn for fifty years or more. There are efforts, and it is to be wished they might succeed.

The Creamery System.

From present indications, the creamery system of butter making will completely supplant the old. Owing to expenses involved, it would seem desirable that the enterprise should be protected against unjust rivalry by a license for five or ten years. It is quite

evident that too much competition would so cripple the business as to leave no profit for any one, while a licensed establishment would pay both manufacturer and the supplying community.

We need better tactics in our warfare upon certain insect tribes. The potato beetle is held in successful subjection by the judicious use of Paris green, but the tobacco worms are making us a great deal of trouble, and all, no doubt, for want of an intelligent array of our forces against them. So long as the great majority of farmers content themselves by hunting the worms, without paying any regard to the destruction of the moth, so long will the insect practice its annual devastations. We must fight the moth. It is cheaper and more effectual, but we must *all* do it. The slaughter of a single bird is equal to that of hundreds of worms. This subject should be thoroughly agitated and experimented upon. Motives of self-interest will induce the masses to adopt whatever system is proved most effectual. Let the people be convinced that at an expense of five dollars per acre they will have, practically, no worms, much less trouble in stripping and a greatly superior tobacco, and they will all take arms in the common defense. Trapping, scorching and poisoning, I believe, are the methods that have been tested with good local success. If it were done by all farmers, I think stramonium, planted at distances of from ten to twenty feet entirely around the patch, and some poison introduced daily (every evening), would be so effectual that but little damage would be done by worms, and no doubt the insect force would become very weak in a few years. The blessings of many little boys are ready for this new departure.

Things to be Guarded Against.

On the other hand, the farmer, as well as every other business man, must guard against undue enthusiasm. Humbugs of any description are gorgeously paraded through the the country every day, and the shrewdest of us are often victimized. Inventors who labor to supply an existing want generally furnish machines that are worth testing, but then a great number of mechanics are moved only by an eagerness for gain, thus giving rise to contrivances which are, at best, only ingenious and not useful, or effective, but not durable. Profit is the great consideration in all farm operations, as, indeed, it is in all business. No machine is a success, however well it does its work, when it is not profitable to use it. Thus a machine may be a success on one farm and not on another, in one State and not in another, at one time and not at another, depending on quite a variety of causes.

The same is true also of systems of feeding and of cultivation; we want not only the best results, but the best for the price. For this reason the steaming of feed has an unfavorable report, at least, at present. The preparation and use of ensilage has larger items of expense against it than the present prices of land and feed will warrant. Fodder cutting, in my opinion, is also one of the practices that people continue to follow with a decided balance of expense against it. In our section many have tried and but few continue. The value of lime as a fertilizer is

giving rise to much discussion to-day, and the ranks of its defenders are becoming thinner every year. Liming has been practiced so long that many are content to continue, taking for granted that it pays without even testing. There is no doubt lime tells with good effect upon land never limed before and on lands highly charged with crude vegetable matter. We have evidence, however, that should satisfy the intelligent that only a limited amount of lime is effective, all the balance lying in the soil as a costly encumbrance. Let any one who has not experimented lime part of a field and skip part of it. So long as a decided difference exists in favor of lime, let him continue for it is evident that his soil is not yet surcharged. I limed, in this way, ten years in succession, at a cost of about two thousand dollars in material and labor. If I had any return for my labors, it came in such a way as to escape my notice altogether. Fifteen dollars per acre is rather a costly application when there is nothing but faith and practice to sustain it. It was but very natural that our forefathers would mistake the chemical action of lime for manurial value, but now that science informs us that lime is no plant food, and that its principal service consists in hurrying nature, we should at least encourage an intelligent canvass of its claims.

Intelligent Discussion Demanded.

These allusions will, no doubt, excite discussion in the minds of members present, and it is hoped that topics akin to these may be brought before this society, and the farm community in general, for intelligent judgment, economy, profit or advantage is a safe measure by which to approve or condemn both old and new.

Financial prosperity alone, however, will not advance agriculture to its merited eminence. There has, no doubt, been a marked improvement in the intelligence of the masses during the last century, and yet it is feared there are too few among us to-day who reckon education at its proper worth on the farm. Farm society has not kept pace with field operations. We are not so ready to abandon false notions of family discipline as to displace an unprofitable machine by a good one. The advancement of society is greatly retarded by false opinions entertained by the adult and infused into the young. These opinions want to be radically changed. As the sick bears comparison with the complicated self-binder, so does the notion that the farmer "needs no learning" with the plea that all knowledge will promote the welfare and efficiency of the farmer. Teach the latter doctrine instead of the former just for one generation, and farm life, farm society, farm homes will be such as to excite the envy of the most refined. Let it be manifest to the rising generation that the largest share of health, wealth and happiness is found on the farm, and you need no bribe to induce them to be farmers.

Another great mistake is that in too many homes the *dignity of labor* is not properly maintained. There are too many who allow their children to think that the labor of the farm and household belongs to subordinates only. Their uselessness is proverbial and needs no comment. They think labor is de-

basing, while in reality they are sinking to a much lower level under the influence of idleness. The mere thought of labor becomes a terror to them, while to the industrious labor partakes of the nature of mere pastime.

Value of Agricultural Societies.

As a means of advancing agriculture, none stand higher than the organization of agricultural societies. They afford an opportunity not only of attaining to the best methods of farming, but they also serve to develop its participants both intellectually and socially. It is a fault that farmers are too much disposed to isolate. A county like Lancaster should afford a score of flourishing societies, and yet we are not sufficiently aroused even to fill the accommodations afforded by this central organization. I would suggest a missionary spirit for the working members, by which every one would feel it his duty to bring some one along to our meetings. There is no reason why, for our sakes and their own, ladies should not meet with us and work with us. I do not wish to be understood to say that the past record of this society is an unworthy one—by no means. The efficiency of the society were indeed underrated should we measure it simply by what transpires within these walls. The press (thanks to the proprietors, the reporters and fellow members) furnish the medium through which we speak, not as we might suppose, to empty seats, but into the ears of the entire agricultural community. It might be, perhaps, justly complained that our attendance is not larger because too many are satisfied with the newspaper reports of our proceedings. Many a suggestion thrown out here has been profitably acted upon by persons not members. Many a debate, if it did not force conviction, has at least led people to think—thinking gives rise to intelligent movement, and intelligent movement to profitable results.

For fear of trespassing too much upon your time, I will close my communication, offering the apology that it was my object rather to hint upon topics than to discuss them. Pleading sincerely for the hearty co-operation of the membership, I shall endeavor to prove myself worthy of the honor conferred upon me.

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.

THE BALANCE OF TRADE DELUSION.

I notice that your irrepressible Delaware correspondent returns to the charge in the last number of *THE FARMER*. He says he is getting tired of the discussion, and he gives the singular reason for continuing it, (notwithstanding his fatigue) that my last article leaves no doubt that he is "entirely right" and I am "entirely wrong!" One would think if I have done the work so effectually for him it would rather furnish a reason for excusing himself from further labor, than for going to work afresh to undertake a task that he says was already accomplished. Where plain figures are concerned, he says "there should be no two opinions." Well, we will see whether this loud shout of victory is anything more than an idle boast.

He opened the controversy in the November number of *THE FARMER* by asserting

(without any special call that I can see to meddle in the matter) that the statement of imports and exports for certain years, which I had given in an article in *THE FARMER* four years ago, was "false in statistics." Nothing else could possibly be understood by the expression, taken along with the context, but that I had willfully falsified the figures contained in the official document from which I derived my statement, viz: the "Quarterly Report of the Bureau of Statistics, issued by the Treasury Department, at Washington, for the quarter ending March 31, 1878." It was *my* statistics that he said were wrong—that I had the right figures, but had put them on the wrong side of the account; thus confirming his assertion by a circumstance which, if true, would seem to be conclusive. But in his last essay he professes that he had no intention or desire to charge me with *intentional* deception in the matter. Small thanks for the concession at this late day; for I affirm that I used no deception, intentional or otherwise. He now admits, what is the simple truth, that I gave the figures correctly, according to the official document from which I stated at the time they were derived, and that it was Mr. Young, Chief of the Bureau of Statistics that made the error—my fault in the case being that I relied upon and adopted the statistics prepared and published by authority of the U. S. Government, but which S. P., relying on the authority of Mr. Nimmo, Mr. Young's successor, pronounces "false and worthless." For my part, I have not a doubt, they were correctly stated exactly as they appear on the books of the Treasury Department to this day, and I doubt if anybody has ever pronounced them "false and worthless," except S. P. If Mr. Nimmo afterwards in preparing his statistics, gave an *estimate* (and it could only be an estimate) of the specie value of our exports during the period of specie suspension, that is all very well, as an elucidation of the subject, but it is a monstrous perversion of language upon that account to charge Mr. Young or the U. S. Treasury Department with falsification because he or they gave the figures exactly as they appeared on the Treasury books, made up from the returns from all the custom houses in the United States. Furthermore, Nimmo's statement or correction, I believe, was not published till long after the publication of my article so fiercely attacked; and I never heard of his statement till told of it by S. P., and only know it now upon his authority.

As he now acknowledges, however, that it was the Chief of the Bureau of Statistics, that was guilty of what he calls falsifying statistics, why did he not make his attack upon that officer, instead of upon one whose only fault, if fault there was, was in depending upon official government statistics? Evidently his inordinate love of personal controversy and disputation led him to attack the wrong party.

In the February number I quoted him as having said: "J. P. has made the astounding discovery that consumption is gain, and production is loss." In reply to this he now says: "By referring to my article you will see just what I did say, which is quite different." Now, referring to his January article, it will be found *he did* use those exact words; and if

he claims that the meaning was qualified by the words that followed, and that he does not mean what his words imply, then turn to his November article in which he declared without qualification that "all consumption is loss." If he is now convinced that he was mistaken and desires to retract, that is well, but he should not do it by intimating that I misrepresented the position he so strenuously maintained previously to his last essay.

He says "If a boy loses his knife I call it loss, though in looking for it he finds another of greater value." If your Delaware economist really thinks that when a boy *accidentally* loses his knife, and *accidentally* finds another of greater value, his gain is of the same economic nature as that of the farmer, who *purposely* feeds his corn to his hogs and thereby produces pork of greater value than the corn, as he intended, I can only say that one or the other of us must be hopelessly bewildered. Which one it is, I leave. If the boy had traded his knife for another of greater value, the comparison would hold exactly. But in that case, no one in Pennsylvania would say he *lost* the first knife.

He correctly quotes me as saying: "I said nothing about production being loss," and thinks I contradict myself by alleging afterwards that "all productions of the earth will be lost if they are not consumed." To me the contradiction is not very obvious. There is an *if* in the case; but it is not worth arguing over.

It is rather amusing to notice his references to Daniel Webster's speech being apparently at a loss whether to claim him as a supporter of his own views, or to discredit him as of no account by talking about "the eternal disgrace" of "his 7th of March speech." But he says Webster "does not say in the speech quoted that the large importation and consumption of extravagant luxuries will advance the material wealth of our country, as *J. P. does!*" Wrong again, both ways. I never said that, or anything like it, while in a part of that same speech that was not quoted by me. Webster speaks of the advantage of our trade with the Island of Madeira; and S. P. knows as well as anybody whether it is the necessities of life or luxuries that are exported from that island. Webster evidently thought that the advantage of foreign trade, and all trade, is to enable us to supply our wants in the easiest and cheapest manner, and did not think himself wise enough to decide for the rest of mankind what they ought to buy and consume so long at least as their wants were not injurious to the health of the community, and the consumers were able to pay for them.

For the rest of his last communication, as he seems to think it hard if he cannot have "the last word" (though I don't see why he is entitled to it) I freely allow him to have it. If what I said in former articles does not sufficiently answer what he now argues about the "Balance of Trade," I am content to let him have the advantage he desires. But I am reminded of a couplet of Pope, the poet, in answer to an opponent who declared he would have the last word:

Poor Colly, thy reasoning is none of the strongest,
For know the last word is the word that lasts longest. J. P.

SELECTIONS.

FRUIT CULTURE—FAVORITE VARIETIES IN BERKS.

"What six varieties of apples, four of pears, four of peaches, three of cherries and three of grapes, and what varieties of small fruits, should be recommended for general planting in Berks county?" This subject was discussed at the monthly meeting of the Berks County Agricultural Society, held in the Court House last Saturday afternoon, and elicited some interesting information. The Secretary called attention to some fine varieties of apples on exhibition on his table, which had been brought to the meeting by the President, James McGowan, Esq., of Robeson township, and suggested that each person present write the names of his favorite varieties of fruit upon a slip of paper, naming the number of kinds called for by the resolution.

Dr. Aaron Smith hoped that every member present would give his own experience for the benefit of his fellow-members and the community in general.

John L. Rightmyer said that of the numerous varieties of apples it was important to know which would succeed best in this section of the State.

S. J. Hill, of Ruscombmanor township, said that he intended to plant trees this spring and hence is interested in the discussion. He suggested that the subject of apples be first disposed of. He found that the Baldwin succeeded best in his township, and believed in the advice given by an old gentleman, that if he had 100 apple trees to plant, 99 of them should be Baldwin. "And pray, what should the one hundredth be," was asked; "And that should be a Baldwin, too," was the answer. The speaker said that in selecting six varieties of apples he would divide them into the three classes of summer, autumn and winter fruit—two trees of each kind—as follows: Tetofsky and Early Harvest for summer bearing; Smoke House and Fall Pippin for autumn, and Baldwin and Keim for winter. This selection would keep him in apples from the middle of July to nearly the same time next year. The trees with careful training can be made to bear every year, especially the Smoke House, Baldwin and Keim.

President McGowan asked if 100 apple trees were to be planted, how many varieties would it be desirable to plant. George F. Winter, of Reading, said six, and Reuben W. Scherer, of Oley, said that four kinds would be sufficient.

Dr. T. S. Gerhart, of Robeson, said that he had the Baldwin, and that it did well with him. In some soils the fruit decays badly. He had been informed that it succeeds best in heavy soil. He recommended the following four varieties: York Imperial, Ben Davis, Wagener and Smith's Cider. To these, he said, could be added the Krauser and Fallawater.

President McGowan inquired as to what apple should be recommended as the most profitable early variety. R. W. Scherer, mentioned the "Red Astrachan," and Squire Stubblebine named the "Codling."

Ezra High, of Cumru, said that if he was

to plant one hundred trees, seventy-five of them should be Baldwins. The remainder he would make up with the following: York Imperial, Rhode Island Greening, Northern Spy, and a few other kinds for the sake of variety. He did not like the Red Astrachan, on account of its being too tart for his taste, but preferred either the Gravenstein or Maiden's Blush for summer use.

Reuben W. Scherer, of Oley, said that in planting an orchard he would select the following: Red Astrachan, Maiden's Blush, Keim, Krauser and Fallawater. In an orchard of 100 trees, he would plant at least 50 Fallawaters, as this variety does best in the heavy limestone soil of Oley township. The Northern Spy will not succeed at all. He has healthy trees just in their prime, which never bear; nor can he raise Baldwins, yet Daniel Kaufman, residing near Friedensburg, several miles from his farm, in the same township, raises Baldwin apples to his entire satisfaction.

Dr. Smith inquired as to the correct name of the apple which Mr. Scherer termed Fallawater. He understood that it is a native of Berks county, and that it bears the name of Fornwalder, after the man upon whose premises it originated.

E. H. Smeltzer, of Bethel, for many years a dealer in nursery stock, said that Downing described it as the Fallawater, and says that it is identical with the Pound and Tulpehocken. He continued by saying that as to varieties you cannot find half a dozen men in the same locality who will agree. Here is the Baldwin, for instance, some persons would not take it as a gift, as in their estimation it is no keeper and unprofitable. Others speak well of the Smith's Cider, and this variety is very popular in the lower end of Berks and through Montgomery county. The Pennsylvania Red Streak, Ben Davis and York Imperial are highly thought of, while the Early Harvest and Red Astrachan are the leading summer apples. The Maiden's Blush, Summer Rambo and Smoke House are also favorite late summer varieties. An alternate bearer, he said, is the best. If you have trees which are supposed to bear every year you frequently have no fruit. He recently had a talk with Levi S. Reist, a prominent fruit grower of Lancaster county, whose four leading apples are the Ben Davis, York Imperial, Smith's Cider and Pennsylvania Red Streak.

John C. Hepler, of this city, said that if he wanted to plant one hundred trees he would take ten kinds, so as to have somewhat of an assortment, as some varieties will not bear so well in certain seasons as in others. With that number you are more likely to have a continuation of fruit, from early in the season until late in the following spring. For summer, the "Early Harvest" is his favorite. The Porter is good, but only bears every other year. Of the Maiden's Blush he would plant ten out of a hundred trees. Of the Northern Spy two or three trees are sufficient. This variety in perfection is the apple par excellence, but it is often affected by rot, or with cracking open at the stem. He would also plant Baldwins, Pippins, Krausers and a few Rambos. These varieties succeed well on his fruit farm in the Sixth Ward, this city,

where the soil is a heavy clay, with a limestone bottom.

The subject of apples was then dropped and that of pears taken up. Mr. Hepler said that except in a few favored localities pear culture has proven unprofitable. About the time the trees should be in their most prolific condition, they drop off. Out of 200 trees planted, he lost two-thirds.

Dr. Gerhart asked Mr. Hepler in regard to the Keiffer pear, and the latter said that the variety has not been thoroughly tested in this locality, although Edwin Satterthwaite, an extensive pear grower of Jenkintown, Montgomery county, thinks it is the pear of the future, and has some 500 or 600 trees of this variety. He praises it highly. Mr. Hepler then repeated some of Mr. Satterthwaite's remarks in reference to the Keiffer pear, at the recent annual meeting of the State Horticultural Association, formerly known as the Pennsylvania Fruit Growers' Society, which have already been published in these columns.

Levi H. Liess said that the Reading Winter is an excellent pear, and in his opinion one of the best.

John C. Hepler said that the pear succeeds well in Reading, where there is a sandy subsoil, but in heavy clay loam and limestone subsoil is not worth two cents.

Dr. T. S. Gerhart, of Robeson, then took up the question of peaches. He said that there are four varieties which he prefers, viz: Late Crawford, Mountain Rose, Smock Free, and Large Early York. The Mountain Rose is a big bearer, while the large Early York elings a little, but still is very salable. In planting an orchard he would select a southern exposure, although trees often do well on a northern hill-side, but the bloom is sometimes caught by frost. The sap does not rise as early in such trees, but the blossoms are frequently affected by high, cold winds. His neighbor, Moses Eschelman, has an orchard of 1,400 trees, with northern exposure, which last year produced peaches as large as a fist, which commanded \$2 per basket.

Moses Eschelman, of Robeson, having been called for said that the four kinds that he liked best are the early and late Crawford, Old Mixon and Stump of the World. The frosts last spring thinned out the blossoms on his trees, and what was believed at first to have been misfortune proved a blessing in disguise, as the thinning out which his trees received, caused the blossoms which were left to produce fruit of superior quality—74 or 75 peaches filling a basket. He got as high a price for a half peck of his peaches, as others got for an entire basket. Peaches that came before the Early Crawford, he said, are elings. The Old Mixon, Stump of the World and Late Crawford get large, when the trees are not too full. The Smock does not do well, while the Early York is of no account on his premises.

Dr. Gerhart said in regard to the Early Crawford: He thought that it got the yellows quicker almost than any other variety. The Richmond he regarded as a desirable substitute. The Foster is a big peach, a seedling of the Early Crawford, but it is also soon affected with they eltows. As to Stump of the World, the principal objection is that the peaches drop early. The Old Mixon is a splendid

peach, but has been a shy bearer with him. Where one tree is affected, however, with the "yellows," the Old Mixon stands out in full vigor.

John Moyer, of Robeson, said that Hale's Early is one of the best varieties. You can make more out of it than out of any other kind that can be planted.

Dr. Gerhart, continuing, said that everybody wants to have the earliest peaches. Of the Waterloo, Amsden's June, Alexander and other early kinds which he had grown, he regards the Alexander as the best. Amsden's June is prone to overbear, and a branch will contain 30 peaches, which should not bear more than five. He then made some sensible suggestions in regard to the cultivation of trees. He said that several years ago he prepared a statement which was read before the society, showing that 50,000 peach trees had been planted in a comparatively small district, in the three townships of Cumru, Robeson and Brecknock. Now go over this territory to-day, and find how many trees are in good condition. He did not believe that there are over 10,000 first-class trees at present in the district, four-fifths of the original number being worn out, and next to worthless. This demonstrates the fact that cultivation is necessary to success. Till the soil and you will receive the blessing, is the law of nature, otherwise you will have nothing but briars and curses.

John Moyer said that he would make the following selection of trees for his soil and locality: Crawford, Hale's Early, Stump the World, and Old Mixon. Hale's Early, he said, can't be marketed too early. He has had trees in bearing condition for twelve years, but of course it takes labor. During the dry season he hauled water in barrels to his trees on the hill, and gave each a generous supply. This he continued to do regularly during the season, and raised peaches as big as a fist, for which he obtained \$2.50 per basket. He believed in cutting his trees back every three year.

Dr. Gerhart said that Henry Wagner in his time sold peaches from his orchards in Brecknock township at \$3.00 per basket. He then had 2,600 trees, but after he had increased the number to 4,000 or 5,000, the "yellows" got in and the orchards were ruined. He believed in giving customers full measure, but would never sell them such rotten stuff as Hale's Early, as he would not be able to face them after such a transaction. Last year nearly all varieties of peaches clinged, owing to the dry weather, and growers had to be ashamed of their fruit in sending it to market.

Dr. Smith said that the Stump the World, Early and Late Crawford and Old Mixon are the varieties of peaches which will probably give the most satisfaction, being better for canning and better for the market than any other kind that can be named, and they also bring the best prices. The Susquehanna is a fine peach, but it is a poor bearer. He was sorry to hear from the remarks of the previous speaker that the peach crop is likely to prove a failure in this county. This is not in accordance with the spirit which it was hoped that this society would instil. The far West, he said, will raise the wheat and let the farmers of the East devote their attention to fruit,

for they have advantages possessed by no other section of the Union. He related his own experience during a residence of twenty-two years in Lower Heidelberg, where his peach orchard had brought him better returns, in a pecuniary sense, than the practice of his profession. He then departed from the usual order and addressed the meeting in German, inviting the farmers to participate in the discussions of the society. It mattered not whether the remarks were made in English or German; it is the ideas which are wanted and the benefit of the practical experience of the farmers of Berks county.

Jeremiah Y. Bechtel inquired as to the most profitable varieties of grapes.

Joseph Shearer said that as to profit and general desirableness for the market, no variety in cultivation can compare with the Concord.

President McGowan asked for information in regard to the new varieties of grapes—Pocklington and Prentiss.

John C. Hepler said that he did not believe that either had been given a fair test in this section of the country. He had fruited each, but the grapes in size and bunch did not compare favorably with those shown him, when the varieties were being introduced. He recommended the Union Village as a desirable variety, and said that out of 1,000 vines he would plant 999 of the large and prolific Union Village.

Dr. Gerhart said that in this county the Concord is the favorite market grape, while the Clinton occupies the leading place as a wine grape. The Martha, which is a seedling of the Concord, is a good white grape. Owing to the lateness of the hour the discussion then closed.—*Reading Times.*

FORESTS, FLOODS AND DROUGHTS.

Under this title an article in the *Springfield Republican* explains how it is that cutting away the forests is largely the cause of the floods that have devastated our own and other countries of late years.

Wherever the ground is covered with trees, as is well known, there is formed upon its surface, by the fall and decay of the leaves from year to year, a spongy soil or humus, of a depth proportioned to the age of the forest. When rain falls upon this soil, or the snow resting upon it melts, it is held by it as the ordinary sponge holds water which comes in in contact with it. The water does not run off at once from the wooded hills, as it does from a house roof or down the smooth city street, but oozes out gradually, trickling down the hill sides in numerous little threads at first, which after awhile flow together, forming brooks and rivulets, and then lesser and larger streams, till all the water at length finds its level in the ocean.

But some men suggest that these floods have come in the winter, when the ground is frozen so that it cannot take up the water. The suggestion is not an objection to our theory. The forests and the spongy bed of leaves at their base shield the earth from the cold. Every wood-chopper and every traveler knows that it is warmer in the woods in winter than it is in the open fields. The snow serves the purpose of a blanket, so that if the surface of the ground in the forest

freezes to a slight depth in the early winter before any considerable amount of snow has fallen, yet when it has become well covered with it the ground is not only prevented from further freezing, but the warmth of the earth below the frost line spreads to the surface gradually, dissolving what frost there may have been.

The snow melts more gradually in the forests than in cleared ground. The trees obstruct the sun's rays and the warm winds, and even intercept the rains to a considerable extent, or absorb them, so that the snow dissolves more slowly than would otherwise be the case. It is a well known fact that snow remains in the woods in spring time long after it has disappeared from the open fields. Where the forests abound, therefore, there is not so great a volume of water, produced by rapid melting of snow, seeking speedy delivery, as where they have been cut off.

When a tract of woodland is cleared, the first effect is that the spongy leaf-mold is dried up by the sun and wind, and then is carried off by the rain and the winds, leaving the ground bare and solid, ready, like a house roof, to shed the subsequent rains or melting snows. The necessary effect is, that the rains or dissolving snows flow at once down the hill-sides, converting the former brooks into streamlets, and the streamlets into torrents which speedily raise the lower streams above their banks and flood the adjacent fields, covering them also with the debris which has been brought down from the higher regions. Of course the larger the space that has been cleared of trees, the more numerous will be the streams starting down the slopes after any considerable rain or melting of the snow, and the greater the amount of water pressing onward for escape to the lower levels. It is the simple and inevitable result, therefore, of the increased cutting of the forests, that floods should correspondingly increase, and the consequent damage to property and destruction of life.

The same cause that produces floods also occasions droughts, paradoxical as to some it may seem. Where the forests remain, the water oozes from the spongy soil, as from a reservoir, in gentle and hardly varying streams throughout the year. But when the forests are removed, there is no reserved storehouse of supply. The water, falling from the clouds or accumulating from the melting snow, flows off at once in floods, and then, the supply being exhausted, the streams just now swollen beyond their banks, shrink away to mere rivulets, leaving the mill-wheels to stop or to move fitfully for lack of sufficient power, and the navigation of the great rivers to be impeded.

In a small way the benefit of retaining the woods has been illustrated on our Hillside during the past season. When the rain began which caused the overflow of the Ohio River and its tributaries, the ground in our vicinity was covered with a coating of ice, over which the water flowed rapidly into the valley below. It did not occur to us, under these circumstances, that even so copious a rain would have any effect on the springs of our wooded Hillside. We were, therefore, greatly surprised to find after the rain ceased that the streams were everywhere flowing as

in the spring, and that in various places water gushed out between the strata of slate rock, showing that the forest leaves had protected the ground from freezing, and allowed the water to soak in. Although at this time in exposed places the ground was frozen to the depth of two or three feet, in the woods, under cover of the leaves, there was very little frost, certainly not enough to prevent the rain from percolating through it.

On a recent visit to us, a gentleman owning lumber mills on the upper Mississippi, said that in the course of fifteen years all the mills in that region must stop, as the timber will by that time have been exhausted.

The *Republican* truly says :

The duty of preserving our forests, therefore, and of restoring them so far as possible in regions from which they have been removed, is clearly apparent. The forests are a treasure more precious than our mines. Already their destruction has gone so far as to bring manifest evils, and to threaten greater in the future. Our State Legislatures and Congress cannot be too prompt in taking the most effective measures to preserve our existing forests, to restore, so far as may be, those of which have been removed, and to encourage the establishment of new ones wherever it may be done with advantage.—*Fannie B. Johnson, in Laws of Life.*

ONION CULTURE—SEEDS AND SETS.

A few years ago no vegetable was subject to such marked fluctuations in prices as the onion, the price doubling, often quadrupling, within a short time. This was due to the fact that onions were cultivated in but very few localities, and the market could readily be controlled by speculators. Onion culture is no longer confined to Connecticut and Rhode Island. Large areas in New York State and in some Western States are devoted to the crop, and the Southern States now raise large quantities. The general stock is so large that a short supply in one place in made good by shipments from another point, and there is little chance for a "corner." It was supposed that onions could not be raised from seeds in localities south of New York City, but the experience of the southern growers show that this is a mistake. In localities far enough south to allow of growth during the winter months, there is no difficulty in making good crops from the seed. That a warm climate is not detrimental to onion culture, is shown by the vast quantities sent to our markets from Bermuda, while magnificent onions are shipped from Spain and Portugal to England, and to a small extent to this country. In the Middle States, where the winter is too cold for their growth, and hot weather comes on before the bulbs have made much size, onion sets are preferable to seeds.

REQUISITES TO SUCCESS WITH ONIONS.

Onions differ from most other crops in not requiring a rotation. In some places the land has been in onions annually for half a century : If the crop is to be grown for the first time, newly cleared land is the best, and next to that, soil which has been in corn or potatoes. A good, deep, rich loam, is essential, as is heavy manuring. Fifty loads of

stable manure to the acre are an ordinary manuring, and may be supplemented by ashes, bones, flour, or guano, as a top-dressing. The seeds should be sown very early; should be of the previous year's growth, and from a reliable raiser. The rows are a foot apart, leaving every seventh for a path, and from three to six pounds of seed are sown to the acre. On land not before in onions, thin sowing is better than thick. After sowing, roll the surface. Some sow an ounce or two of radish seed with every pound of onion seed. The radishes come up in a few days and mark the rows so that a hand-cultivator or push-hoe can be run close to the rows even before the onions are up.

In some localities the young onions will be seen to die without apparent cause. A fly has laid her egg and the grub is eating the interior of the young bulb. All such onions must be taken up, using a knife to make sure of removing the bulb with the worm, and placed in a bucket or other vessel, and burned.—*American Homes.*

WORTH PRESERVING.

- A barrel of flour weighs 196 pounds.
- Barrel of pork, 200 pounds.
- Barrel of rice, 600 pounds.
- Barrel of powder, 25 pounds.
- Firkin of butter, 56 pounds.
- Tub of butter, 84 pounds.
- 60 drops make a drachm.
- 8 drachms make an ounce.
- 4 ounces make a gill.
- 16 ounces make a pint.
- 60 drops, a teaspoonful.
- 4 teaspoonfuls, a tablespoonful.
- 2 tablespoonfuls, an ounce.
- 8 ounces, a gill.
- 2 gills, a coffee-cup or tumbler.
- 6 fluid ounces, a teacupful.
- 4,840 square yards make an acre.
- 640 acres make a square mile.
- There are 2,750 languages.
- Two persons die every second.
- A generation is fifteen years.
- Thirty-one years is the average of life.

TABLE OF LEGAL WEIGHTS.

BUS.	LBS. BUS.	LBS.
Wheat,	60 Blue Grass Seed,	14
Shelled Corn,	56 Buckwheat,	52
Corn on the Ear,	70 Dried Peaches,	33
Rye,	56 Dried Apples,	26
Oats,	32 Onions,	57
Barley,	47 Salt,	50
Irish Potatoes,	60 Stone Coal,	80
Sweet Potatoes,	55 Malt,	38
White Beans,	60 Bran,	20
Castor Beans,	46 Plastering Hair,	8
Clover Seed,	60 Turnips,	55
Timothy Seed,	45 Unslacked Lime,	30
Flax Seed,	56 Cornmeal,	48
Hemp Seed,	44 Fine Salt,	55
Millet Seed,	50 Hung. Grass Seed,	50
Peas,	60 Ground Peas,	25

Time to Plant the following Seeds, with

QUANTITY PER ACRE,

- Red Clover—March, April, September, October, 8 to 10 lbs,
- Timothy—March, April, September, October, $\frac{1}{4}$ to $\frac{1}{2}$ bu.
- Red Top—April, May, September, October, $\frac{1}{4}$ to 1 bu.
- Kentucky Blue Grass—April, May, June, July, $\frac{3}{4}$ to $1\frac{1}{2}$ bu.

- Rye—April, May, September, October, 1 to 2 bu.
- Wheat—April, August, September, $1\frac{1}{4}$ to $1\frac{1}{2}$ bu.
- Corn—April, May, June, 4 to 6 quarts.
- Buckwheat—June and July, $\frac{3}{4}$ bu.
- Barley—April, May, August, September, 2 bu.
- Oats—April, May, June, 2 to 3 bu.
- Beets—April, May, June, 4 lbs.
- Turnips—May, July, August, 1 lb.
- White Beans—May and June, 1 bu.
- Potatoes—April and May, 10 to 15 bu.
- Onions—May, 2 to 3 bu.
- Hungarian Grass—May and June, $\frac{1}{4}$ to $\frac{1}{2}$ bu.

HERSCHEL'S WEATHER TABLE.

For Foretelling the Weather Throughout all the Lunations of Each Year, Forever.

This Table and the accompanying remarks are the result of many years' actual observation, the whole being constructed on a due consideration of the attraction of the Sun and Moon, in their several positions respecting the Earth, and will, by simple inspection, show the observer what kind of weather will most probably follow the entrance of the Moon into any of its quarters, and that so near the truth as to be seldom or never found to fail :

If the New Moon, First Quarter, Full Moon, or Last Quarter, happens	Between midnight and 2 o'clock.	
	2 and 4 morning	4 and 6 "
"	6 and 8 "	8 and 10 "
"	10 and 12 "	12 and 2 afternoon
"	2 and 4 "	4 and 6 "
"	6 and 8 "	8 and 10 "
"	10 and midnight	
IN SUMMER.		
Fair	Cold and showers	Rain
Wind and rain	Changeable	Frequent showers
Very rainy	Changeable	Fair
Fair if wind north-west	Rainy, if south or south-west	Fair
IN WINTER.		
Frost unless wind south-west	Snow and stormy	Rain
Stormy	Cold rain if wind west, snow if east	Cold and high wind
Snow or rain	Fair and mild	Fair
Fair and frosty if wind north or north-east	Rain or snow if south or south-west	Fair and frosty

OBSERVATIONS—1. The nearer the time of the Moon's change, first quarter, full and last quarter are to *midnight*, the fairer will be the weather during the next seven days.

2. The space for this calculation occupies from 10 at night till 2 next morning.

3. The nearer to *midday* or *noon* the phases of the Moon happen, the more foul or wet weather may be expected during the next seven days.

4. The space for this calculation occupies

from 10 in the forenoon to 2 in the afternoon. These observations refer principally to the Summer, though they affect Spring and Autumn nearly in the same ratio.

5. The Moon's change, first quarter, full and last quarter, happening during six of the afternoon hours, *i. e.*, from 4 to 10, may be followed by fair weather; but this is mostly dependent on the *wind*, as noted in the table.

6. Though the weather, from a variety of irregular causes, is more uncertain in the latter part of Autumn, the whole of Winter, and the beginning of Spring, yet in the main, the above observations will apply to those periods also.

7. To prognosticate correctly, especially in those cases where the *wind* is concerned, the observer should be within sight of a good *cone*, where the four cardinal points of the heavens are correctly placed.

HARVEST DATES OF THE WORLD.

January—Harvest is ended in most districts of Australia, and shipments have been made of the new crop. Chili, New Zealand, Argentine Republic.

February—Upper Egypt, India.

March—Egypt, India

April—Coast of Egypt, Syria, Cyprus, India, Persia, Asia Minor, Mexico, Cuba.

May—Persia, Asia Minor, Algeria, Syria, Texas, Florida, Morocco, mid-China, Japan, Central Asia.

June—California, Oregon, Southern United States, Spain, Portugal, Italy, Hungary, Turkey, Roumalia, Danube, South Russia, South of France, Danubian, Principalities, Greece, Sicily, Louisiana, Mississippi, Alabama, Georgia, Carolina (North and South) Tennessee, Kentucky, Virginia, Kansas, Arkansas, Utah, Colorado, Missouri.

July—Southern, Eastern, and Midland English counties, Oregon, Nebraska, Minnesota, Wisconsin, Iowa, Illinois, Indiana, Michigan, Ohio, New England, New York, Virginia, Upper Canada, France, Germany, Austria, Hungary, Switzerland, Italy, Russia, Poland.

August—United Kingdom, France, Germany, Belgium, Holland, Manitoba, Columbia, (British) Lower Canada, Hudson Bay Territory, Denmark, Poland.

September—Scotland, England—Hops and roots. America—Maize. Athabasca—wheat, barley, &c. Sweden, North Russia, France—Beet root, buckwheat.

October—Scotland, America—Maize crop. France, Germany—Vintage.

November—Australia (north), Peru, South Africa.

December—Australia (south), Chili, Argentine Republic.

BIRDS ON THE FARM.

A paper read before the Connecticut State Board of Agriculture, by Prof. W. A. Sterns, of Amherst, Mass.

The crow regulates its food from necessity, and not from choice. To him, strictly a grain-feeding, and not an insect-eating bird, corn is his favorite diet. It is not true, as some have claimed, that it picks out weevil-eaten or imperfect kernels from the hills. He eats all he can get, good or bad, and though he is also

a great scourger, the balance is rather against his being beneficial to the farmer. The robin is an insect-eating bird. It prefers insects in the larval, pupal, and adult stage to any other food. Few persons have any idea of the enormous, the incalculable number of insects that robins eat every year. A young robin in the nest requires a daily supply of food equivalent to considerably more than its own weight. To supply the millions of young birds hatched each year, this requires enormous numbers of insects. The service of these birds, during the time they are engaged in rearing their young alone, would entitle them to protection, were the parents themselves to feed exclusively upon garden fruits during the whole period. But at this time the diet of the old birds is very largely of an animal nature; nor is this the only season during which the destruction of insects goes on. It does no harm to put scare-crows in your trees and gardens to drive off the robins, but it hardly pays to kill them. Yet when killed, they make very delicate eating.

Swallows may generally be found where there are grain fields. The summer range of these birds includes nearly all the central portion and the great grain-growing sections of the West. They are more or less migratory, and spend their winters in the South. As pestiferous as the eve and barn swallows are with their chattering, and the annoyance they give the farmers in various other ways, they are the natural enemies of the midges and similar small insects that prey on grain, and pursue them with unremitting vigilance. It has been estimated that the nestling of a single pair of swallows will in twenty-one days consume 500,000 insects. Their benefit is simply incalculable.

Blue-birds have largely superseded swallows near houses, and protect fruit trees from insects much better than the swallows do. The martin is too lazy to do much good, and has been largely driven away from New England. The king-bird, or bee-martin, has been voted a terror to bee-keepers; but it has been found that the immense number of insects it destroyed more than balanced this evil. Again, the king-bird drives away other birds from fruit trees, and is useful for this reason. If suitably baited with scraps of cotton, strings, and other loose material to complete a nest, the king-bird will soon accustom itself to building in and about the orchards, gardens, and even the houses of our farmers, and thus protect thousands of dollars' worth of vegetables and fruits. It is strictly an insectivorous bird, and will not destroy, on the whole, that which conduces to the interests of the farmers. Altogether the king-bird is one of the most valuable species for agriculturists. The legislation in regard to this bird should be of the strictest kind.

Another species doing an immense amount of good in its own quiet way is the yellow-billed as also its ally, the black-billed cuckoo. These birds build in apple and fruit trees. They are strictly insect-eating, while they make terrible raids upon the caterpillar. They should be encouraged in every possible way.

The blue jay does much benefit, but so much direct damage that it is almost absurd

to class him as a friend of the farmers. The Baltimore oriole is very destructive to pea vines early in the season, but he eats a class of insects not touched by other birds—the leaf beetles and the larvæ of many species of insects inhabiting the tops of elm, oak, and apple trees. At the end of the season a balance will be found in the oriole's favor. The nut-hatch is eminently an insect-eating bird, living largely upon grubs which hide under the bark of oak, chestnut, elm, maple, and other rough-barked trees. The black titmouse, or chickadee, is of direct benefit to forests by the great number of insect larvæ consumed during the year. It eats insects too small for the nut-hatch. The woodpecker looks out larger insects than either of the two preceding kinds, but can hardly be said to be an especially valuable aid to the farmer.

The wrens are strongly beneficial to gardens and plants about the house, because of the number of caterpillars they eat. The fly-catchers are beneficial, and so are the thrushes, warblers, and vireos.

CLOVER AS A FERTILIZER.

Our best success has been in scattering the seed over growing wheat, on a cool morning early in April, when an inch depth of frost opens the ground in cracks into which the seed falls and is lightly covered by the thawing earth. Both this and the wheat, but especially the clover, are usually benefitted by a broadcast sowing of ground plaster in May. So marked is this sometimes, that one can write his name in large letters with plaster sowing, and the letters will be distinctly visible in the more luxurious green, when the clover slants, at first protected from the sun by the wheat plants, have a chance for full growth, after the wheat is cut. The experience of many who raise much clover is, that a good catch is most certain if the seed is not sown until the soil is warm and mellow. The clover starts into growth at once and strong plants are quickly obtained. The chief danger of delay is that the still feebly-rooted plants may be caught by dry, hot weather and killed. While plaster is a good top-dressing for clover on most soils, if one's own experience or that of his near neighbor does not indicate this, other light top-dressings may be useful—some soluble fertilizer, as superphosphate or muriate of potash. Clover responds to any attentions of this kind and makes a good return in the mass of foliage and rich material it gathers from soil and air—material which, when plowed in, richly prepares the soil for other crops.

Clover as a Fertilizer.

Wherever clover can be grown it must always be the staple crop, to be turned under as green manure. There are good reasons for believing that a large clover growth turned under actually adds to the fertility of the soil. Much of the mineral matters in its leaves and stems are brought from the subsoil, whence, in the case of other crops, they would be entirely unavailable. The bulk of a clover crop in full growth is much greater than most farmers realize. The green herbage of such an acre might, when dried, yield little over two or three tons of hay; but, by carefully washing away the soil, so as to preserve all the clover roots, it has been found that these, in

their green state, weighed at the rate of thirteen tons per acre. The quality of the manurial value of clover roots is quite as remarkable as its quantity. They are rich in nitrogen, in lime, potash and phosphates. It is, this which makes a clover sward, when plowed funder, the best possible preparation for wheat. In its decay clover furnishes all that the grain crop requires, and it supplies such plant food in more available form, and more evenly distributed through the soil, than the same amount of material could be placed by any other method. With the most careful top dressing much of the soil will commonly fail to be placed in contact with the manure, and hence fail to realize any immediate benefit therefrom. On the other hand, clover growth plowed under enriches every particle of soil with which either leaf or plant has come into contact.

Clover as a Shade.

There is probably no other plant in the world of such value to the farmer for shading the soil. It affords the most perfect protection to the soil during the fierce, dry heat of the summer. Being a constantly deciduous plant, its leaves are perpetually falling and soon form a delicate covering for shade, and easily penetrated at all points by the air, which is the greatest carrier to the wornout soil of those atmospheric elements that are to enrich it. In this way the clover plant not only contributes directly to the fertilizing of the soil by giving its own substance to it, but it furnishes a protective covering to the entire ground, which encourages and stimulates those chemical processes by which the hungry and exhausted soil is recuperated from the vast supplies of nutriment that are held in the atmosphere. It becomes to the farmer the most valuable fertilizer, as it imparts fertility to the entire soil.—*American Scientist.*

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular monthly meeting of the Lancaster Agricultural and Horticultural Society was held on Monday, April 9. The following members and visitors were present: John H. Landis, Manor; F. F. Diffenderfer, city; C. L. Hunsecker, Manheim; C. A. Gast, city; Johnson Miller, Warwick; Peter S. Reist, Manheim; J. M. Johnson, city; J. C. Linville, Salisbury; H. G. Resh, Willo Street; S. P. Eby, Esq., city; Levi S. Reist, Oregon; E. S. Hoover, Manheim; H. R. Fulton, city.

Mr. H. G. Resh, who had been elected president of the society, read his inaugural address. The address was an excellent one, and will appear in full on page 53 of this number of THE FARMER.

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

Crop Reports.

Mr. Miller said the wheat crop in Warwick was very good. Grass is better set than it has been for a number of years. Not much showing for new crops has yet been done. The winter, he thought, was favorable for fruit.

Mr. Reist, also of Warwick, said the Hessian fly was destroying some of the wheat which was sown in September. He knew of several fields which were totally destroyed by the fly last fall.

Mr. Resh said that the remarks of Mr. Reist in reference to the fly would be applicable to almost the entire section of the county.

Mr. Linville reported for Salisbury, that the wheat

was very uneven, some of it being excellent, while some was very badly injured by the fly. They had a better set of grass than they have had for four years. The spring is backward and not much plowing has been done. Some varieties of peaches had been killed in his orchard, but he thought there would still be a very good crop. Most of the farmers have disposed of their cattle, at prices that paid them very well for their winter feeding.

Short Papers.

Mr. C. L. Hunsecker read a paper on the subject of garlic—an obnoxious plant which, while not at present as commonly found as it was some years ago, is still prevalent to a large degree on many lands. This pest can be eradicated by a judicious cultivation of the soil.

He also read a paper entitled "Saws and Sawmills," in which he described the rise, progress and perfection of sawmills, and spoke of the vast saving in labor over the old method of reducing timber by means of hand saws.

Early Pasturing for Cattle.

The question "Is it feasible to turn cows on early pasture and subsequently be compelled to feed dry rations?" was spoken on by Mr. Hoover, who said that it appeared to him that a middle ground might be taken. Cows should not be turned out too early. Early pasturing has its good results, one of which was that early grasses oftentimes takes the place of medicine. Cows, after being housed for a considerable time, need something to purify their blood, and this can be accomplished by early pasturing. He would put them in the pasture field for an hour or two each day. Where pastures will not hold out, farmers should provide themselves with roots, in order to make up for the deficiency. In case he could not continue his cattle in pasture, he would delay putting them there until he could keep them there.

Mr. Linville thought it would be a good plan to plant a small spot with rye, which might be fed to the cattle in the stable very early in the season.

H. R. Fulton, Esq., was elected to membership in the society.

Specimens Exhibited.

Dr. S. S. Rathvon exhibited a peach branch, almost entirely covered with what is known as the "peach scab louse," a pest which it is hard to get rid of. He recommended cutting off the limb, or even cutting down the tree.

The same gentleman also presented specimens of black hellebore or Christmas rose, a plant which begins to bloom in the open air about Christmas time, and continues to bloom until the middle of April, and sometimes later.

Adjourned.

POULTRY ASSOCIATION.

The Old Society Disbands and a New One is Organized—Officers Elected.

The Lancaster County Poultry Association met stately in the office of J. B. Lichty, Monday morning, April 9. The following persons were present: Chas. E. Long, J. B. Long, J. B. Lichty, H. A. Schroyer, Chas. Lippold, F. R. Diffenderfer, J. M. Johnston, J. E. Schum, C. A. Gast, Wm. Schoenberger, W. H. Powden and P. S. Goodman, city; G. A. Geyer, Florio; S. G. Engle, Marietta; J. Seldomridge, Ephrata; Peter Brunner, Mount Joy; M. L. Greider, Mount Joy; J. A. Stober, Scheneck.

The minutes of the previous meeting were read and approved.

Mr. Lichty, of the committee on constitution and by-laws of the proposed new, incorporated society, presented a constitution, which, after a few alterations, was adopted.

The constitution provides for the incorporation of the society, with stock to the amount of \$500, with power to increase the same to \$1,000, the par value of each share to be \$5. It also provides for officers, who shall be elected at the meeting in April in

each year, one month's notice of such election to be given to each member of the association.

A resolution was then offered and adopted, disbanding the old society, transferring to the new association all the property and debts and premiums due, and agreeing to pay premiums due by shares of stock in the new society.

An election of officers of the new society was then held, which resulted as follows:

President—J. A. Stober.

Vice Presidents—M. L. Greider and Charles E. Long.

Corresponding Secretary—J. B. Long.

Recording Secretary—J. B. Lichty.

Treasurer—John E. Schum.

Board of Directors—John Seldomridge, S. G. Engle, F. Frank Evans, H. A. Schroyer, and H. S. Garber.

On motion the Secretary was instructed to make the necessary publication of the intention of the society to apply for a charter.

A resolution was also adopted providing for the payment of stock subscriptions on or before the next meeting.

The society adjourned to meet on the first Monday in May, at 10:30 o'clock, A. M.

THE FULTON FARMERS' CLUB.

The Fulton Farmers' Club met at the residence of Joseph P. Griest on Saturday last, nearly all the members being present. Thomas Stubbs and wife, Joseph C. Stubbs and daughters, Isaac Bradley, and several others were present as visitors.

Asking and Answering Questions.

Joseph P. Griest asked what he should do with a large grapevine that had grown on a tree that had blown down. E. H. Haines said hang the vine on the fence for the present and next spring trim and hang on a trellis.

Joseph C. Stubbs asked what is the best remedy for distemper amongst dogs. E. H. Haines said he would hang him to a tree. One member suggested a bullet.

Malissa Gregg asked what would prevent flies from eating cabbage plants. Grace King uses soot on them in the morning; Mont. Brown sprinkles sulphur on them when the dew is on; Esther Haines plants lettuce amongst her cabbage plants as a preventive.

Esther Haines asked how many pounds of soap fat are required to 20 gallons of good lye in making soft soap. Grace King said she does not measure or weigh, but puts as much fat in as the lye will take up. The balance comes to the top and is skimmed off. Several other ladies make their soap in much the same manner, did not weigh or measure but simply guess the proportions. Wm. King asserted that there was not a woman in the room who knew how to make soap, that it was guess work from beginning to end, and that they could not explain the mysteries and chemical changes connected with the making of soap.

Wm. King asked if oats ground with corn would make good feed for milch cows. E. H. Haines—Yes, good feed for any kind of stock. Thos. Stubbs claimed that oats was not good to feed to milch cows, stating that he has known it (by experiment) to lessen the flow of milk to some extent, and wheat bran to increase it. He would use bran always. Wm. King had been using bran in his dairy but substituted oats instead, and churned six pounds of butter less the first week. He attributed the loss to the oats. Nearly all the club preferred bran to oats for cows, but thought an occasional change of feed beneficial.

Mont. Brown asked if deep or shallow plowing for corn was the best. E. H. Haines claimed that shallow plowing is necessary in this neighborhood as our soil is not deep. Solomon Gregg favors shallow plowing. He plows from four to five inches deep for corn, but deeper for wheat. He considers seven to eight inches deep plowing. Thomas Stubbs's early experience was with deep plowing, and he raised good crops of corn. He does not plow so deep now, but thinks he plows deeper than his neighbors. Lindley King said if the sod is stiff he plows deep; a lighter sod he does not plow so deep. Nearly all present favored shallow plowing for this section.

The Afternoon Session.

The club then adjourned for dinner, after which the members inspected the host's farm and stock. They also saw an Acme harrow in operation, exhibited by Howard Coates, who is agent for the sale of them.

The club then assembled for the afternoon session, when the minutes of the last meeting were read and criticisms called for.

E. H. Haines had no fault to find with the stock. He though the host had some very fine horses and some not so good.

Solomon Gregg did not see much change. The wheat, however, did not look very well.

The host in place of an essay, read a selection on the social and political purposes of the farming class. Carrie Blackburn recited very nicely a poem entitled "Better than Gold."

In looking over the reports of the club for a year past, Thomas Stubbs said he had noticed good results from using orchilla guano in York county, and that he would try it.

E. H. Haines asked him how he succeeded. He could not make much of a report, but thought it had done some good.

Mont. Brown read an article from the LANCASTER FARMER on "Lime against modern Fertilizers," by Howard Preston, of Chester county. Some discussion then followed, as to the benefits to be derived from each.

The writer of the article claims that when lime was giving such good results, thirty or forty years ago, there was a large number of cattle fed, and that lime was getting the credit due the manure. That only a small portion of the lime is taken up by the growing crop, the balance remaining inactive, and that since commercial fertilizers have come into use the crops have been increased from 30 to 40 per cent. Bone is what is needed.

Wm. King stated that part of his farm has had no lime on it for over twenty-five years, and he considers it in as good condition as other farms that have had lime on them.

Joseph C. Stubbs, at a former meeting held here, said the way to grow peaches successfully was to let the cattle eat the tops off the trees, while the roots were making a larger growth. The club was rather amused at this novel manner of pruning peach trees.

Mr. Stubbs now says he gathered this season two large tubs full of fine peaches from a tree treated in this manner.

Solomon Gregg read an editorial from the *New Era* on the need of agricultural stations.

E. H. Haines gave the following list of apples as his selection for an orchard. One Early Harvest, one Early Joe, one Early Knowles, one Jeffries, two Fowsend, three Maiden Blushes, two Gravenstuns, two Smokhouse, two Fallowater, four Nottingham Brown, four Wine Sap, two Tewkesbury Winter Blush, two Sweet Pippin, two Russet.

John Grossman selected the following: Two Early Harvest, one Red Astrakan, two Spoon Horn, six Smokehouse, two Rambo, two Grossman, two Red Romanite, six Tewkesbury Winter Blush, five York Imperial, two Smith Cider, five Russets, two Pennock.

The Club then adjourned to meet at the residence of Lindley King, May 5, 1883.

LINNÆAN SOCIETY.

The Linnæan Society met on Saturday afternoon, March 24, 1883, President J. P. Wickersham in the chair and six members present. The reading of the minutes of the previous meeting was dispensed with and dues collected.

Donations to the library consisted of sixteen substantially bound quarto volumes of the *Congressional Record*, contain the proceedings of the 46th and 47th sessions of Congress. These volumes average about 100 pages each aggregating 33,600 pages. Also two quarto volumes of 560 pages each of indices to the foregoing (34,720pp). Also four volumes of memorial addresses on the lives and characters of General

A. E. Burnside, Matthew H. Carpenter, Fernando Wood and Evarts W. Farr, with fine portraits of each. These volumes aggregate about 300 pages royal octavo, and are printed on double calandered paper. Report of the Commission of Education for 1882; 914 pages octavo; Annual Report of the Smithsonian Institution for 1880, 772 pages octavo; Statutes of United States of America, containing the laws of the 46th and 47th Congresses—two quarto volumes unbound, aggregating 1,000 pages, donated through Hon. A. Herr Smith; Report of the Coast and Geodetic survey for 1880, 419 pages quarto, and 83 maps and chart. Numbers 5 and 6 Circular of Education and the High Schools of Sweden, 84 pages octavo from the Department of the Interior. *American Bookseller*, 184 pages quarto; *Lancaster Farmer* for March, 1883; one catalogue of rare books, and four circulars; Denver (Col.) *Tribune* for March 4, 1883, Vol. 17, No. 63, profusely illustrated, five-columns, 16 pages, 15x24, which exhibits the wonderful progress of the great North west, and Colorado in particular; one envelope containing seventeen biographical and historical scraps; Proceedings Academy Natural Sciences, Part 3, October to December, 1882; Vol. 23, No 12, of *Patent Office Gazette*. On motion, the thanks of the society were tendered to the donors of the above volumes.

Donations to the museum consisted of a small bottle containing frog spawn, collected by Master Munson, in the spring of 1882. These have been preserved in water, hermetically sealed, and seem to be in as good condition as when first collected nearly a year ago.

The report of the committee appointed to collate the various amendments made from time to time to the constitution and by-laws was then handed in and on motion received and the committee continued with instructions to prepare a new set of by-laws to contain all the amendments which have been made and any new ones they may deem advisable. Committee on keys said that keys have been procured and could be obtained from the treasurer. Bill of 90 cents for the same was ordered to be paid. It was then requested that the president prepare a statement setting forth the objects of the Linnæan Society, to be delivered before the members and citizens at a meeting to be called for the purpose. The treasurer was then authorized to have several serial volumes in possession of the society bound.

On motion, adjourned to meet on Saturday, April 28, 1883, at 2 P. m.

AGRICULTURE.

An Early Crop of Peas.

There are two distinct classes of peas, those with small round seeds, the others with much larger, irregularly shaped peas, the surface of which is wrinkled. The wrinkled, seeded, or marrow peas, are as much better than the other as sweet corn is superior to field corn. The round peas, while not so good, are much healthier and earlier than the others. Unless the soil is warm, and they germinate quickly, wrinkled peas will decay before they can come up. The round peas are vastly better than no peas, and are very acceptable to the others. To have early peas, they must be sown early—the earlier the better. After the soil has thawed for the first four inches, even if it is solid below, sow peas. If the ground was manured and plowed last autumn, all the better; if not, select the richest available spot, and open a drill four inches deep. Peas should be covered deeper than most other seeds. For varieties, the Early Kent is one of the best; it has almost as many names as there are dealers. Daniel O'Rourke is one of the names of a good strain of this pea. Carter's First Crop is another good variety, and every spring, new extra early sorts are sent from England, which usually turns out to be old Early Kent, with a new name. The peas should be sown in the bottom of the drill rather thickly, at least one every inch, and at first covered with about an inch of soil. It is well to put about four inches of coarse stable manure over the rows; this is to be left on in

cold days, but when it is sunny and warm, pull it off with the rake, and let the sun strike the soil over the peas, replacing it at night. When the peas sprouted, gradually cover them with fine warm soil, placing the coarse manure over them as needed, until the covering of soil reaches the level of the surface. If a ridge of soil, a few inches higher than the peas, be drawn up on each side of the row, it will greatly protect them from the cold winds. When the plants are a few inches high, draw some fine soil up to them, and stick in the brush. When the soil becomes dry and warm, the main crop of wrinkled peas may be sown.—*American Agriculturist*.

The Seed Test

A vessel set in a warm room with some earth kept properly moist, answers well for testing, but it should be borne in mind that seeds differ very much in their habit, and require a different temperature. For instance, egg-plants and peppers need a strong heat and plenty of water (90° is not too much), while lettuce, cabbage, onions, wheat, rye and many others of that class start readily at from 65° to 70°. The heat necessary to start one class of seeds into life will kill another, and I think our failures are as often attributable to lack of knowledge on this point as to bad seed. A sample of egg-plant seed was sent to me for testing recently, of which the owner said he could get only 25 per cent. to germinate. I counted out twenty five seeds, and in just eight days from the time of starting had twenty-three good, strong plants. But it is no surety that seeds are good because they germinate freely. I once had twenty-five pounds of onion seed left over from the previous year; I knew it to be of the very best quality; I tried a little of it before time for sowing the next season, found it to germinate freely, and so prepared a plot and sowed the twenty-five pounds. It came up finely, and I thought I had beat myself for once in my life, but to my sad disappointment thirty days after there was not a plant to be seen on the whole plot. I think the best method of testing corn is to place in earth, in a vessel, and subject it to about summer heat; if the upper shoots come through good and strong in about seven days, it can be depended upon for outdoor planting. I think the crop of 1881 far preferable to that of last year, but let the seed be selected from corn on the cob, for if planters have to buy in bulk from others, it is hard to tell how much it has been heated. Seeds will often half germinate; they will strike root, but send out no upper shoot. If I plant under favorable circumstances ten good kernels of corn, I expect ten good plants; if there is a failure of 25 per cent. I discard it altogether.—J. P., Princeton, N. J.

American Agriculture.

Dr. Gilbert, the well known English agricultural chemist, visited this country last year, and traveled over 10,000 miles through Canada and the States. Some of his observations were recently published in the London *Gardeners' Chronicle*. He was strongly impressed with the thousands of miles, almost consecutively, of level plains of natural vegetation. The accumulation of fertility, and the capacity of such districts to provide food for future population, seemed to him to be almost boundless; but under present management there appeared to be a wasteful sacrifice of fertility. Among other places he visited Mr. Dalrymple's great farm in Dakota, who has a two-third's interest in the 70,000 acres, from which 30,000 acres of wheat were harvested last season, yielding over half a million bushels. The soil is very rich prairie land, but does not yield over 20 bushels per acre. The same soil, under the best culture, afforded 40 to 45 bushels. Mr. Dalrymple does not apply any manure, but merely burns the straw on the land, and raises wheat year after year. He does not see any decrease in the crop.

We cannot quite agree with Dr. Gilbert when he says that is the only course which can be pursued under present circumstances, where land is so much cheaper than labor, admitting as he does, that thorough culture and the absence of weeds would

give much heavier returns. It is not necessary to pursue the slow and laborious process for reducing the soil to the best condition formerly adopted, since improved implements will enable the farmer to sweep over and pulverize the land several times faster than before. Repeated experiments have shown of late years that thorough preparation and culture alone for wheat, give a great increase in the product; and the addition of cattle and sheep raising which may be easily combined with the product of grain, would retain and increase the present fertility. *Country Gentleman.*

HORTICULTURE.

Fruit Buds of the Peach.

The cold weather which prevailed over the country about the 10th inst., was marked with various degrees of severity in different localities, from zero to thirty or forty below. In very rare instances we have known a portion of the peach crop to escape destruction when the thermometer had gone to seventeen degrees below zero, but more commonly all have been killed at twelve below. When, therefore, the thermometer went to twelve below at Union Springs, N. Y., on the morning of the 10th, we began to cast about to see what other fruits could be made to take the place of peaches the coming season, and were agreeably surprised since to find on examining one or two hundred buds that not more than one-seventh had been fatally injured, the remaining large portion being fresh and entirely unharmed. There was very little difference in the sorts examined, and no preference could be discovered in the buds on large, stout shoots, or on small and slender ones, or on exposed or sheltered sides of the shoots. The only exception was in the case of the Early Crawford, which had about one-third of the buds killed; but this may have been owing to peculiar aspect, the trees standing on the west side of a building. A reason of the unusual escape of the buds was doubtless the continuous old weather which has prevailed since the close of autumn, and which has prevented the buds from swelling and becoming more susceptible to injury. We never saw them less swollen at this time of the year; in some years they have been found twice as large, and when this has been the case, a cold of eight or ten degrees below zero has killed nearly all. Should several warm days still occur, followed by as severe a temperature as we have already had, we should probably lose the entire crop. These remarks apply to a single locality only, and only a few miles distant varying results are often observed. The danger still continues for some weeks, but after the first of March we have never known the crop to be destroyed, except in a single instance, about the 6th of that month.—*Country Gentleman.*

Vegetable Seeds.

There are a few houses that make the production of vegetable seeds a specialty. To do this successfully, *i. e.*, to produce not only new but better varieties each succeeding year is a task which requires long experience, a careful study and a minute attention to details which the general public and perhaps many gardeners and farmers are scarcely aware of. Few houses really do succeed, but among these the well-known firm of B. K. Bliss & Sons is one of the foremost. Its list of novelties for 1883, just published, includes not only old "stand-bys," as, for instance, the American Wonder Pea—a peculiarly finely flavored variety of peas, by the way—but also a remarkable pea produced by crossing Daniel O'Rourke with Carter's First Crop, which has been given the name of American the Racer Pea. Among the other vegetables deserving of notice are a fine Cuban Queen watermelon, and the Sea-Foam cabbage. The black Champion currant among the fruits offered by this enterprising firm, received the distinction of a prize at the Royal Horticultural Society Exhibition in August, 1881. An attractive variety of potatoes is a feature of the catalogue, and the same may be said of some very fine grains, of which the

Triumph oats, Adament wheat and Pringle's Green Mountain wheat need only be mentioned. Few people will fail to find what they want by consulting this very interesting and complete list.

Chemical Elements in Plants.

Chemists are generally agreed that plants require seven different elements from the soil in order to make a healthy growth.—These are phosphorus, potash, magnesia, lime, sulphur, iron, and nitrogen. Other elements are often found, sometimes in great quantity, such as silica, soda, chlorine, etc.; but as many plants have been grown to perfection without them their presence is not considered essential. Last year at an English experiment station, turnips planted in pure white sand, and supplied with everything except phosphate, merely lived, without gaining in bulk. But on ground coprolite being applied, the produce, even in that miserable soil, at once went up to twenty tons an acre.

Cucumbers.

In planting other seeds in a hot-bed or cold frame, it is a good plan to leave a space under each sash for a hill of cucumbers, which may be sown at once. For planting out-doors, sow seeds in pots, half-a-dozen in a three-inch pot, which may be plunged in the soil of the hot-bed. The plants to be thinned to two, and when it is safe to set them in the open ground, turn out the ball of earth, without disturbing the roots, and plant it.

Lettuce.

Plants that were wintered in frames may be set out at the same time as early cabbages, placing them between the rows of cabbages and a foot apart. They may also be transplanted to other cold frames, and give a crop earlier. Seeds should be sown under glass or in window boxes, for a succession. As soon as the soil is in good condition, seeds may be sown in the open ground, in rows 15 inches apart, to be thinned to 10 inches. The Curled Simpson, Tennis-ball; and Hanson are among the good kinds.

Parsley.

Sow in cold frame, window-box, or, when the soil is ready, in the open ground. The seed is often several weeks in the ground before the plants appear. The Fern-leaved and Double Curled are both handsome and good varieties.

Radishes.

Seeds may be sown in the cold frame for a few very early, and in the open ground as soon as it can be worked, in drills a foot apart, dropping two or three seeds to the inch. Scarlet Turnip, round; French breakfast, oblong, and Scarlet Short-top, long, are all good; the first named is the most reliable.

Early Potatoes.

Besides commanding a high price, there are other considerations that come in to make the early crop of potatoes valuable. The early rose continues to be as good as the best, not only for the early but the late crop, and always fetch a remunerating price in the market. But there is this additional advantage in the early crop; it can be harvested and removed and the ground put in good order for fall crops. The best turnips we have ever known came out of a piece of ground first cleared of early potatoes. Indeed, we do not know of a more profitable arrangement of crops than to have turnips follow potatoes. The ground usually has to be pretty good for potatoes, but it is not essential that the manure be very much decayed. Some, indeed, contend that long straw manure is all the better for a potato crop. The turnips, on the other hand, must have the manure very well decayed, in order to give its best results. Hence, after the potato has done with its fertilizer, there is enough left for the turnip to thrive upon. Wheat and rye also thrive very well on land which has been previously well manured for potatoes. In all these cases the early potato has a great advantage over the late one. They allow of a much earlier preparation of the ground for the subsequent crop.

There is still another advantage in an early potato. In this part of the country at least, the plant is subject to the attacks of the stem borer. They usually commence their ravages about the end of June. They bore out the whole centre pith of the stems, and before the end of July the plants are all dead, being dried up before the potato is matured. In such cases there is not often fifty bushels of potatoes to the acre—and of these half of them are too small to be saleable. By getting the potato early in the ground, and using varieties which mature early, the tubers are of pretty good size before the insects get to work, and thus there is a great gain. It seems to us we can almost do without any more late kinds. We say nothing here of the depredations of the beetle, as it has been so completely met and overthrown as hardly any longer to be considered as a serious injury to the crop, early or late.

Grafting the Common Cherry Tree.

It is not commonly known that the common black and red cherry which are regarded as "wild," can be easily grafted with other and the best varieties—that is, as easily grafted as cherries usually are, which every one knows who has tried it is more difficult to make grow than any other fruit. The scions, however, if not already cut, should be secured at once and before the buds swell, and the grafting should be done as early as possible. Many of these trees, which produce the poorest kind of fruit, in fact, are nearly all seed and skin—are worse than nothing to have upon one's premises, unless when very large to be cut down and sold for cabinet-making. These trees can all be top grafted and may be made to yield an abundance of excellent fruit. Only healthy trees should be selected for grafting, and the scions should be in the best condition. Where the stocks in which the scions are to be inserted are large, the method to be adopted is that mentioned in another article in this column; but where the stocks are small the usual mode of grafting should be pursued. We suggest to our agricultural friends who have some of these trees upon their farms—and they are to be found upon nearly all of them of any size—to employ a good grafter to do the work, and report to us the degree of success which may follow.—*Germantown Telegraph.*

HOUSEHOLD RECIPES.

PRUNE WHIP.—Sweeten to taste and stew three quarters of a pound of prunes; when perfectly cold add the whites of four eggs, beaten stiff; stir all of this together till light, put in a dish and bake twenty minutes; when cold serve in a large dish, and cover well with good cream.

CREAM COOKIES are made of one cupful of butter, one cupful of sugar, three tablespoonfuls of sweet cream, half a teaspoonful of cream of tartar and half a teaspoonful of soda; flavor with cinnamon or nutmeg, or if you wish to have them very delicate flavor with extract of lemon or rose water.

GINGER PUFFS.—Take half a pound of flour, four eggs, one teaspoonful of ground ginger, a little grated nutmeg, an ounce of pulverized sugar and half a glass of white wine. Add the ginger, sugar and nutmeg to the flour, and mix all together with the eggs well beaten and the half glass of wine. Bake the mixture in cups in a quick oven.

A BREAKFAST DISH.—A good breakfast dish can be prepared from the remains of yesterday's dinner, providing that consisted in part of roast mutton. Chop it fine and put it in a saueepan with a cup of gravy or of soup stock, season with pepper and salt and scatter over it, stirring all the time, a tablespoonful of flour; let the meat heat gradually, and, when "boiling hot," set the pan on the back part of the stove, and poach some eggs to serve with the meat. When the eggs are done put the meat on a platter, and lay the eggs around the edge. With fried potatoes, muffins and good coffee a wholesome breakfast may be provided at small expense.

CUP PUDDING.—A favorite cup pudding is made

of six eggs, beaten very light, seven tablespoonfuls of flour and one pint of sweet milk. Stir these all together briskly and bake in cups.

LOBSTER PATTIES.—Cut a pint of lobster meat into dice and stir it into half a pint of cream sauce. Season with cayenne pepper, a little grated nutmeg and lemon peel to taste. Stir it over the fire until it is well heated, then fill pate-shells with the hot mixture.

VENISON PATTIES.—Cut cold roast venison into dice, and heat about a pint of it in half a pint of thickened gravy. Or season it any way you choose and moisten it, then stir it over the fire until sealding hot. Fill pate-shells, and serve as hot as possible.

PREPARING CURRANTS.—To swell the currants for cakes, after they are picked and cleaned, pour boiling water over them and let them stand covered over with a plate for two minutes; drain away the water, throw currants on a cloth to dry them, and do not use until they are cool.

BROILED SWEET POTATOES.—Thinly pare large fine sweet potatoes. Cut them lengthwise into thick slices and broil them over a clear hot fire. When crisp and brown put them upon a hot platter, sprinkle pepper and salt over them, and add butter cut into small pieces. Serve fresh and very hot.

FRUIT PUDDING.—Take sour cream and saleratus enough to sweeten it, add a pinch of salt, and mix thick enough for biscuit. Roll out thin, and spread any kind of fruit that has been canned, omitting the juice, or preserves, or marmalade, or dried fruit that has been soaked, and stewed and cooled before. Roll the crust up carefully so that the fruit will not drop out, close up the ends, and lay it on a white towel that has been wrung out of sealding-hot water and floured. Pin the towel loosely around the pudding, leaving plenty of space for it to swell; then put it in a kettle of boiling water, with a plate at the bottom. Keep boiling constantly until done.

FRENCH PANCAKES.—Take two eggs, one tablespoonful of sifted sugar, two tablespoonfuls of flour, half a pint of new milk. Beat the eggs thoroughly and put them into the bowl with the butter, which should be beaten to a cream; stir in the sugar and flour, and, when these ingredients are well mixed, add the milk. Keep stirring and beating the mixture for a few minutes; put the batter on buttered plates and bake in a quick oven fifteen minutes. Serve with slices of lemon and powdered sugar on with layers of cakes and layers of marmalade or preserves between them.

SHRIMP SALAD.—Peel the boiled shrimps, and when thoroughly cold (those bought in cans are very nice) arrange them in a circle upon leaves of fresh lettuce. Pour a mayonnaise sauce in the centre and serve at once. Sometimes a tablespoonful of chopped parsley is added to the dressing for this salad.

PICKLED TONGUE.—A good-sized tongue requires to boil at least three hours. It is a good plan to soak it over night in cold water. To cook it put it on in cold water and let it come to a boil. Some cooks change the water when it is half done; if this course is taken, be sure that the fresh water is boiling before the tongue is placed in it.

RICE BREAD makes a pleasant variety at the breakfast table. Take one pint of well cooked rice, half a pint of flour, the yolks of four eggs, two tablespoonfuls of butter melted, one pint of milk and half a teaspoonful of salt; beat these all together; then, lastly, add the whites of the four eggs, which you have beaten to a stiff froth. Bake in shallow pans or in gem tins. Serve warm.

The Holstein Breeders.

The annual meeting of the Holstein Breeders' association of America was held in Syracuse, 116 members being present. The President, E. A. Powell, of Syracuse, made an address giving information in regard to "the rapid advance made by the Holsteins, the great beef and milk breed of the world, in the United States during the last year."

The Secretary's report showed an increase of 2,007 animals in the registry during the same period. Liberal appropriations were made for premiums for beef and butter, to be awarded at the stock shows in Chicago and Kansas City, and at the national fair for dairy products.

LIVE STOCK.

A Thick Straw Bed for Breeding Sows.

Thick straw for bedding breeding sows is, it is contented by those using it, superior to any other material for both mother and pigs. The uncut straw should be spread into a bed of at least one foot thick; two feet would be still better and safer, particularly in cold weather, when the pigs could nestle well in it and keep warm. With such a bed, pigs could be furrowed pretty safely in March, instead of waiting until April and May. This would be a considerable advantage, as they could be made heavy porkers earlier in autumn, and bring a higher price at that time than later in the season, as young fresh pork is then easily sought for.

Some suppose that pigs just farrowed would be easily smothered in a deep bed of straw; but it is so porous that the air freely circulates, and furnishes all that is required for healthy breathing, while it sets as a soft cushion both over and under the young pigs, and thus prevents the sow, when she lies down, from pressing them to death. This bed also elevates her dugs on the lower side, which often lie so close to a naked floor that the pigs cannot get hold of them; thus both dam and offspring suffer—the former from not having her milk seasonably withdrawn, and the latter from lack of necessary nourishment.

Another method of preventing the sow from overlying her pigs, is to spike joists 4 to 6 inches thick all around the pen, about 6 inches high from the floor, shaving off about one inch of the lower corner, so as to prevent cutting the sow. If the pigs are then behind her when she lies down, they can run under this projecting joist, and thus save themselves from being crushed. A half-round stick would answer the same purpose as the joint. Hemlock for either should not be used, as this wood abounds in splinters.

Horses.

Horses should come through the winter in good flesh, and be in fine trim for the hard work of spring. Horses' feet need special care at this time of slush and mud. When the horses are brought in from work, they should be rubbed down, and the feet and legs thoroughly dried. If left covered with mud, the skin may soon become diseased, and cracked heels or foot fever may result. Look well to the horses feet.

Cows.

Any cow that is out of condition will need the best of care now. Warm barn slop, with a little ginger, is excellent. If the animal is poor and weak, there is danger of feeding largely of rich food. Calves infested with vermin are known by their rough coats. A mixture of lard and sulphur rubbed along the back, with a teaspoonful of sulphur and molasses once or twice a week; is effective.

Sheep.

Ewes should have dry and clean pens and yards, with a plenty of good, wholesome food. If the wool is falling a few ounce doses of equal parts of sulphur and cream of tartar will relieve the irritation of the skin.

Swine.

Breeding sows should be separated from other pigs, and provided with warm, dry pens, bedded with leaves or straw. A rail fastened to the wall, eight inches from the floor, will prevent the young pigs from being crushed. It is well to feed the sow some raw linseed oil a few days before the pigs are born.

POULTRY.

The Dust Bath.

Those knowing the value of dust bath for fowls, summer and winter, consider it essential to successful poultry keeping. And how few of our poultry keepers who give their fowls a chance to revel in a heap of loose earth, sand or ashes during their confinement in winter?

The dust bath is to poultry nature's cleaner and renovator and is as necessary for cleansing the feathers of fowls from vermin and effete matter as a cool pure water bath is to the person of cleanly habits.

Poultry with free range in summer will be able to help themselves to a dust bath if they have to roll in the newly-made flower or vegetable beds. With fowls in confinement the means and material must be supplied. A dry mass of fine sand or road dust, fine loam or coal ashes will do. This mass of dry materials should be under a shed to protect it from rain in summer time, and in the sunniest corner of the hen house in winter.

If we watch the habits of all wild game birds, we can see them in the open clearings and on the country roads, at early sunrise, dusting themselves as rapidly as possible; and if we give our domestic fowls a chance, we can see an instinctive desire in the young as well as the old to scratch, and pulverize the earth in lumps, and will then adjust their feathers, and by the rapid action of their claws are enabled to dust thoroughly, and by shaking rid themselves of lice. The dust bath is made more effective by putting a handful or two of sulphur and carbolic powder through the mass and mixing them together.—*American Poultry Journal.*

The Secret of Raising Turkeys.

One of our most successful breeders remarks upon this point: One great secret of raising turkeys is to take care, and take care all summer; and even then you cannot always raise them, for sometimes they will not lay, or they will not hatch, or something will befall them. Sometimes we raise turkeys without much care, when the season is specially favorable, but generally the measure of care is the measure of success. A boy ten or twelve years old, with a little direction from his father, can easily take care of 200 young turkeys, and he cannot earn so much money on the farm in any other way. It is an old maxim that if a thing is worth doing it is worth doing well. Some may think this constant care is too much trouble to raise turkeys. This is a free country, and you can omit any part (or the whole) of these suggestions. If you know a better course, by all means pursue it. This painstaking has made turkey raising about as sure as any other branch of farm industry. I have usually kept from eight to eleven hen turkeys for breeders, and have raised from ninety nine to one hundred and thirty-seven in a summer. In 1868 I sold my turkeys for 27 cents a pound, they amounted to \$280.40. In 1869 I sold for 25 and 27 cents per pound, gross amount of sales, \$386.18. That year I kept an account of expenses and calculated the net profit at \$213.58. In 1870 I sold for 25 cents a pound; amount of sales, \$311.32. In 1871 I sold for 18 cents a pound; gross amount of sales, \$286.13. I would rather raise turkeys and sell at 15 cents a pound, than to raise pork and sell at 10 cents a pound. Perhaps in fattening pork you can save the manure better, but the turkey droppings, if gathered and saved every week and kept dry, are worth half as much as guano, and are certainly worth a cent a pound.

The turkey crop is steadily increasing in value, not more by the increased number of farmers who make this a specialty in their poultry-raising, than by the increased attention and skill of those who have long been in the business. Care in selecting stock for breeding brings ample rewards. The prospect was never better than now for the extension of the business among the farmers who have a good

range and good markets. The average size of turkeys in the districts where the business is made a specialty is steadily increasing, and we look for still further improvements.

Poultry,

Unless well kept, vermin may be expected as the weather gets warmer. If lice are present, apply kerosene to the perches, from which it will spring to the fowls. Sitting hens should have a warm and quiet room. Feed young chicks often. Never give them corn meal in any shape while in the downy state—and use it sparingly if at all after that. Bread crumbs soaked in water is the best food for young chicks.

Hens Busy.

This is the busy season with the hens. If you want them to manufacture eggs, they will do so now most cheerfully, if they are supplied with the raw material. Don't forget to supply plenty of broken oyster-shells, so that they can put covers on the eggs. Look after the nest also, and see that they are clean and free from vermin, and in a retired spot.

Chicken Notes.

Sweet or sour milk poured into a long trough is much relished by poultry for drink. Fifty fowls will drink two bucketfuls a day, when on dry food.

When the weather is bad and the chicks appear to not stand it well, the food may be seasoned moderately with red pepper, with the addition of tincture of iron to the water. Warm milk should also be given to drink.

LITERARY AND PERSONAL.

Nos. 1, 2, and 3, PENNSYLVANIA STATE COLLEGE AGRICULTURAL EXPERIMENTS. 36 pp., octavo.

THE GRANGE.—Its origin, progress and educational purposes. By Hon. D. Wyatt Aikin, of South Carolina. Read before a convention called by the Commissioner of Agriculture, January 23, 1883, to consider the subject of agricultural education. Special Report, No. 55. 18 pp. Royal, 8 vo.

REPORT upon the numbers and values of farm animals, of product and quality of cotton, and comparative values of American and European farm implements. Also, rates of transportation in Europe and the United States, Feb. 1883. Special Report, No. 56. 74 pp. Royal, 8 vo.

CATALOGUE OF JERSEY CATTLE comprising the CRYSTAL SPRING HERD, I. H. Walker, Worcester, Mass. This herd consists of one hundred and eighty-four registered Jerseys; and cattle fanciers and dealers should by all means send for and consult this catalogue, before they make up their minds to purchase stock of this character. 100 pages octavo, giving not only the age and pedigree of all the cattle named therein, but also additional information of a historical, economical and domestic character.

THE NUGGET—"a precious little lump of wisdom," Dr. H. W. Lobb, editor and publisher, No. 329 North Fifteenth street, Philadelphia. 4 pages, 8 vo, in the interest of the publisher.

THE WEATHER INDICATOR. An 8-page quarto, published by Wm. H. Cather at 50 cents a year, and edited by Geo. R. Cather, Ashville, St. Clair Co., Ala. Professes to prognosticate according to the principles of Meteorological Science, criticises Wiggins, et al., and alleges that "The system of these forecasts is more certain than the signal service and more opportune, as it gives the weather so far in advance." Endorsed by seven papers in Alabama.

WHOLESALE price list of grape vines, small fruits, etc., for spring 1883. T. S. Hubbard, Freedonia, New York, with a beautiful colored illustration of the Prentiss Grape. 8 pp. Royal, 8 vo.

THE SOPHISTRIES OF FREE TRADE, a quarto circular, in which Sunset Cox, Mr. Hewitt and Mr. Lamar, are called to account for their tariff doctrines, in contrast with the principles of protection to Amer-

ican production and industries, a subject that seems destined to have no end.

SOUTHERN CULTIVATOR FOR MARCH.—The March number of this standard agricultural journal has come to hand, filled as usual, with varied and interesting miscellany. Dr. Jones' "Thoughts for the Month" and his "Inquiry Department" are unusually full and able, and this one feature of *The Cultivator* would commend the paper to our farmers and render it invaluable to them.

Mr. David Dickson's series of contributions is begun in this number. His portrait and a sketch of his career as a farmer, are published. All our farmers should be readers of this paper, for to them it is a vehicle of information and instruction that is unrivalled North or South.

Mr. Dickson's contributions will run through twelve numbers of *The Cultivator*, and will, doubtless, prove of value to the thousands of our Southern planters, but cannot be estimated in dollars and cents. We have not space to enumerate the many interesting and able articles in this paper. Every farmer should be a subscriber. A new feature has been added for the especial benefit of the ladies, not exactly a "Fashion Department," but lessons of instruction in dressmaking and fitting, with illustrations and designs. This will be an interesting and instructive feature, and we are glad it is added, for why should not our farmers wives and daughters dress as well and as becomingly as anybody else?

Without further enumeration of the excellencies of this magnificent journal, we advise each and every one not a subscriber, to send \$1.50 to James P. Harrison & Co., Atlanta, Ga., for a year's subscription, or if they prefer, we will send our paper and *The Cultivator* one year for two dollars.

THE TELEPHONE, a journal for the people, York, Pa., March, 1883, volume 1, No. 3, Lancaster edition. A very handsome 16 pp. 4 to., in the interest of Telephonic communication throughout Pennsylvania in general, and, we may legitimately infer, York and Lancaster counties in particular. Monthly, at 25 cents per annum, with five cents additional for all papers sent out of York county. Isaac Rudisill, Editor and Proprietor. Published in the York Daily Printing house, opposite the Court House. From this number we learn that on the date of its issue (about March 15) there were in Lancaster city and vicinity already 92 telephonic connections between prominent business houses, hotels, etc., and the central office (Exchange office) Penn Square, Lancaster city, and "the cry is still they come." Very neatly gotten up, and plain typography. The letter press seems mainly made up of business notices of advertisers and subscribers, and perhaps, as a medium of advertising the merchandise of its patrons, and to the limit of its circulation, it may possess peculiar advantages.

Aside from all this, is it not wonderful that nearly twenty years before the expiration of the nineteenth century, people should be able to hold verbal intercourse with their friends and patrons miles away? The telephone, however, is of no more account to us than boots are to a man who is destitute of feet, nevertheless, we are in hearty sympathy with its use, as we are with all progressive uses. The population of our country is increasing so rapidly, and the different business avocations and professional calling are so crowded that new channels of employment must be studied and developed, or it would be impossible for society to prosper, or even to exist, and the telephone develops just so much additional labor and compensation, and society, individually and collectively, is benefitted thereby. It not only furnishes employment to those who operate its machinery, but also to those who manufacture said machinery, and this will ultimately furnish occupation to thousands.

AMERICAN HOME, an illustrated 4 to. of useful and entertaining literature, published in Springfield, Ohio; monthly, at 25 cents a year. Sixteen pages quarto, at 25 cents a year, cleverly illustrated, will no doubt be appreciated and appropriated by the "million."

THE AMERICAN FARM AND HOME, published monthly at 1006 F. street, N. W., in the city of Washington, D. C., at \$1.00 a year in advance. J. C. Taylor, manager. A royal quarto of 24 pages, Vol. 1, No. 1. Of course, this is a new venture in agricultural journalism, nevertheless we cannot see why it should not, or ought not, succeed. Considering the relations of agriculture to all the other industries of the country, it ought to support more agricultural journals than it does. This journal does not confine itself to the sphere of agricultural and domestic literature alone, but, with its ample space, is able to "box the compass" in literature. Its literary quality, however, is superior to its material quality, but it is a good beginning.

SCIENCE, published weekly at Cambridge, Mass., U. S. A., by MOSES KING, at \$5.00 a year. This is a demi-quarto of 40 pages, printed on calendar paper, and in clear type; and, if we regard the quantity and quality, it is certainly the cheapest publication ever issued in this country. The present number (March 9, '83) is embellished by a portrait and a biographical sketch of PROF. SPENCER FULTON BAIRD, Secretary of the SMITHSONIAN INSTITUTION, and Director of the NATIONAL MUSEUM, unquestionably "the right man in the right place," and, one never having seen him from the picture alone, would be able to account, in some degree, for his eminence as a scientist; for his appearance indicates not only the ability to think and to search, but also the physical energy to ultimate in visible form the substance of his thoughts. "Science," seems to be an epitome of what is valuable and interesting in the scientific world, to all who really take any interest in scientific things. It does not seem to attempt to popularize science by "stepping down," but rather in "drawing others up."

THE HAHNEMANIAN MONTHLY, published by the "Hahneman Club," of Philadelphia: Bushrod W. James, business manager, Northeast corner 18th and Green streets, Philadelphia. Terms, \$3.00 per annum, in advance. Single number, 30 cents. One hundred pages octavo, monthly (vol. 4, No. 21), at which rate would amount annually to twelve hundred pages, making two large volumes of interesting reading matter to the student, the practitioner or the amateur in Homeopathy; a price, according to quantity and quality, almost as infinitesimal as its doses of medicine. What a wonderful progress this system of medicine has made in the last forty years, and how emphatically and confidentially it proclaims itself "A man among men." Whatever the quality of the system of Homeopathy may be, it finds an able exponent in the columns of this intelligently edited and excellently executed magazine. Whether Homeopathy is regarded as medical orthodoxy or heterodoxy, it cannot be denied, that during the last forty years, the whole medical lump has been somehow, more or less leavened, through an influx which is claimed for Homeopathy. It is now able to stand up successfully in its own defense. There let it stand.

THE WHEELMAN, an illustrated magazine of cycling literature and news, Boston, Mass., published by the "Wheelman Company," 608 Washington street, at two dollars per annum; single numbers 20 cents. The bicycle is rapidly becoming an institution in our land, and if it continues to increase at its present rate of progress, the census department of 1890, will have to designate an officer or officers to take charge of this specialty, and make the proper returns. Here is a royal 8 vo. magazine, literally and artistically illustrated, containing 78 pages of letter press, embracing a literature—although peculiar to itself—at once able and entertaining, as well as instructive, which five years ago was little dreamed of. The Cyclers, or rather the "Wheelmen," have their literature and their commerce, their clubs and clubhouses, their commercial depots, of bicycles, tricycles, velocipedes, and all their accessories, their riding halls and their schools of instruction and sales rooms. The *Wheelman* is an interesting journal to all, and its material and typographical execution is equal to any in the land. No professional or amateur ought to be without it.

A KNABE IN THE WHITE HOUSE.

There was seen yesterday at Messrs. Knabe & Co.'s factory a magnificent concert grand, just finished by them for the presidential mansion. President Arthur, who is a thorough connoisseur of music, in selecting a piano for the White House decided in favor of the Knabe Piano as his preference, and ordered accordingly the instrument referred to. It is a concert grand of beautiful finish in a richly carved rosewood case, and of superb tone and action—an instrument worthy in every respect of the place it is to occupy. It was shipped to its destination yesterday.—*Baltimore American.* It.

COLMAN'S RURAL WORLD.

This sterling Agricultural paper entered its thirty-sixth year on the first of January, and appears in a new dress, and gives evidence of increased prosperity. To the Farmer, Stock Breeder, Fruit Grower and Cultivator of Sorghum for Syrup and Sugar, it is almost indispensable. It should be read by every one owning a farm. It is published weekly, in the best style, at only \$1.00 per annum, by **NORMAN J. COLEMAN**, St. Louis, Mo. It.

COMPLIMENTARY NOTICE.

We desire to call attention to the advertisement in another column of D. M. FERRY & Co., Detroit, Mich., the great seedsmen, whose mammoth establishment is one of the sights of the chief city of Michigan. They do the largest business in their trade in the United States, reaching across the Atlantic and Pacific oceans. The house is entirely reliable, and if you wish to get exactly what you order, you cannot do better than send to them for your seeds, and you may depend upon it you will get the best that the market can supply. Their seeds have become known over the entire civilized world for purity and fertility, and have gained for them an enviable reputation. Their Annual Seed Catalogue just issued for 1883, replete with information and beautifully illustrated, will be sent free on application. It.

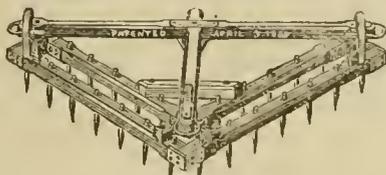
SEND FOR SPECIAL PRICES

On Concord Grapevines, Transplanted Evergreens, Tulp, Poplar, Linden, Maple, etc. Tree Seedlings and Trees for timber plantations by the 100,000
J. JENKINS' NURSERY,
WINONA, CO. UMBRIANA CO., OHIO.
3-2-79

By removing the wing and wheel from the original you have a complete one-horse "A" Harrow.

The Penn Harrow

CHANGED TO DOUBLE "A" HARROW.

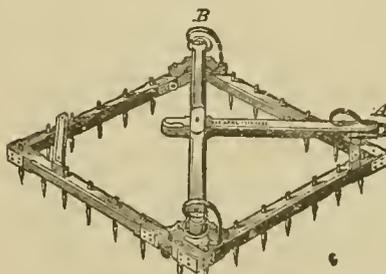


A

Remove the wheel from the original, reverse the wing, and it makes the most complete Double "A" Harrow in the market.

The Penn Harrow

CHANGED TO A SQUARE HARROW.

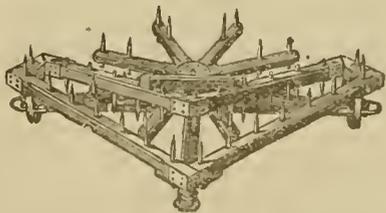


C

By removing the wheel from the original you have a Harrow with three points to hook to. By hooking to B or C you can harrow in a furrow, and harrow the bottom and both sides, or you can lift either point and have three points on the ground—something that cannot be done with any other Harrow.

The Penn Harrow

ON ITS SLED.



A

It has always been a great inconvenience to set the Harrow to and from the sled. The Penn Harrow obviates this, as no matter which Harrow you wish to use in the combination, it has its own sled to haul it on.

The Penn Harrow

is made of the best white oak, with steel teeth, well pointed, in every way first-class. Formerly a harrow was the most unhandy implement on the farm; with our improvement it is the most convenient, will do double the work of any other harrow and save the farmer half his labor, and is warranted to do all we represent or money refunded. **ORDER AT ONCE AND BE CONVINCED.**

Price of the light draft Combination Penn Harrow, \$30. Send for a Catalogue and see what farmers say.

AGENTS WANTED IN EVERY COUNTY.
PENN HARROW MANUFACTURING CO.
CAMDEN, N. J.



Fruit, Shade and Ornamental Trees.

Plant Trees raised in this county and suited to this climate. Write for prices to

LOUIS C. LYTE.

Bird-in-Hand P. O., Lancaster co., Pa.

Nursery at Smoketown, six miles east of Lancaster. 79-1-12

WIDMYER & RICKSECKER, UPHOLSTERERS,

And Manufacturers of

FURNITURE AND CHAIRS.

WAREHOOMS:

102 East King St., Cor. of Duke St. LANCASTER, PA.

79-1-12]

Special Inducements at the NEW FURNITURE STORE

OF **W. A. HEINITSH,**

No. 15 1-2 E. KING STREET

(over Bursk's Grocery Store, Lancaster, Pa.)

A general assortment of furniture of all kinds constantly on hand. Don't forget the number.

15 1-2 East King Street, (over Bursk's Grocery Store.)

For Good and Cheap Work go to

F. VOLLMER'S

FURNITURE WARE ROOMS,

No. 309 NORTH QUEEN ST.,

(Opposite Northern Market),

Lancaster, Pa.

Also, all kinds of picture frames. nov-1y

GREAT BARGAINS.

A large assortment of all kinds of Carpets are still sold at lower rates than ever at the

CARPET HALL OF H. S. SHIRK, No. 202 West King St.

Call and examine our stock and satisfy yourself that we can show the largest assortment of these Brussels, three plies and Ingratu at all prices—at the lowest Philadelphia prices.

Also on hand a large and complete assortment of Rag Carpet.

Satisfaction guaranteed both as to price and quality.

You are invited to call and see my goods. No trouble in showing them even if you do not want to purchase.

Don't forget this notice. You can save money here if you want to buy.

Particular attention given to customer's work. Also on hand a full assortment of Counterpanes, Oil Cloths and Blankets of every variety. nov-1y.

C. R. KLINE,

ATTORNEY-AT-LAW,

OFFICE: 15 NORTH DUKE STREET, LANCASTER, PA.

Nov-1y

SILK-WORM EGGS.

Amateur Silk-growers can be supplied with superior silk-worm eggs, on reasonable terms, by applying immediately to

GEO. O. HENSEL.

may-3m] No. 238 East Orange Street, Lancaster, Pa.

LIGHT BRAHMA EGGS

For hatching, now ready—from the best strain in the county—at the moderate price of

\$1.50 for a setting of **13 Eggs.**

L. RATHVON,

No. 9 North Queen st., Examiner Office, Lancaster, Pa.

WANTED.—CANVASSERS for the LANCASTER WEEKLY EXAMINER

In Every Township in the County. Good Wages can be made. Inquire at

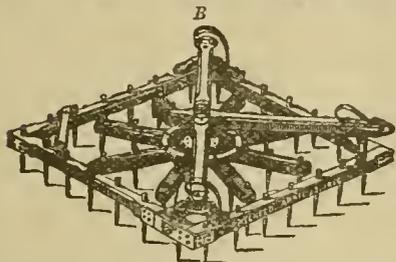
THE EXAMINER OFFICE,

No. 9 North Queen Street, Lancaster, Pa.

THE PENN HARROW

BEST IN THE WORLD

IT HAS NO EQUAL



Patented April 13, 1880.

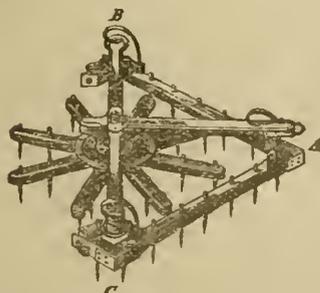
The above cut represents the Penn Harrow complete, with all its combinations of Five Harrows and a sled for each Harrow; and each succeeding change is made from this Harrow without the least additional expense. By hooking the team to either point, B or C, the center revolves and gives the ground Two Strokes and Two Crossings in passing over it once, making it the most effective pulverizer in the market.

THIS HARROW HAS ONLY TO BE USED TO BE APPRECIATED.

See it before purchasing and you will buy no other.

The Penn Harrow

CHANGED TO A THREE-CORNER ROTARY HARROW.

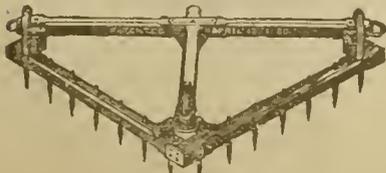


C

Indispensable for Orchards, as the revolving wheel harrows right up to and all around the trees without barking them.

The Penn Harrow

CHANGED TO SINGLE "A" HARROW.



A

Where To Buy Goods IN LANCASTER.

BOOTS AND SHOES.

MARSHALL & SON. No. 12 Centre Square, Lancaster, Dealers in Boots, Shoes and Rubbers. Repairing promptly attended to.

M. LEVY. No. 3 East King street. For the best Dollar Shoes in Lancaster go to M. Levy, No. 3 East King street.

BOOKS AND STATIONERY.

JOHN BAER'S SON'S, Nos. 15 and 17 North Queen Street, have the largest and best assorted Book and Paper Store in the City.

FURNITURE.

HEINITZ'S, No. 15 1/2 East King st., (over China Hall) is the cheapest place in Lancaster to buy Furniture. Picture Frames a specialty.

CHINA AND GLASSWARE.

HIGH & MARTIN, No. 15 East King st., dealers in China, Glass and Queensware, Fancy Goods, Lamps, Burners, Chimneys, etc.

CLOTHING.

MYERS & RATIFFON, Centre Hall, No. 12 East King St. Largest Clothing House in Pennsylvania outside of Philadelphia

DRUGS AND MEDICINES.

G. W. HULL, Dealer in Pure Drugs and Medicines Chemicals, Patent Medicines, Trusses, Shoulder Braces, Supporters, &c., 15 West King St., Lancaster, Pa

JOHN F. LONG & SON, Druggists, No. 12 North Queen St. Drugs, Medicines, Perfumery, Spices, Dye Stuffs, Etc. Prescriptions carefully compounded.

DRY GOODS.

GUYLER, BOWERS & HURST, No. 25 E. King St., Lancaster, Pa., Dealers in Dry Goods, Carpets and Merchant Tailoring. Prices as low as the lowest.

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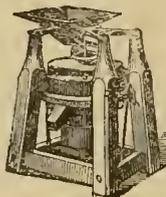
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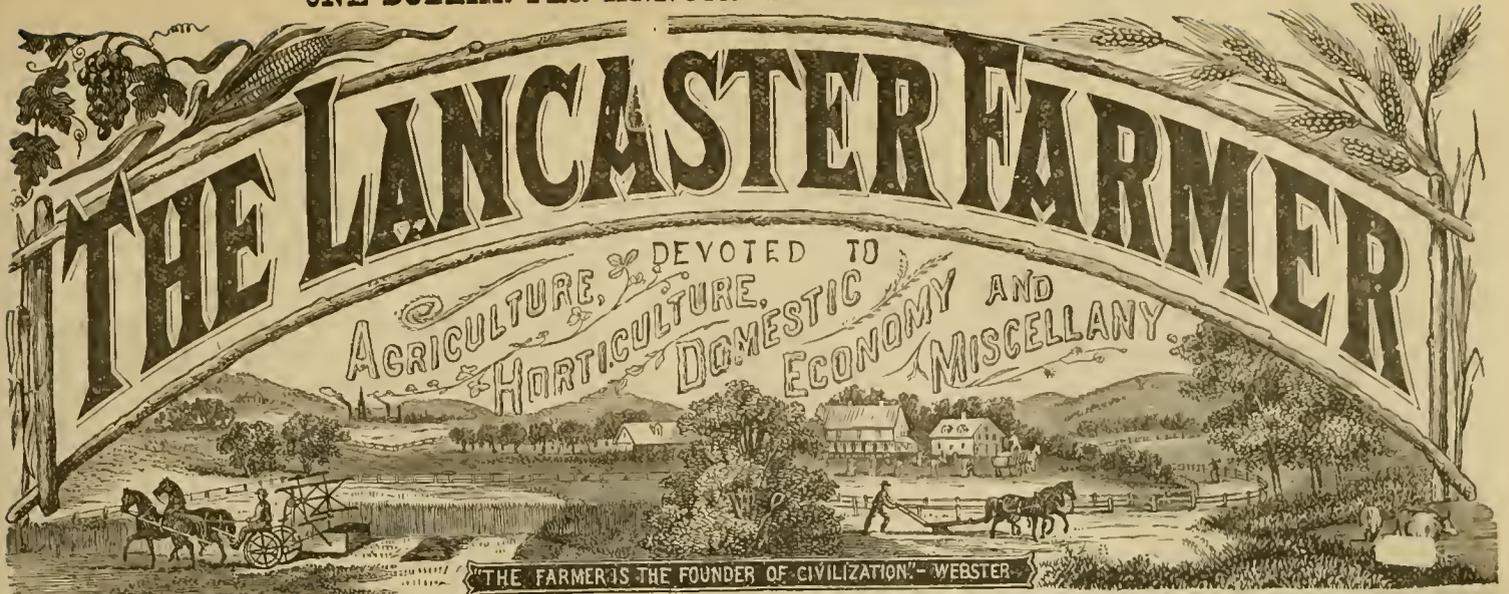
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LANCASTER, PA. MAY, 1883.

JOHN A. HIESTAND, Publisher

Entered at the Post Office at Lancaster as Second Class Matter.

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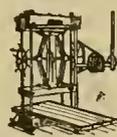
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jan-3m]

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	Leave	Arrive
WE TWARD.		
Pacific Express*	2:40 a. m.	Harrisburg. 4:05 a. m.
Way Passenger†	5:00 a. m.	7:50 a. m.
Niagara Express	..... a. m.	11:20 a. m.
Hanover Accommodation..	11:05 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy.....	10:20 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:25 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:40 p. m.
Fast Line*	2:30 p. m.	3:25 p. m.
Frederick Accommodation.	2:35 p. m.	Col. 2:45 p. m.
Harrisburg Accom.	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:30 p. m.	8:40 p. m.
Pittsburg Express	8:50 p. m.	10:10 p. m.
Cincinnati Express*	11:30 p. m.	12:45 a. m.
EASTWARD.		
Cincinnati Express.....	2:55 a. m.	Philadelphia 3:00 a. m.
Fast Line*	5:08 a. m.	7:40 a. m.
Harrisburg Express.....	8:05 a. m.	10:00 a. m.
Columbia Accommodation..	9:10 p. m.	12:00 p. m.
Pacific Express*	3:40 p. m.	3:40 p. m.
Sunday Mail.....	2:00 p. m.	5:00 p. m.
Johnstown Express.....	3:05 p. m.	5:50 p. m.
Day Express*	5:35 p. m.	7:20 p. m.
Harrisburg Accom.	6:25 p. m.	9:30 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.

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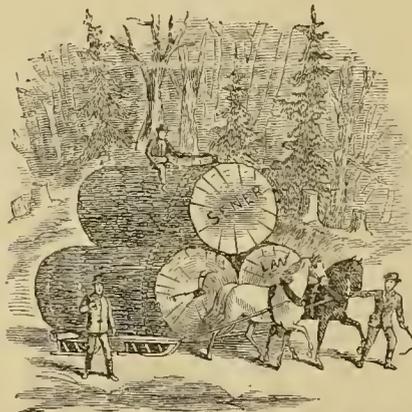
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No. 9 North Queen St.,

LANCASTER, PA.

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., MAY, 1883.

Vol. XV. No. 5.

EDITORIAL.

WEATHER PROPHECIES.

Prognostications of the weather would be of immense value to the country, *provided*, they were really reliable forecasts of what is to come. As mere guesses, they are valueless, harmful, if not absolutely criminal; for, no matter how reckless or preposterous they may be, there are still some people who believe in them, and are greatly injured by them.

The government apprehends the great use such fore-knowledge would be to the governed, and hence the institution and establishment of the Signal Service. This service is not a mere system of pow-wowry, but is based upon information obtained from all quarters of the country, as to the meteorological condition of the different localities from whence the information is obtained, and its reliability must always more or less depend upon the accuracy of the observation made and reported by the local observers and operators. Fully appreciating the common aphorism—"There is many a slip betwixt cup and lip," the service never attempts to promulgate anything more than "Probabilities" in relation to the weather, and this fact amounts to an admission that the machinery and executive energies of the different stations are not, beyond a peradventure, accurate in their observations and calculations, and therefore only can report approximations to the real state of the case.

The Signal Service may be regarded as still in its "swaddlings," and hence, unlike Vennor and Wiggins, its modesty, in publishing what the weather will *probably* be, within the next twelve or twenty-four hours—not a week, or a month, or a year, in advance, as the two prophets above named profess to do.

There are many people who find fault with the service because of these modest, unpretentious manifestations. They think an office and officers under the auspices of the government should make a "*splurge*" after the Vennor-Wiggins style—"hit or miss."

It probably would be easier to "hit" a storm-prophecy made in the month of March, than to "miss" one made for any other month of the year. We cannot recall a month of March for at least sixty years, that was not stormy. There may have been such, but we do not remember it. Other months may have their storms also—especially September—but none is so certain to produce a storm as the month of March; being, like September, subject to equinoctial influences.

If Vennor and Wiggins are such reliable prophets—especially Wiggins—and could not forego frightening and distressing their fellow-beings—especially the ignorant or illiterate among them—on account of the promptings of their consciences, why were they so silent in regard to the storms, tempests, tornados, cyclones and floods, which so conspicuously, so generally, and so destructively occurred in the late month of April? It would have been

of some value to the country and the people, had they been forewarned of these direful occurrences; but no, it appears they were entirely outside the pale of their prognostic calculations; or, is it more charitable to frighten the people with a false forewarning, than to enlighten them with a *true* one?

Should it be thought that these strictures militate as much against the Signal Bureau as against Vennor and Wiggins, we would merely suggest that, according to our understanding, the Bureau does not *profess* to prognosticate or prophesy. It merely promulgates what is likely to occur in certain parts of the country, within the next few hours, from observations made and transmitted by local reporters. If it does more than that, it wanders out of the domain of *fact*, and into that of *fancy*. Of course, a chief possessing greater intellectual force, a larger and more continuous experience, and an ample ability to reason from causes to effects, may be able to forecast the results of local meteorological phenomena, better than those who make the original observations. But, the past month amply illustrates that there are elementary impulses or forces, meteorological divergencies and convergencies, that are still beyond the spheres of human observation and calculation—even beyond the grasp of *probability*, and this may be so for a long time yet to come.

ENGLISH SPARROWS.

"*Right about face—Dismissed.*"

Just now the agricultural, the horticultural and the editorial worlds are "down" on the English sparrow; just as if that bird, from a saint had become a sinner. Why, dear people, we have no fault to find against this little pugnacious foreigner any more than we have against a duck because it instinctively takes to the water. The chief surprise is not that the sparrow has had his zealous advocates, and has been protected by special and stringent laws, but that he ever was introduced into the country at all, as an *insectivorous* bird of any reliability worth talking about. This journal has distinctly demonstrated in several editorial papers during the past two or three years, where the sparrow stands in ornithological classification, and that his place is not, and never has been, among insect-feeding birds. He is a *finch*, and therefore, essentially, a grain-feeding bird. Mr. Jonesby says he believes a sparrow *would* eat an insect, *provided* you could convince him that some other bird wanted it; and, in confirmation of this assertion, he says he once saw a blue-bird about to appropriate a worm, but he was driven off by two sparrows, who greedily and heedlessly seized a short string instead of the worm, and, after a stubborn conflict, one of them secured it and immediately swallowed it, the worm in the meantime making its exit into the ground. Petition the Legislature to pass an amendment to the bird-law, suspending the prohibition relating to the English sparrow. Any legislator who would vote against such

amendment, would certainly do so in total ignorance of the nature and habits of the sparrow. Perhaps it could not be successfully demonstrated that the sparrow does *not* eat insects, especially if there was nothing else "handy" that he could devour, but to uphold him as an *insectivorous* bird is simply preposterous. If a bird-fancier caged one, it is very likely he would feed him the same food he provides for his other *finches*; namely, seed-grain, or their equivalents. The Crow and the Owl are "contraband," because the one destroys corn, and the other young chickens; and yet, they have conspicuous redeeming qualities, in that they destroy insects and mice also. An English sparrow *may* occasionally destroy an insect, but if he does, he is likely ashamed of it, and feels as if he had "departed from the traditions of his fathers."

PULVERIZED LIME vs. CHICKEN GAPES.

About annually, for the last half century, complaint has been made, in some quarter of the land, about the "Gapes," or pips," in young chickens, and remedies have been asked for, and given, times without number, and still the Galliculturists "are not happy." Those who claim to be gallicultural experts, and who have had many long years of experience have failed as signally in their theories and practice, as have the inexperienced or illiterate amateurs. The singular thing about the matter is, that so many claim that the *gapes* is a mere trifle, a very simple affair, or a myth. Ten years ago, a practical chicken-grower informed us that he invariably cured this disease by a simple application of lime-dust, and the process was just as simple as the remedy. He inclosed the infested fowl in a small box just large enough to allow it standing room; over this box he stretched a muslin screen, upon which he placed a quantity of pulverized lime. Then he struck the box with a mallet, or a "billet" of wood, and the lime-dust that sifted through the screen would be inhaled by the fowl and cause a paroxysm of sneezing, and this effort, dislodged and expelled the gapes in a mass, or masses of mucus, and the cure was performed.

Within a few days past, an intelligent farmer, near Oregon, in this county, informed us that lime-dust has been his remedy for some years, and he has always found it effective. He merely mixes the lime with a dust-bath, in the coop or out of it, and the fowls effect the application themselves by scratching or throwing up the dust in the act of bathing. The process is the same, namely, inhalation and sneezing, and invariably dislodges the gapes. He further states that no hen should be allowed to have more than from ten to a dozen chicks at a time. To all this we would suggest, on competent authority, that the rejected masses of gapes should be carefully collected and destroyed by fire or hot water: for, they are endowed with extraordinary

vitality, and have been known to revive by moisture, after they had been dried for thirty or forty days. After the fowls are cured they should be removed to premises remote from those in which they had been afflicted.

A COUNTY FAIR.

The business men of this city and the country people generally cannot overestimate the importance to their mutual interests of a well devised local exhibition of our natural resources, our agricultural and mechanical products and our business enterprise. The project of holding a county fair, in behalf of which a preliminary meeting of those interested was called, is one that can only be made successful by the hearty co-operation of all concerned. It must be run in no personal or local interest and on no narrow gauge principle. It should have the good will and the participation in its management of representative men from all sections of the county, to the end that the wildest popular interest be excited in its success and the fullest exhibition be secured of our great wealth of agricultural resources and products. With a richness of products of the soil far exceeding that of any other single district in the whole United States, it is a reproach that our community does not every year devise and sustain a far better exhibition in this line than even the state fair can show.

Added to this is the other consideration that Lancaster city is rapidly growing in importance as a business point and manufacturing centre. All of these interests being interdependent, and each helping the other, can be profited by being brought together in an exhibition of their best products. Our farmers have much to learn by seeing new methods and many striking innovations in agriculture, now being so widely discussed, can be exhibited and tested at a county fair. So with our mechanics and manufacturers and tradesmen in their respective lines. But the more important objects of the exhibition should be to bring all of these classes together, to the furtherance of those interests which are mutual and in the harmonious progress of which we secure the more complete and self-sustaining development. Especially is this the case in Lancaster, where so much surplus money of our agricultural community might profitably be directed toward the upbuilding of manufacturing interests, which in turn would afford new and better markets for the products of our tillage.—*New Era*.

MARKET GARDENING.

Farmers as a rule do not pay sufficient attention to market gardening. If you are near a large town or city, it will pay you to make a special exertion to get your vegetables into market a few days in advance of your neighbors, in some cases it will make the difference between profit and loss. The writer of this article one year made a specialty of peas both early and late varieties. The early kinds were ready for market in advance of all competitors, the consequence was that they sold readily at \$2.00 per bushel; by the time the late varieties were ready for picking, the market was glutted and prices had dropped to 25 cents a bushel. Now the point I wish to make is this; it did not cost any more to raise, pick, or market the peas that were sold for \$2.00 per bushel than it did the peas that sold at 25 cents per bushel. Another advantage you have in raising early peas is they are

off the ground in season for a crop of fall turnips, which will be relished by the cows in the fall, when the feed is changed from grass to hay. Do not use poor seed because it is cheap. The best way is to raise your own seed, but if you cannot attend to it, buy only of reliable seedsmen, and be willing to pay a fair price for it. Good seed is cheap at a high price, while poor seed is dear at any price. There are thousands of bushels of poor seed (or seed not true to name) put up in packages each year by unprincipled dealers, and sold at a low price. The farmer prepares his land and sows some of the so-called cheap seed, expecting a bountiful harvest. He is surprised that his onion seed does not come up; his early peas turn out to be late ones; his cucumbers are musk melons; and his flat turnips are shaped like a cow's horn. For early use I would recommend the following varieties of vegetables:

Squashes—White Early Bush, Summer Crookneck; for late varieties plant Turban, Boston Marrow, Marblehead and Hubbard.

Asparagus—Conover's Colossal.

Beans—Early Valentine and Dwarf Black Wax.

Beets—Egyptian and Bastian's Early Blood Turnip.

Cabbage—Jersey Wakefield.

Carrot—Early Scarlet Horn.

Cauliflower—Early Erfurt is one of the best; cultivated same as cabbage but requires more manure.

Celery—Boston Market.

Corn—Marblehead Early Sweet.

Cucumber—White Spine.

Dandelion—Improved Thick-leaved; make the soil rich and sow in drills from 12 to 14 inches apart, covering seed nearly half an inch deep.

Lettuce—Boston Curled.

Musk Melon—Early Nutmeg.

Watermelon—Excelsior and Mountain Sweet.

Onions—Flat Red and Yellow Danvers.

Peas—Carter's First Crop.

Potatoes—Early Rose, Clark's No. 1, for late variety Mammoth Pearl.

Tomato—Canada Victor.

Turnip—Flat Red Top.

—*Farmers Companion*.

Although, as a rule, it may be somewhat too late for any practical purpose, the present season, to insert the above in our *May* number; yet, it contains some suggestions that may be good for a long time to come, notwithstanding some of the conclusions are by no means final. Some of the advice could not be realized as public, although it might as private.

For instance, one or two men, or even a greater number in a community, might realize \$2.00 a bushel for early green peas, but it is very doubtful if a whole community, or county of pea-growers could, unless there was an immense demand, by people who have an immense amount of money. It would disturb the market as much to have all the peas rushed in early, as it to have them intermediately or late. No poor man, no ordinary mechanic, can afford to pay two dollars a bushel for peas, unless it were shelled peas, but that is not the way in which early green peas are usually sold.

However true it may be that farmers as a rule do not pay sufficient attention to market gardening, there is very little use in attempting to stimulate them by advising impossibilities, especially as to big early markets, at big prices, and a big demand. The Vanderbilts, the Astors, the Goulds and the Pelmonts might pay \$1.00 or even \$5.00 a box for strawberries, but if the whole crop of the country was "rushed in" early it is not likely

that such prices would long obtain, even among such monetary magnates.

There certainly must be a limited demand for unshelled green peas at \$2.00, a bushel, strawberries at \$1.00 a box, and peaches at 50 cts. a piece, and because these, and even higher prices, may be realized early, and in moderate quantity, yet it does not follow that tons, at those prices, could be sold in communities that only buy pounds.

We once heard of an "impracticable," who was compelled, "for once," to pay 50 cts for a bunch of celery. He went forthwith and rented six acres of ground, and devoted it, in due time, to the cultivation of a "famous" crop of celery. It so happened that a goodly number of his neighbors did the same thing, only not so extensively. When the harvest came he could only realize five cents a bunch for his celery; the market was over stocked with finer celery than his, which only realized ten cents a bunch to its owners.

Of course, there should be very early, and also very late, vegetable crops, and also intermediate ones, not too abundant, not too scant, for the general consumption of the community, at remunerating prices—this is healthy gardening.

FRUITS, VEGETABLES AND FLOWERS.

The following which appeared in a cotemporary journal about the first of May, tells a significant tale in relation to the horticultural products of the country, and the pecuniary encouragement they may afford those who have the energy, the knowledge and the enterprise to engage in their production. Of course, some of the prices mentioned below are fabulous; but then, there are many people who will almost pay any price for articles of luxury, whether they can afford to pay for it or not. If they can't afford it, of course they are fools, and deserve to suffer for such brainless extravagance. But, there are many who can afford it, and these ought to pay them, if for no other purpose, at least for the benefit and encouragement of horticulturists and gardeners. It needs a stimulant of this kind to force cultivators out of the narrow habit of growing two rows of peas, three hills of strawberries, a bunch of onions, or half a dozen cucumbers, and attending market about once a month.

"Fifty thousand quarts of strawberries may be expected here next month from Florida, Georgia and South Carolina," said a wholesale dealer yesterday. "Two thousand quarts arrived to-day from Jacksonville, and this makes 7,000 quarts received from there this month. They are selling to-day at 75 cents a quart; the first brought \$2.75. Let the young folks who are thinking of matrimony know that two cases of orange blossoms arrived this morning from Florida, being the first that have ever been sent here from there. They were sent in a refrigerator, and are in a fine condition." Hot-house strawberries from Massachusetts and Rhode Island bring \$3 a quart now; the first brought \$10. Peaches from the same source will begin to arrive in about two months. Cucumbers from the hotbeds around Boston and Fitchburg are arriving, and retailers sell the best at \$3 a dozen, or \$1 more than the wholesale dealers charge. Mushrooms from Long Island and from the hot-houses around South Amboy are worth 50 cents a pound at wholesale; the retailers charge their wealthy customers a price that nets a large profit. The hot-house radishes

in market come mostly from Long Island. "New York is the best market for all these luxuries," said a dealer, "but Boston, Philadelphia and Washington also take considerable. New England is the seat of the hot-house industry, though we have houses also on Long Island and in New Jersey."—*New York Sun*.

"SADDLEBACK MOTH."

Mr. H. L. Z., Lancaster, Pa. The oblong smooth cocoons that you found above ground and attached to the rootlets at the base of your hop-vine, are the cocoons of a species of "Hag-moth," or, as some call it, "Saddleback-moth;" and, on opening one, we have no doubt it is the *Empretia stimulea* of Dr. Clemens, as this species is becoming abundant in and about Lancaster. The cocoon we opened contained the living larva, very little changed from what it must have been last August or September, when it spun itself in; enduring all the cold, sleet, ice, snow and winds of the intervening winter, and it seems remarkable that on the 6th of May it had not yet assumed the pupa state. Even the green and reddish-brown colors were retained. The anterior and posterior fleshy horns were greatly diminished in size, and thrown backward and forward in adapting the larva to the form of the cocoon, which it entirely filled. It is pretty well known that the spines with which the fleshy horns of this insect larva are supplied, produce a painful sensation when they come in contact with the back of the hand or any exposed part of the body, where the skin is soft or thin. The larvæ of these insects are omnivorous feeders, and have been detected on almost every kind of fruit trees (last summer even on the peach) and on a great variety of plants and shrubs, including Indian corn, roses, etc., and whatever injury vegetation sustains from them is during the larval period. It is a mistaken impression to suppose that they injured your hop-vines, unless they destroyed the foliage last summer, and from the great number you say you found, they would have been quite capable of injuring it to a great extent, provided they fed upon its foliage, a case we are not able from personal observation to affirm, so far as we remember. That the cocoons should have adhered to the rootlets of the hop is not at all remarkable. Insects that spin cocoons always fasten them more or less firmly to any object that is most convenient. We have had them spin in boxes dozens of times, and they have invariably *fastened* their cocoons, whether on the bottom, the sides, in a corner, or an angle.

The genus *Empretia* belongs to the family CONCHILOPODIDÆ, which, we presume, alludes to the firm, shell-like, and internally polished cocoon. And also to the section HETEROCERÆ, because of the heterogeneous characteristics of the individuals embraced in it; perhaps we ought to say in conclusion that these are minor divisions of the great order LEPIDOPTERÆ—butterflies and moths.

OCCUPATIONS OF ANIMALS.

The following purports to be the results of an interview between a reporter of the *New York Sun* and a naturalist, and no doubt there are many who are able to verify it, at least so far as it relates to their own observations upon the animals of their own localities, or those

they have met with elsewhere, and yet there is still a "blissful state of ignorance" almost everywhere, in regard to the commonest subjects of the animal kingdom, even among those who possess a fair degree of intelligence upon other subjects. The article recalls some of the observations and experiences of our early manhood, indeed, of our boyhood—especially in reference to the "ant Lion," or *myrmelion*, the "carpenter bees," the "mason wasps," the "Bombardier beetles," the ants, *aphids*, etc. Doubtless these various phases of insect life may occur right under the noses of those possessing rare opportunities to make accurate observations, and yet they may be entirely unconscious of anything of the kind. The deductions are interesting, even if not quite accurate in detail, and may lead the reader to speculative, if not practical, thinking.

"There's a curious reflection of human affairs in the actions of the lower animals," said the naturalist to the reporter.

"Everything but the dynamite phase," suggested the latter.

"No, I won't except that," was the reply; "and I'll wager you can't mention a class of men or an occupation followed by them to which I can't show you something similar in the so-called lower animal kingdom."

The reporter suggested the dynamite fiend.

"Well," continued the naturalist, pulling out a drawer upon which was a blood-curdling name, "here's a beetle that belongs to the explosive brotherhood, and so powerful an agent it is that it is called the 'Bombardier,' and is ready to go off at a moment's notice. It is, as you see, an old-fashioned sort of a fellow—doesn't affect long hair and the like; but let an enemy follow it too closely and it stops suddenly, and if you were listening you would hear a report, a puff or smoke would rise in the air, and the pursuer would be completely demoralized. I have seen these bombardiers fire five or six times in as many minutes, whirling about, as if taking aim. The explosives come from a gland. Quite a number of animals carry explosives. The larvæ of some dragon flies eject a liquid irritating to man. The squids, however, lead in this respect. I remember drifting along over the reef at Nassau several years ago, and seeing several squids just below the surface. I put out my hand, and in a second my dearest friend wouldn't have known me. I was literally drenched with ink, which was thrown from a distance of at least three feet. It was indelible, and I still have the vouchers in the way of stained lined."

Here the naturalist took down a drawer labeled "Myrmelion," and said: "Here is not only a plotter, but a diagram of its trap. The propensity seems bred in the bone, as it is indulged in by the young insects. When first hatched the insect seeks out a soft soil on some miniature sandy plain. It generally holds its head in place at one point, while its body is whirled about like a pair of dividers. This done, the insect begins throwing out the sand; some is carried, but the greater part is removed on a plan that at least shows an attempt at labor saving. With a quick movement the worker shovels a load upon its head, and by a backward upward jerk hurls it far out of the excavation. If a pebble or stone is met with it is tossed out in the same way, masses half as large as the worker being hurled over a foot away. When a large stone is encountered the intelligence displayed is remarkable. The engineer seems to know that the rock can't be tossed, and so he carefully rolls it upon his head and proceeds to climb up the incline of the pit. Naturally the stone would roll off of any incline, but to avert this the insect lifts its tail high in air, and so crawls up the side with the stone on a perfect level. I have seen them try a stone ten or fifteen times, and then give it up and select another location. After the pit is completed it represents the cast of an inverted cone, and

at the bottom the insect conceals itself, leaving only its two enormous jaws protruding. You see here on this diagram the whole tragedy is enacted. We will suppose that this ant is the Czar on the way to coronation. He rushes along, comes to the pit with his attendants, steps on the prepared slides, and goes rolling down into the mouth of the living or Nihilist trap below. Perhaps when half way down the ant regains a foothold, and seems in a fair way to escape, but the trap-maker throws off all concealment, quickly shovels sand upon its head, and hurls load after load at the victim, who rolls down helpless into his enemy's jaws, and is destroyed. When the trap-maker has sucked the blood, he unceremoniously hoists the remains upon his head and throws them out upon the sand. The pit is then repaired for the next victim.

"Among the animal workers all occupations are found. Take a colony of bees, for instance. In forming a nest one set of bees are ordinary laborers, and form the rough cells. A set of skilled laborers then take hold and shape the cells, and so on. Among the ants the workers not only have their share of work to do, but they differ from the others in shape and general appearance, the king, queens, soldiers, and laborers being all markedly different in appearance. The soldiers have enormous jaws, but never work. They rush out fiercely when you brea into a nest. If the enemy is not visible they return, and the laborers come out and begin repairs. The army ants of South America show great intelligence. The workers like our sappers and miners, often go ahead and form a protective arch, under which the soldiers march; and so rapidly is this thrown up that the onward march is not delayed. The ants are also slave owners. They capture ants of other species and force them to work for them and attend them as body servants. So luxurious do some of these slave owners become that they are utterly helpless when deprived of their menials. The latter not only wait on their masters, but feed them. If the slaves are taken away their owners perish.

"Ants are also farmers. In Texas a tribe collect the seeds of various plants and plant them in close proximity to their homes, so that they can benefit by the seed. The farmer or grain ants of Europe store up vast supplies in underground granaries. After a damp season the seeds are taken out and laid in the sun and finally returned."

"How is it the seeds don't sprout?" asked the reporter.

"That's the most wonderful part of it. The seeds don't sprout, though there they are, planted under ground and kept fresh. It is supposed that the ants bite the seeds in some way so that they are in a state of coma, just as wasps sting animals so that they remain insensible for months. Ants may be said also to keep cows—not exactly Durhams, but insects that answer the same purpose. They collect the plant lice, and, by caressing them in some way, force or induce them to give out or exude a drop of sweet liquor. I have seen five or six ants awaiting their turn to milk one of these cows. The ants often collect the eggs of the aphids, place them on plants near their homes, and care for them in many ways, just as we do for our blooded stock. In the fall ants have been known to take their cows under ground and try to keep them through the winter. Many ants keep beetles and other insects as pets, some as playfellows, others on account of their odor. Several hundred distinct species of insects are in this way kept prisoners under ground.

"In engineering the ants are equally skillful. They bridge wide streams by joining together their bodies clinging one to another, and thus forming a long string that the wind blows across the stream. In this way a bridge is formed over which an entire army passes."

"Here is the tube of a marine worm. You see it was first formed of finely ground pieces of sand—in fact, of anything that the animal could get hold of, just as the inner walling of a house is made of rough material; but when

it comes to the exterior, there is a chance for decoration. As the builder uses finer woods for the outside, so the worm has applied all these delicate shells, so that the tube seems made up of them. Here is another shell called the *Phorus*, found in Japanese waters. It affects large bivalve shells, and in some way sticks them about its shell. Now, if the animal had no taste, the first old shell or stone that came along would be used; but, as you see, nothing but these shells are used. Here's another and a fossil, showing that shells did the same thing millions of years ago.

"Many birds have the decorative instinct. Certain ones in Africa are said to fasten fire flies to their nests that gleam at night like so many diamonds. Another African bird bites off all its tail feathers except the tip of the longest plumes, and thus gives itself a jaunty air. The horn bills color their feathers artificially from certain glands. A family of birds found in Australia, and allied to the birds of paradise, bring shells and other objects miles from the sea and decorate their play houses with them. Some fancy curious bones, others shells, and others prefer fresh flowers.

"Now, as to builders. The architectural ability of birds almost equals that of man. Some nests, like those of a West Indian black-bird, are hotels, and are built by several birds, who sit on any or all of the eggs, as it happens. Then there are flats built by the tailor birds, where the residences are side by side and protected by a perfect roof. Among the other workers is the carpenter bee, that bores a hole as perfect as the finest instrument of human make, and forms a partition of the sawdust. Here is a worker in metal. It bored these holes in this piece of lead, but no one knows now. Here is a piece of the hardest granite known, yet it has been ruined by this shell, a *pholas*. Stranger yet, the miner has a lamp to work by, a phosphorescent light.

"Among the animals that are in the submarine diving business is the spider. It has no diving bell, or armor, yet it goes below the surface and remains there by taking down air beneath its body in the shape of balls, which it leaves there beneath some twig, or leaf."

"How about reporters?"

"Animal reporters are scarce," was the reply, "but if you have ever hunted the black bear you must have noticed the curious markings and scratches it makes on trees at a distance seven or eight feet from the ground. These signs rank as high as the tramp sign language; one bear knows that another has been there before. The sailors are represented by this spider, that not only goes to sea, but builds its own boat of leaves and pushes off in search of prey. The dramatic profession is represented by some South American birds, who go through certain strange performances for the benefit of other companions. As for the undertakers, many species of beetles bury their dead. The medical profession is represented by the doctor fish, who has in his side a lancet, which comes out without warning, and, like the Bob Sawyer, is always ready for use. The wasps are the papere makers; some are masons. The ministers are represented by the praying mantles."

EXCERPTS.

EASTER on the 25th of March is a coincidence that no man living has seen. It was as far back as 1742 that Easter came on the 25th of March.

THE Stock Inspector of New South Wales is authority for the statement that the pest rabbits has already cost the colony of Victoria between \$20,000,000 and \$25,000,000, and is still spreading.

THE export trade in furniture is confined chiefly to medium grades, which are sent to Africa, China, the Sandwich Islands and to South America.

THE little canary seed, which we feed to our

birds only, is used by the natives of the Canary Islands as an article of domestic food. It contains a large proportion of nutritious farina.

IN Florida the strong fibre of the leaves of a species of cactus is turned into rope, its juice into a pleasant beverage, and its trunk, after the removal of the pith, into pails.

FRENCH silk merchants are thinking about acclimatizing a species of spider which has been discovered on the African coast. This spider makes a thread very like yellow silk and almost as strong.

ONE of the industries of Australia is the cooking and canning rabbits, which are so plentiful in some districts that whole crops are sometimes destroyed by them. One firm during the last season which lasted twenty-five weeks, canned 675,000 of the animals.

ACCORDING to the *London Court Journal* the institution of bronze earrings, with "Merit" engraved on them, is said to be contemplated by the authorities. These ornaments are to be given to female nurses who have distinguished themselves in hospital service during war.

As an illustration of the profits of corn culture in Los Angeles county, California, the *Anheim Gazette* cites the case of a farmer who last year sold 150 cents of corn from 30 acres. He sold it for \$1.53 per cental—a total of \$1,874.50—and his cash outlay was hardly \$150.

LAYERING consists simply in bending down a branch and keeping it in contact with or buried to a small depth in the soil, until roots are formed. The connection with the parent plant may then be severed. Many plants can be far more easily propagated thus than by cuttings.

THE milk of a cow in her third or fourth calf is generally richer in quality than a younger one, and will continue so for several years. In dry seasons the quality is generally richer, although cool weather favors the production of cheese. Cold weather increases the yield of butter.—*Farm, Herd and Home.*

IT should be remembered that no matter how good and rich a milker a cow may be it is unreasonable to expect the quantity and richness of the product to be kept up unless both the quantity and adaptability of the food are matters of attention. Do not expect impossibilities, even if you are the owner of prize milking animals.

THE best time for shipping bees any considerable distance is in April, or quite early in May, before the combs are too heavy with blood, though with proper care in preparing them and ordinary usage in hatching them they may be shipped at any time with comparative safety, except in quite cold weather.

THE Navajo Indians in Arizona have 900,500 sheep, and 200,000 goats, the result of the investment of \$30,000 for them by the Government two or three years ago. This heretofore expensive tribe required an appropriation of only \$5000 a year and are now considered self-sustaining. They occupy an immense tract of land, however, which is held for settlers.

I THINK the value of flax straw for feeding stock generally depends on how much seed

there is in it. I have stacked upon my place seventy-five or one hundred tons of flax straw; I have also a quantity of prairie hay, which I do not value very highly for the wintering of stock, and I was obliged to fence it in to keep it from being eaten up, while my flax straw went untouched. I would not give 50 cents a ton for flax straw for feeding stock, as there is not any substance in it.—*A Kansas Farmer.*

GLADIOLUS bulbs should be planted in succession at the intervals of two or three weeks, through the months of April and May. They should be planted about three inches deep, a little pure soil or sand being laid over each before the earth is closed in about them, an arrangement which may be only advantageously followed with bulbous plants generally. In hot summer weather they should have a good mulching or half rotten manure, and as soon as the flower spikes are produced liquid manure may occasionally be given them.

A WRITER in the *Fruit Recorder* makes the statement that one of the neighbors planted some cabbage plants among his corn where the corn missed, and the butterflies did not find them. He has, therefore, come to the conclusion that if the cabbage patch was in the middle of the corn-field the butterflies would not find them as they fly low and like plain sailing.

THERE are fewer cattle now in Colorado than there were three or four years ago. The profits of herding were great, and there was a rapid increase until drought and subsequent severe winter caused the loss of thousands of head from starvation and exposure. It is probable that Colorado will not in many years have as many head of cattle as it had before this disastrous experience.

A FRUIT-GROWER in Western New York sold the past season \$3000 worth of quinces from an orchard of 10,000 trees which have been bearing three years. Every year hereafter the sales will, or should, largely increase. So far the only manure used has been a mixture of salt and ashes. The orchard is kept cleanly cultivated, and the trees are too large to grow other crops among them.

THE greater part of the water found in plants, and the earthy or mineral ingredients, including the nitrates, enter the plants by means of the roots. Probably gaseous matter may also be absorbed by the roots. Absorption of fluids by the roots is due to diffusion, by virtue of which liquids of different densities have a tendency to mix, the thinner passing into the thicker liquid through the cell-walls.

SANDY soils are, in the average farmer's sense of the word, the lightest of all soils, because they are the easiest to work, while in actual weight they are the heaviest soils known. Clay, also, which we call a heavy soil, because stiff and unyielding to the plow, is comparatively a light soil in actual weight. Peat soils are light in both senses of the word, having little actual weight and being loose or porous.

THE sheep is a close grazer, and even prefers short pastures. It is scrupulously clean, though not very select in the choice of the herbage on which it feeds. Wool, being a highly nitrogenous substance, requires a

larger supply of albuminoid food for sheep than other ruminants demand. Wool being the chief profit of sheep farming, it will be economy to feed oats or oil-cake pretty freely to secure a liberal growth of this staple.

I FIND coal ashes to be a very valuable article to be used for many purposes. I have used them for three or four years on currant bushes for the destruction of the currant worm, and find no necessity for the use of hellebore or any other poison. They are as effective on cucumber vines to keep off the striped bug. Last year I used them on cabbages, filling the head full, and had no further trouble with the worms. The cabbages headed well, receiving no injury from the ashes. The ashes are better to be sifted through a fine sieve.—*E. J. H., in Fruit Recorder.*

A CORRESPONDENT of the *Country Gentleman* gives it as his opinion that, in regard to scalding, boiling or steaming, an experience of five years with steamed food for a dairy of from thirty to fifty cows led him to the conviction that if compelled to take his choice and pay for it he would pay more for the exemption than the adoption. He is convinced that cutting the long forage pays better than any other preparation in a well-managed dairy.

TOMATOES raised in poorish light soil will ripen ten days earlier than those raised in rich soil. We know this from actual test during the present season. If large showy tomatoes are wanted, regardless of flavor or time of ripening, then the rich soil and rank growth are needed. Cutting off all but one or two fruits of the clusters while they are small and green will also cause those remaining to grow to a larger size. So says the *Rural New Yorker*.

It is marvelous how sheep and wool growing have increased in this country within the last fifteen or twenty years. In 1860 there were only about 23,000,000 sheep in the United States. We now have nearly 50,000,000. In 1860 the wool clip amounted to only 60,000,000 pounds; to-day it is nearly 300,000,000 pounds—an increase within this period of over two-fold of sheep and five-fold in the production of wool, giving unmistakable evidence of our advance in this industry.

THE commonly received advice to orchardists to scrape the rough bark from old apple trees has been contradicted, some having tried it and concluded that the practice did more harm than good. The rough bark is a protection to the tree from sudden changes of temperature. The benefit often claimed from scraping the trees comes from the greater attention paid to them in other respects by men who take this trouble. Whitewashing apple trees is equally ineffectual for good.

A CORRESPONDENT of the *Germantown Telegraph* says: "Fresh, clean hog's lard rubbed three or four times on any kind of warts on horses or cattle will remove them on three or four applications. I have removed the warts time after time, and have never been able to find the wart for the fourth application. If I should send the Latin name for lard and tell men to pay fifty cents to the druggist for about two cents worth of good lard this remedy would be oftener used."

THE first and most important consideration

in selecting a spot for the garden is the situation. The most suitable is a very gentle inclination toward the east or southeast, that it may have all the advantages of the morning sun. The next preferable exposure is south or southwest. If sheltered from the north or northwest so much the better. Always avoid, if possible, the neighborhood of large spreading trees, as their roots will exhaust the soil and their shade injure the crops.

CHARCOAL is highly recommended as a preventive of disease in sheep, and in an English pamphlet the following recipe for its use appears: The charcoal should be given mixed with the food, except in urgent cases, when it may be mixed in water or thin gruel, and given as a drench. The dose is 1 pint to every 25 head of sheep or lambs. One-quarter pint per head for full-grown cattle, horses or pigs; half the quantity for young cattle, and two teaspoonfuls to one dessert spoonful for young calves.

FATTENING horses is well understood by jockeys, and may well be studied by farmers who have horses to sell. A horse well fed and kept steadily at work will gain slowly and his flesh will be solid and enduring. This is best for the buyer, and has the advantage for the seller that the horse earns his keeping while being put into condition. The jockey method is to feed oil-meal, exercise little or not at all, and make a glossy coat, which will soon become rouga and staring when the horse is put at hard work.

ALL kinds of fowls are natives of warm or semi-tropical climates. However long they have been domesticated, they retain their liking for warm weather, or at least warm quarters in cold weather. In the winter season they will do better in close houses, even with little ventilation, rather than exposed to severe weather. When a young chick will rest under its mother's wing in a summer's night at a temperature of 100, or more, there is little danger of smothering an old fowl in winter in a tight house.

AT the Farmers' Institute, recently held at Fredonia, a paper on the history of the Concord grape was read by George Hosford, in which he stated that the first Concord vine in the country was set by himself in 1854, and cost him \$7, the vine being sold at \$40 per dozen, or \$5 each. In few years he had several in bearing and for sale, but no one would purchase, believing it was too far north for grape-growing to be profitable. His first crop of 400 pounds was marketed with difficulty, but the second sold more readily.

MANY farmers are greatly troubled with a growth of sorrel upon their lands, which is an indication of neglect and exhausted fertility. The weed, however, appears upon land in good tilth in seasons when extreme drought prevails or upon silicious dry ridges. The best way to exterminate the pest is to sow bone-dust mixed with ashes and plaster. One barrel of raw bone dust, with two of ashes and half a barrel of plaster, will serve to drive out the sorrel on a quarter of an acre of ground if applied after deep plowing.

TO CLEAN a coat collar procure benzine and a sponge and wash the cloth with it. This will remove all the grease very quickly.

ABSENCE of ventilation, badly arranged entrance of light and hay-racks over their heads, permitting seeds and dust to fall into their eyes, are referred to as prolific sources of blindness in horses.—*Chicago Journal.*

SAUSAGE CROQUETTES: Sausage meat, two beaten eggs and cracker dust. Mold the meat into little balls, dip in the egg then roll in the dust and cook slowly until done through and through. Serve without the gravy—*Rural New Yorker.*

EVERY cook knows how long a time it takes, when it can least be spared, to look over one or two quarts of beans. An ingenious friend, who is always trying to save time, says: Put the beans in a colander, and all the fine dirt will be shaken out, and the beans specked can be picked out with ease, and in a very short time.—*N. Y. Post.*

THE demand for good horses increases despite the enlarged use of steam machinery in all kinds of business. There are probably more horses now used to cart produce to and from railroad stations than were ever required for the stage routes that the railroads superseded. Yet, when the steam engine came into general use for transportation, many believed that the days of horse breeders were over.—*Lansing (Mich.) Republican.*

SWEET RUSK: One quart of new milk, three tablespoonfuls of yeast and flour to make a thick batter. Mix at night and in the morning add one cup of fresh lard or half lard and butter, one cup of sugar, a little salt and the yolks of three and the whites of two beaten eggs. Mix thoroughly together, mold into desired shape and let rise before baking. The reserved white should be beaten stiff, a little sugar added to it and spread over the top of the rusk just before they are done.—*Exchange.*

IT is the custom in most families who give attention to the concerns of the table to serve oatmeal and milk at breakfast. Excellent as this custom is, it may be varied occasionally with good effect. One way to do this is to make a hasty pudding of Graham flour; it should be made like ordinary Indian meal pudding, with the exception that the Graham must first be wet with cold water; it must be stirred constantly; it will require about twenty minutes steady boiling and should be well salted.—*N. Y. Times.*

THE CARE OF THE EYE.—1. Avoid reading and study by poor light. 2. Light should come from the side, and not from the back or from the front. 3. Do not read or study while suffering great bodily fatigue, or during recovery from illness. 4. Do not read while lying down. 5. Do not use the eye too long at a time for near work, but give them occasional periods of rest. 6. Reading and studying should be done systematically. 7. During the study, avoid the stooping position, or whatever tends to produce congestion of the head and face. 8. Select well printed books. 9. Correct errors of refraction with proper glasses. 10. Avoid bad hygienic conditions and the use of alcohol and tobacco. 11. Take sufficient exercise in open air. 12. Let the physical keep pace with the mental culture, for asthenopia is most usually observed in those who are lacking in physical development.

WHAT IS AN INSECT?*

Among the masses of mankind, or popularly considered, an *Insect* appears to be any small animal for which no other name "comes handy," but, entomologically restricted, and qualified by certain exceptions, an *insect* is a *four-winged hexapod*, the body of which is conspicuously divisible into three transverse sections, namely the *head*, the *thorax* and the *abdomen*. Although the body of an insect is so easily divisible, that if we strike against a pin upon which a very dry specimen is impaled, it will be very apt to fall into three pieces; yet a closer inspection will reveal the fact that these are not simple or solid pieces, but that they are all compound, and composed of many minor parts. Take the abdomen for instance, and it will be found to consist of a series of sections or rings called *segments*, or by way of distinction, *abdominal segments*. Neither are these rings entire in their structure, but are latterly divisible into semi-rings, the upper ones called *dorsal* and the lower ones *ventral*. The *thorax*, to which are attached the wings and the feet, is also a compound section, being composed of *prothorax*, *mesothorax* and *metathorax*, and like the abdomen laterally divisible—the upper parts into *pronotum*, *mesonotum* and *metanotum*, and the lower parts into *prosternum*, *mesosternum* and *metasternum*. In some orders of insects—notably the order *Coleoptera*, beetles—the dorsal divisions of the prothorax are confluent, that is, they are united into one solid piece, whilst the ventral portion is compound; not only divisible into three parts, but into many more. There are also some minute species in the order *APHANIPTERA*, or wingless insects, in which the *thorax* and the *abdomen* are confluent, and the insects seem to possess only a *head* and *abdomen*, the *thorax* being conspicuously absent, or if present at all, only rudimentally so. The head of an insect is still more complicated in its structure, and the parts more numerous than in the other divisions of the body, and this is especially the case in *mandibulated* insects, that is, those possessing jaws, and their usual accompaniments. In short, Monsien Straus has enumerated in the body of an insect not exceeding an inch in length, 306 hard pieces, which enter into the composition of the outer envelope; 496 muscles for putting those in motion; 48 nerves to animate them, and these nerves divided into innumerable fillets; also 48 pairs of tracheæ, or breathing organs, equally ramified and divided, to convey air and life into "this inextricable tissue." These are the little animals popularly despised, and yet have the power to scourge mankind with fear and famine.

But, an insect is something more than a "four-winged hexapod." It occupies not only an important position in the economy of nature, but also quite as important a one in systematic classification. There are many systems of classification; but, perhaps that of CUVIER, the great French naturalist, is the most popular, as it is certainly the most simple. He divides the *animal kingdom* into four sub-kingdoms, namely: *Animalia vertebrata*, that is, animals possessing a vertebral column or backbone; *Animalia mollusca*, animals destitute of a backbone, but possessing

an external shell, either univalved, bivalved or multivalved; *Animalia articulata*, animals possessing a greater or lesser number of consecutive rings, sections or segments, united by ligaments in a series of articulations or insected joints; and *Animalia radiata*, embracing those animals known under the name of *Zoophytes*, the organs of sense and motion of which are disposed as divergent rays round a common centre. Of course this is but a simple outline of the structure of the animals classified in the four sub-kingdoms named; and is only cited here to illustrate where, in the series the class including insects stands, and its relation to other classes. Cuvier further divides the sub-kingdom *Articulata* into two great sections or groups, namely: the *APIROPODA*—animals possessing more than six feet, and destitute of wings, including the *Crustacea*, the *Arachnie* and the *Myriapocæ*, or crabs, spiders and centipedes. The second section or group are the *HEXAPODA*, animals with six feet; and, including the single class *Insecta*, from which it will be observed that we locate insects at the foot of the sub-kingdom *ARTICULATA*; and it may also be observed that although crabs, lobsters, scorpions, spiders and centipedes are *Articulata*, they are *not*, therefore, insects. This is the entomological restriction to which, in part, I alluded in my opening lines *Entomology* is derived from two Greek words, namely: *entom*, and insect, and *logos*, a discourse. The word *Entom*, as well as the synonymous Latin word *insectum* (which has been anglicised into insect), are themselves compounded of other words, signifying a cutting or dividing into sections or articulations, whence, in fact, we arrive at one of the great characteristics of these tribes of animals: namely, the articulated structure of the external parts of the body, which may be properly regarded as the skeleton, serving, as it does, to support the muscles and other internal organs, just as the internal skeleton of the higher, or vertebrated animals, support corresponding parts.

It may be well to state here that the hexapodal character of insects relates to the perfectly developed form of the animal, after it has passed through all its *transformations* or *transitions*, corresponding to a *metamorphosis*; for, it must be remembered, that the life of the insect consists of four very distinct phrases of development. First we have the *ova*, or egg, which contains the embryo of the future animal. After the period of incubation is accomplished, the insect is technically said to be *excluded* from the ova, when it issues forth, in some orders, altogether unlike the parent that deposited the egg. The popular names applied to these animals after their exclusion from the egg are many, such for instance as caterpillars, worms, grubs, slugs, maggots, bots, etc., and in many cases these have a qualifying prefix, as horn-worms, corn-worms, boll-worms, canker-worms, army-worms, wood-worms, pear-slugs, rose-slugs, grub-worms, sheep-bots, cattle-bots, horse-bots and many others; but, scientifically, all these forms are included under the simple term *larvæ*. The term *larva* means a mask. An insect after it has left the egg and before it assumes the form of a *pupa* or *chrysalis*, is called a *larva*, because in that state it is, as it were, masked. This rule does not, however,

apply to *all* the different orders; for the change in form in some of them can hardly be called a distinct metamorphosis, but rather seems to be a gradual transition, exhibiting very little distinction between the *larva*, the *pupa* and the *imago* or mature form. In the larva state we also encounter the exceptions to their hexapodal characters. Some *larvæ* are entirely destitute of feet, others possess them only rudimentally; some have only *four*, some *six*, some *eight*, some *ten*, *twelve*, *sixteen* and up *twenty-two*, but these exceptions could only be noticed specifically in treating of the different orders separately. I might mention, however, by way of illustration that in the larvæ of *ORTHOPTERA* (grasshoppers) for instance, there are never more or less than *six* feet, whilst in those of *LEPIDOPTERA* (butterflies and moths) there are never less than *ten*, nor more than *sixteen*. But in all that have feet at all, that are present either perfectly or rudimentally *six*, they are called *pectoral* feet, on the first three anterior segments of the body. The term *pectoral* is from the Latin *pectoris*, and relates to the *thorax* or chest. These three segments are rudimentally the future *prothorax*, *mesothorax* and *metathorax* of the perfect insect, and have already been referred to in this paper. The remaining feet are more or less developed—wart-like—tubercles, called *prolegs*, and in some orders are more prehensile than the pectorals.

There is no uniformity in the duration of the larval periods of insects. This is governed by species and surrounding circumstances. In some species it continues only a few days, in others it is prolonged to weeks, to months, and to years—in the seventeen—years *Cicada* (commonly called "Locusts"), for instance, to nearly or quite *seventeen years*. That which comes out of the ground, and from which the mature insect is evolved, is not the *larva*, it is the *pupa*; but there is reason to believe that it only assumes the pupal form a few weeks before its final evolution. I have obtained them in the months of February and March immediately preceding their septendecennial appearance, and they were still in the larval form. During the larval period of insects, they moult or cast off the external integument from three to six times, the most familiar illustration of which, is in the larval development of the "Silk worm." At the end of this *second* stage of insect development comes the *third* or *pupa* state, in which there is as little uniformity as there was in that which preceded it. In some orders it is a quiescent state, in which no food can be appropriated—the animal is fixed and cannot locomote; but in others, the pupa is as active in this state, as it is in the larvæ state, and quite as voracious. *Pupa* is a Latin term, and means a puppet, or baby, wrapped up in swaddling clothes. In some *pupæ* the future insect may be distinctly recognized, especially as to the wings, the feet, the antennæ, the eyes, and the *rostrum* or sucking tube. Some are entirely naked, and others are enveloped in a cocoon; some are elevated above the earth; and others are buried beneath the earth; some are concealed within the cavities or galleries cut in timbers or other substances by the larvæ, and others are suspended by their caudal extremities being attached

*Essay read before the Linnean Society at its meeting on Saturday, April 23, by Dr. S. S. Rathvon.

twigs, walls or timbers; but those species that have an *incomplete* metamorphosis roam abroad, and feed the same as they do in their larval periods, and are only distinguishable by their rudimental wings. The term *aurelia* is also sometimes applied to this stage of insect development, and especially to those species which exhibit glistening spots, of a golden hue, the name being derived from *aurum* the Latin for gold; and for the same reason, the term *chrysalis* is used in this connection, being derived from *chrysos* the Greek for gold. The mythological term *nymph* is also sometimes used, especially as to those species which pass their pupal periods in ponds and streams of water in which it does not seem inappropriate. But, whichever of these terms may be used in descriptive entomology, we may know, from what has been said, that it refers to the *third*, or state intermediate between the *larva* and the *imago*.

The fourth period of insect development is the perfectly matured, or *imago* state. This is a name given to insects after they have completed their metamorphoses, because they are then in the *image* of the parents who deposited the eggs. No true insect is capable of fertilization, oviposition and procreation until it has obtained the *imago* state, so that it is impossible for caterpillars, slugs, grubs, maggots, or any other insect larvæ to multiply. By whatever process they may have first been brought into existence, it is entirely consistent with scientific experience that they are now only reproduced through the medium of *ova*. After its evolution from the *pupæ*, and its assumption of the *imago*, it acquires no increase in size, no new beauty, and no additional instinct; for, like Minerva from the brain of Jupiter, it issues forth fully developed in all that relates to its perfect insect-hood. The idea therefore of old and young insects, based upon a difference in size merely, is a fallacy. They cannot, in this respect, be compared with adult vertebrates, for many of these wax fat; but the external integument—or rather skeleton—of insects is too rigid to allow any distention, as a rule, except a limited elongation of the abdominal division among the females. In the *imago* state, the true hexapodal character becomes developed with a very few rudimental exceptions to the number *six*, and these few have *four*—confined to the order LEPIDOPTERA; including butterflies, etc. There is, however, a marked differentiability among insects in relation to the number of their wings, as well as in the structure of these organs. None have more than *four* wings, but some have only *two*, and others are entirely wingless. In some instances this wingless characteristic is confined to the females, whilst in others it pervades the whole order, both male and female. In the order COLEOPTERA, the anterior wings are replaced by rigid *elytræ*, or wing covers, which are of little or no use in flight. The division of the Class INSECTA into *orders* is mainly based upon the character and number of their wings. The term COLEOPTERA is a Greek compound, which, according to accepted authority means “sheath-winged,” but according to my notion. “shield-winged” would be more appropriate; because the wing covers do really shield the wings when they are in repose; moreover, the *elytrons*‘

when separated from the insect, and naturally united in the greater number of cases, have the form of a miniature shield. The term HEMIPTERA is from a Greek compound, which means “half-winged,” because the basal portion of the anterior wings are *coriaceous* or leathery, and the apical portions are membranaceous.

The order HOMOPTERA is so called from two Greek words meaning “same-winged,” because the wings are all of the same form and structure, and in many instances of the same size—homogeneous. The seventeen-year *cicada*, popularly misnamed “Locust,” is a conspicuous illustration of the insects belonging to this order. Orthoptera is also a Greek compound and means “Straight-winged”—the wings fold up in straight corrugations like a fan—this is at least the character of the posterior, or underwings. The common “Grasshopper,” or true “Locust,” is a typical illustration of this order. HYMENOPTERA is derived from the two Greek words *umen*, a membrane, and *pteron*, a wing, because the insects belonging to this order are characterized by four membranous wings. NEUROPTERA, means nerved-wings, because the wings of the insects belonging to this order are ramified by a net-work of nervures; they are represented by the dragon-flies, the lace-wings and the white ants; and the immediately preceding order by the bees, wasps and common ants. LEPIDOPTERA, comes from *lepis* a scale, and *pteron*, a wing, meaning scale-winged insects, and is represented by the butterflies and moths. DIPTERA, means two-winged, and includes the various two-winged flies, of which the housefly is the most common example. There are also minor orders, including a few species, which cannot be properly classified with any of the preceding orders, among which are the “Caddice flies,” the Bee stylops and the “Earwigs.” This latter name has been popularly and erroneously applied to insects that are supposed to enter the human ear, but this is a mistake. The insects are shy and avoid the light, and under certain circumstances might enter the human ear for the same reason that any other small insect, of similar habits might—namely, to hide itself. There is reason, however, to believe that the term *Earwig* is a corruption or contraction of “Ear-wing,” because the expanded posterior wings of these insects resemble the human ear. To all the foregoing definitions there are exceptions, modifications and variations, too numerous to point out here, but which becomes apparent to the student in entomology, as he advances in his practical studies; but, from all this, it must become impressively manifest, that many animals popularly classed with insects, have no structural affinity with them, as for instance, spiders, scorpions, ticks, crabs, lobsters, centipedes, millipedes and many others. In fact, they differ numerically, from *eight* to one hundred and more, and also in the divisions of the body. In the first five named, the head and thorax are confluent; in spiders, etc., named *cephalothorax*; in crabs and lobsters, *carapace*.

There is really no just ground to fear an arbitrary redundancy of the insect world—their rapid increase, periodically and locally, is subject to the laws of cause and effect in

nature, and their presence in the general economy of nature is just as essential to the harmony of the whole, as that of any other class of animals. It would be far easier to prove that the destruction of our forests has a much greater influence upon the increase and the alimentary habits of *insects*, than it has upon the meteorology of the country. Insects are gastronomically progressive.* When the wild Hawthorns were all cut away or destroyed, then the *Saperda bicittate*, or “striped borers,” betook themselves to the apple-trees, and in the degree that an apple is superior to a hawthorn, in that degree did the partialities of the “borer” for the apple develop itself. So also the “Colorado potato beetle” (*Doryphora 10-lineata*) which erst was content with a wild species of Rocky Mountain *solanium*, until it had an opportunity to make a comparison between its native food and the cultivated potato, when it abandoned the former and adopted the latter; and, not only this, but instead of remaining local, it became migratory in order to gratify its newly acquired penchant. When I say *acquired* I do not mean to say that the insect has been educated or endowed with a new instinct which it did not originally possess, but merely that circumstances had called into exercise that function of self-preservation, which is so eminently a characteristic of the whole animal world, but which may remain latent until brought out by local surroundings. The tobacco plant has now some twenty conspicuous insect enemies; their partialities for this plant being entirely based upon gastronomical gratification—indeed, I am not sure, but this *insect-like* for “the weed,” may be governed mainly by *quantity* rather than *quality*. Tobacco in its green state is so much more succulent than ordinary vegetation, that it is not to be wondered at that insects should prefer it as food, especially since it has become such an object of careful culture, and so improved in quantity and quality.

The multiplicity and destructivity of insects, I am inclined to think, will always run parallel with the productiveness and improved quality of domestic vegetation. A “house-

*To illustrate how animals of even the lowest orders sometimes adapt themselves to surrounding circumstances, I will relate an early experience in regard to the genus *Rana*, or common “Frog.” I remember distinctly when no culinary use was made of the frog in the community where I resided, and consequently this reptile was exceedingly abundant in the Susquehanna and in the ponds, marshes and watercourses contiguous to that river. At length a hotel-keeper settled in the borough of Marietta, who purchased and provided frogs for his city guests, and as soon as they were found to have a money value, it was not long before they became an object of “game,” and were sought not only for the delectation of the guests of the “Cross-Keys,” but also for the gastronomical use of many of the citizens of the town. At first the frogs were readily taken by a bit of red flannel affixed to a hook, but they soon learned to avoid this device. They were then taken by the use of a sort of “Sockdologer,” whether they “bit” voluntarily or not. Again they learned to keep just beyond the length of the pole to which this trap was attached; and if one, two or three feet was added to the length of the pole, it would be found that the frog had moved just a little beyond again. Then resort was had to powder and shot, but the frog soon learned to “dodge” if only a stick the size of a gun was pointed at him. Now why did the frogs bite at such an unsavory bait as red flannel? I cannot tell; they seemed to be influenced by the colorations; and we boys thought we had been the original discoverers of that fact, and it was made in this wise: On one occasion a boy named Sheets, pushed a small red cork on his line up to within two or three inches of the end of his rod, intending to fish without a cork. We observed that whenever [the end of the rod was lowered, so that the dangling cork was brought near the surface of the water, a frog would spring from his cover and attempt to seize it. This led us to improvise a red flannel bait, a hook and a link attached to the end of a fishing rod, and, for a time the frogs seemed to blindly fall victims to the brilliant decoy; but, as I have already indicated, they soon learned to avoid it. Subsequently we were informed that mackerel and trout were caught with a similar bait, but I do not think we knew it at the time; of our first experience with the frogs.

moth" (*Tinia*) where it has an opportunity to exercise a choice will *always* prefer a fine fabric to a coarse one. In contemplating what an insect physically and scientifically is, we must not forget that it is a co-ordinate factor in the constitution of the animal kingdom, and that its existence, as a whole, cannot be obliterated, without destroying the *equilibrium of nature*.

SELECTIONS.

THE POTATO QUESTION.

At the recently monthly meeting of the Berks County Agricultural Society, "The Potato and Its Cultivation" was the subject discussed, and some interesting facts were elicited.

Dr. Aaron Smith referred to the importance of the subject, and requested the large number of farmers in attendance to give their experience.

S. J. Hill, of Ruscombmanor, said that in his section the soil is a sand clay, with plenty of small stones interspersed. He held that the stones were of service in the production of potatoes, because when grown in such soil the potatoes are usually mealy and very palatable. In choosing a place for potatoes, one should be selected where the sub-drainage is carried towards the potato patch. Cultivation has as much to do with success as planting them. The potatoes should not be planted too thick.

President McGowan: "What kind of potatoes do you plant?"

Mr. Hill in reply said: "I always plant large potatoes, but have them properly sliced, so that only one or two stalks will come at one place." Continuing his remarks, he said that care must be taken in cutting the potatoes, and in laying them down. The pieces should be laid in the furrow with the eye down; if you place the cut side down it will take longer for the stalks to root. The soil should be well pulverized, and in plowing between the rows, the soil should not be thrown up too high against the stalks. There ought to be an indentation where the stalks are, so that the water will find its way to the roots.

Dr. T. S. Gerhart, of Robeson, asked Mr. Hill what varieties ought to be planted, and the latter said that he plants the Ohio Victor, which succeeds best on his soil. Next to this variety he would recommend the Peerless. He suggested the changing of seed potatoes every few years, by obtaining them from other districts.

Dr. Gerhart: "What has been your yield per acre?"

Mr. Hill: "On one-fourth of an acre, I have raised one hundred bushels."

Dr. Gerhart: "Do you use any phosphate?"

Mr. Hill: "Our phosphate is barnyard manure."

V. T. Steltz, of Robeson, said that he had raised 400 bushels of potatoes to the acre with barnyard manure, but had never used any commercial fertilizers.

W. H. Bitler, Esq., of Robeson said that potatoes require pretty good soil, and their quality is better when grown in sandy soil, or on a hillside than when produced in heavy soil. He was never able, however, to grow

more than half a crop on the hillside. People in buying potatoes generally prefer those of large size, whether the quality is good or not. Potatoes need a good deal of manure, and barnyard manure is better than phosphates.

James Buskirk, of Ruscombmanor, relates his experience with phosphates, and said that he had obtained a better yield by their use than without.

Benjamin E. Dry, of Rockland, agreed with the views of Mr. Hill, who is engaged in farming in an adjoining township.

Dr. T. S. Gerhart said that there must be something more in the soil than stones; there must be the proper ingredients. He approved of changing potatoes by obtaining seed from other localities. The Early Rose is the most profitable potato in his neighborhood. The Peerless should be put in low-land. Potatoes want good, rich soil. He has heard of such yields as 600 to 700 bushels to the acre, but in this part of the country the farmers are satisfied with a yield of 400 bushels.

Jeremiah Y. Bechtel said that he planted some potatoes years ago in low ground, when residing in Union township, and manured them well, but the crop was not worth taking up. The same year he put some on high ground, without manure, and the crop was a magnificent one. In the latter case, however, the soil was "new land" and had never been plowed before. He believed, therefore, that new soil is what potatoes want.

John Gottshall approved of using leaves as a manure, and said that ground for potatoes cannot be too much enriched.

Dr. Gerhart: "How will clear, dry leaves do?"

Mr. Gottshall said that he had tried dry leaves alone, with much success, but the results were not as good as when leaves and manure were used together.

Mr. Hill said he had read about laying potatoes right on top of the ground, with no other covering than straw.

John Gottshall said he visited a friend in the West who sold his small farm of 35 acres in this county for \$3,500, and bought a farm of 180 or 190 acres in Missouri for \$3,100. He raised 1,500 bushels of wheat the first year. Mr. Gottshall during his visit observed three or four large heaps of straw, and asked what they intended to do with it. "Use it for covering potatoes," was the answer. "After we have plowed our ground," continued his friend, "we mark out the furrows, lay the potatoes in the furrow, and then cover them with straw. In the fall we pull away the straw, and we thus raise 300 to 400 bushels of potatoes to the acre."

A. D. Trexler, of Albany, recommended a thin covering for potatoes, and said that the Ohio Victor will do best in heavy soil. He believes that potatoes should be selected according to the soil. The Early Rose will not do as well in low ground as in gravel soil. Whether large or small potatoes are planted, they should be cut to obtain the best results.

John U. Kaler, of the Eleventh ward, Reading, formerly of Robeson township, related the experience which he had years ago in raising potatoes. He believed in cutting seed potatoes to single eyes. From one eye he had raised 6½ pounds, and three of the potatoes weighed over a pound apiece. He bought six

pounds of Early Rose potatoes, from which he raised seven bushels. He cut them to single eyes, and from one eye had 4½ pounds. From a bushel of Harrison potatoes he raised 37 bushels. The ground was well manured and well plowed. The soil was a sandy loam, and the potatoes were never hilled up very high. There are so many varieties now, and what will do well in one section may not succeed so well in another. He believed good stable manure to be about as good as anything ever used, and said that the looser that the ground is kept, the better. For planting purposes he prefers a potato of good size. The potatoes should be cut into 8 or 10 pieces, and be planted in rows three feet apart, the pieces being dropped at distances of 12 or 15 inches. From 5 to 10 bushels of potatoes will plant an acre.

Howard Eschelman, of Robeson, said that he believed in a thorough preparation of the soil, and good cultivation, in order to raise large crops of potatoes.

J. V. Bechtel said that it is better to plant ground late than not to get it in proper condition. In a dry season drought can be overcome by mulehging.

President McGowan said in regard to cultivating potatoes in a dry season, he favored working the ground from the middle of the afternoon towards night. He is opposed to working the ground in the forenoon either for potatoes or corn, as by attending to this in the afternoon the soil will not dry out so rapidly, when the moist sub-soil is brought to the surface.

Dr. Aaron Smith, of Reading, formerly of Lower Heidelberg, said that in planting potatoes he would select a piece of ground not too clayey or too rocky. He would plow it in the fall as deep as two horses could tear it up, as the soil absorbs from the air the fertilizing principles that go to raise potatoes. If the ground is of a limestone nature, it should not be plowed when wet. In the spring he would go over the land with a spike harrow, then with a cultivator and then a roller. After he had done this, he would tear it up again with a plow. He would not plow the ground quite as deep in the spring as in the fall. He would thus obtain a loose, fertile soil that he could cultivate with pleasure. He would then furrow out his land, making the furrows about 2½ to 3 feet apart, and run cross furrows the same distance apart. At the intersection of the furrows he would plant the potatoes. He would plant the best potatoes that he could get, by having the nice ones picked out of the general crop of the previous year. He would cut the potatoes in pieces, leaving two eyes to a piece, and plant these pieces in a hill, placed in triangular shape. Barnyard manure is then put on top of each hill, serving to keep down the grass and support the potato stalks. He believed in having the potatoes deeply covered, in order that they may keep moist. If they are planted on top of the ground, the potatoes are green and consequently very unwholesome. He objected to planting potatoes two years in succession upon the same tract. He had given nearly 30 years' experience to the subject, and had produced 250 bushels to the acre, amidst the ravages of the potato beetle, while his neigh-

bors did not obtain the seed which they had planted.

Secretary Fox said that in listening to the discussion he was forebly reminded of the rapid flight of time. It was a long time since he had engaged in the cultivation of potatoes, and yet it does not seem long. In 1867 he exhibited 47 varieties of potatoes at the Berks county fair, and the following year 62 varieties, taking the 1st premium for the largest and best display, as well as at the Lancaster county fair and the State fair. He then gave his views in regard to raising potatoes, advocating thorough tillage, keeping the ground free of weeds, and selecting large potatoes for planting purposes, cutting the same to single eyes, and not planting them too deep. A good crop can be raised from small potatoes, but to continue the practice will eventually result in the deterioration of the variety. Seed potatoes should also be changed every few years.

R. W. Scherer, of Oley, believed in putting plenty of manure on ground for potatoes, the more the better. He believed in shallow plowing for this crop, preparing the land in the fall. He runs his furrows three feet apart and plants the potatoes, the largest he can raise, right in the furrow, taking care not to cover them too deep. The potatoes are dropped 12 or 15 inches apart in the row. During the summer he cultivates them well, keeping the weeds and grass down. The ground is kept as mellow as possible. He believed in changing seed potatoes, and had taken seed potatoes this year to Rockland township and received others in exchange. He believed in cultivating the land right, and putting on plenty of lime. Potatoes cannot thus be grown too often upon the same land.

President McGowan: "What time do you plant?"

Mr. Scherer: The earlier the better. I would prefer the first of March, if I could have the ground ready by that time."

John Mayer, of Robeson, said that he believed in the old Pink-eye potato, as that variety does as well in his locality as any other.

A. S. Klein, of Upper Bern, said that he preferred land for potatoes that had been plowed the first or second time. Barnyard manure is the best fertilizer. The Ohio Victor and Early Rose are the varieties which succeeded best in his neighborhood last year. Cultivation should be done in the afternoon. Manure has a tendency to retain moisture, and the same result is obtained by planting potatoes in new land.

John C. Hepler, Superintendent of the Charles Evans' cemetery, said that he had tried nearly all the different kinds of potatoes. His ground has a clay sub-soil, and he plows it in the spring, harrows it and runs deep furrows. The potatoes are dropped in the furrows about twelve inches apart; he never plants any smaller than a hulled walnut, and selects those of medium size to large. After running through with a spike harrow, and then three or four times with a cultivator, he plows them and leaves them stand. He has had some remarkably heavy crops. He related the following curious incident: He planted a number of rows 250 feet in length, twelve of which ran north and south, and twelve others east and west. They received

the same attention, but while the vines in the rows running north and south were full of potatoes, those running east and west produced barley five bushels more than had been planted. There was no difference in the appearance of the vines. He also said that in planting he puts out his late potatoes at the same time that he plants his Early Rose. He had planted them later, and about the time that they wanted rain, the dry season came on, and they were a failure. He recommended the St. Patrick for late crop and Early Rose for the first crop.

William Kupp, of Union, said that the Early Rose and Peerless are preferred in his locality. Potatoes did not do well last year, owing to the dry weather having caught them. He had raised a good crop of potatoes for four years in the same place.

The Secretary reported a uniform product of 40 to 50 bushels from one-eighth of an acre every season for seven years in succession, but the ground had been heavily manured, and a compost of saw dust, decayed bark and leaves, well mixed together, had been liberally applied. Potatoes exhaust the soil largely of potash, and crops can be produced for several years in succession if care is taken to return to the soil the same elements that are taken away, just as is done by the tobacco growers of Lancaster county, who have raised "the weed" successfully for a number of years on the same piece of land.

Capt. W. G. Moore, of Womelsdorf, said that he was glad to see so many practical farmers present, and that they had taken such an interest in the discussion. He had noticed this in his experience, that different varieties of potatoes are adapted to different soils. Hence, wide-awake farmers will continue testing new varieties. He had planted potatoes in sod soil and raised good crops.

A. J. Brumbach, of Exeter, was called upon, and said that while he had tried a good many varieties, and had also raised in his time a good many small potatoes, his experience was not different from that of other gentlemen who had occupied the floor.

Owing to the lateness of the hour the subject was then dropped, and after selecting a question for discussion at the next meeting, the society adjourned.

FARM NOTES.

Enemies of the Currant.

There are two—the Worm and the Borer. The first, which has latterly become very prevalent and destructive in denuding the bushes of their leaves, makes its attack soon after the leaves are of full size. The insect begins its work by laying the eggs soon after the leaves appear. The best remedy as we have for two or three years recommended, is the white hellebore in the powdered state which should be dissolved in hot water, a teaspoonful of the powder to an ordinary bucket of water and applied with a sprinkler. Some sift the powder over the bushes in the morning when the dew is upon them; but the dust is liable to be inhaled, and if it is, it produces distressing sneezing. A second application may be necessary.

The borer is a different insect, and works in the stem, passing through the pith from

bottom to top. The moths appear early in June; the eggs soon hatch, and the worm at once bores through the wood to the centre, feeding as it progresses upon the pith. Its presence in the stem may be known by the yellowish appearance of the leaves. The best remedy is to sprinkle the bushes as soon as the moth makes its advent, with whale oil, soap and water, about a pound of the soap to four or five gallons of water, repeating it once or twice.

The currant worm does its work rapidly in consuming the leaves, and they must be attacked the moment they show themselves. A single day's operations, unchecked, will play havoc. A plentiful supply of coal ashes, sieved, may also dislodge them. They multiply rapidly, and when not all disposed of, enough may remain to do much damage.

Diseases Among Livestock.

Like in the human race, epidemics among live stock are frequent and destructive. They come nobody knows how or whence; and pass away nobody can tell why. History records so many of these, and we all remember enough of them, that it is useless to dilate upon them. This being so, it is hardly to be expected that beasts will escape similar visitations. Yet some people seem to expect this, for when an epidemic breaks out among the beasts of the field it produces about as much commotion in a community as the prevalence of cholera among bipeds. Every sort of resource is had to counteract it. County conventions are held; Legislatures appoint commissioners to investigate the distemper and find out a remedy or a preventative; impracticable laws are demanded, and the whole agricultural community effervesces as to what is to be done for their safety. Suddenly the epidemic vanishes; the discussion as to the causes which produced it, filling newspapers and periodicals with a mass of speculation which not one person in a hundred ever reads, as suddenly comes to an end. All seem to be willing to let bygones be bygones and drop, *nem con.*, the all absorbing question.

In the common course of things we must expect to be visited by these epidemics. Horses, cattle, sheep and swine, according to their nature, will get sick and die, entailing a loss which all who own beasts must submit to. And when an epidemic assails them, it is useless to discuss whether it came from abroad or is indigenous, or where it originally appeared. The first consideration should be to study its diagnosis and apply a remedy. It must be remembered that there are losses and misfortunes in every business. Untoward circumstances cannot at all times be avoided or controlled.

Field Mulching.

Though this heading may look rather formidable it is really as simple as possible in carrying out. It is not a new suggestion now made for the first time in these columns, for it has been referred to repeatedly as a matter that is deserving of more attention than it generally receives. Even when first mentioned by us it was not an original idea, inasmuch as our attention was called to it while visiting one of the best conducted farms in a neighboring county. It is this: In removing the hay from the field, that portion

known as rakings should be allowed to remain for two reasons: One is that it will not pay for the labor in gathering 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. These rakings keep the roots cool and moist and will add largely to next year's yield of timothy or orchard grass as the case may be. Many first-class farmers pursue this method at all times, but there are so many who do not that we regard it as worth while to remind them of the advantages of it, and ask them to give it a trial.

Muck for Sandy Soils.

It is encouraging to see that in some portions of the Southern States, where they are tardy in adopting new methods of culture or hints leading to experiments, they are beginning to find out that muck hauled upon sandy soils acts almost as effectively as a dressing of manure, while it is far more lasting, and greatly adds to its productiveness. This, however, is no new discovery. We recommend it, as did correspondents, as long as thirty years ago, and pointed out instances in which muck was applied to sandy soils that had been attended with marked success. Even pure clay hauled upon very light soils and intermingled therewith by the simple operation of cultivation, has been followed by excellent results, the land increasing its crops fully one-half. Where clay or muck is as convenient of transportation as manure, there is no question that its application as here suggested, would prove of the most decided advantage. Even in gardens, where the soil has become exhausted by long continued cultivation, a dressing of clay is far better than a coat of the best manure. Coal ashes, when applied to very compact soil, acting in a reverse order, will cause it to be more friable, and in this way—which we believe to be the only way—are these ashes of any benefit.—*Germantown Telegraph.*

FARM AND GARDEN.

We find in the April number of the *Agricultural Review* an elaborate essay on free trade, written by a gentleman who hails from the State of Iowa, and who seems to labor under the delusion that the principal markets for the products of western agriculture is to be found in Europe, and this in face of the fact that our exports of cereals amount to less than ten per cent., while the home consumption is fully ninety per cent! In the course of his labored effort to prove this, he asserts and assumes as a fact that the Eastern States, meaning thereby the New England and Middle States, are very nearly self-sustaining with regard to food. Now, any such statement as this is simply based on ignorance. The State of New York is not only not self-sustaining, but depends upon the West for fully four-fifths of her breadstuffs, and more than half of the meat she consumes, while the case of New England is still stronger. Here, in Pennsylvania, we do, it is true, make a much better show than this, but our case is gradually becoming assimilated to that of New York, for the simple and obvious reason that the Western competition against us is absolutely overwhelming.

The Peach Prospects.

The tone of letters received within a few days from "peach centres" in Delaware and Maryland, is in the highest degree favorable for one of the largest yields of peaches ever grown. Everything will depend, however, upon the absence of sharp, damaging frosts from this time out. The only other fear now is that from the great superfluity of buds the trees may be so crowded as to interfere with the size, and as the thinning-out the fruit would be a herculean work where the plantations are extensive, it would probably not pay, and we believe it is seldom done. A farmer in the adjoining county of Montgomery told us the other day that he raised last year sixty bushels of as fine peaches, both in size and quality, as he saw during the whole of last year's past season, which he sold in the neighboring towns at a good price, thus bearing out what we have repeatedly said, that as good crops of peaches can be grown in Pennsylvania as any where else.

Horseshoeing at Exhibitions.

We desire again to call the attention of our agricultural societies proposing to hold exhibitions the ensuing autumn to the offering of a good, solid premium for the best horseshoeing. We are very certain that if our suggestions, presented some weeks ago, were to be carried out generally by our societies, it would exert a vast influence upon skillfulness in shoeing, and would secure the usefulness, if not save the lives, of thousands of horses every year. We are pleased to see that a number of our leading agricultural as well as other journals have endorsed our recommendation by publishing the article to which we allude, which was condensed as much as possible in order that it would save space, and thus induce its general publication. We refer to it again that it may not be overlooked in making up the lists of prizes which are now being prepared.

Tomatoes and Egg-Plants.

While tomato plants can be set out any time now, if they are protected at nights and whenever there may likely be a frost, the egg-plant should not be set out before the last week in May, and then should be protected during cool nights. They are one of the most difficult vegetables to grow, and require at all times particular care and attention. The space occupied by the roots being very small, they require the richest soil and heavy manuring from the barnyard. Both plants should be well mulched. To afford them certain protection, prepare boxes of rough half-inch boards, about ten inches wide at bottom and five or six inches at top, from twelve to fifteen inches high, made of four pieces, and open at top, as there need be no fear of the frost disturbing the plants through this aperture. With care in stowing them away in the dry when not needed, they will last fifteen to twenty years, and are a sure protection for any tender plants.

Clear Up and Cleanse Your Premises.

The warm weather is here, and it behooves every citizen to cleanse his premises of all offensive matter in order that they may become perfectly clean and healthy. There is no doubt at all that a great deal of the sickness visiting families proceeds from filthy

cellars, sinks, yards, outhouses, styes, etc. These things are neglected by many as are other duties from pure thoughtlessness, while others never dream of paying any attention to them, not thinking it worth while. There are several remedies for this bad, unhealthy condition of things that can be easily applied. The first is to put one pint of the liquor of chloride of zinc in one bucketful of water, and one pound of chloride of lime in another bucketful of water, add and sprinkle over decayed vegetable matter. For this purpose nothing surpasses it; indeed, it is a perfect deodorizer. The second is to take four pounds of sulphate of iron or copperas and dissolve it in a bucketful of water. This will in most cases prove a sure remedy in destroying all offensive odors. The third is to take simple chloride of lime and sprinkle in damp cellars, over outside heaps of filth, dirty yards, &c. Before this, however, is done, let there be a general cleaning up, removal of everything offensive or nasty, to a place whence no harm can arise. These chemicals can be purchased at the druggists, and as prices go are not dear.

The labor of cleansing one's premises by either one of these remedies is trifling, and the expense is not worth mentioning. If it were ten times greater, both the labor and expense should be willingly incurred. But perhaps the best procedure is to cleanse your cellars, yards, outhouses, styes, &c., systematically. Especially should the cellars, sinks, and everything about the house be kept free of all offensiveness at all times. Cellars should be thoroughly cleaned out twice a year and whitewashed once. Sinks about kitchens should be particularly attended to by once a week pouring into the pipes a quantity of boiling water. Privies can be rendered completely inoffensive by the application of fresh earth from time to time.

Protect the Partridges.

There was a meeting of horticulturists held some time since in the West, at which the question of preserving partridges upon our farms and in our gardens to destroy insects and vermin generally was presented and facts given to show that they are very destructive during the growing seasons of the enemies of our plants, flowers, fruits and grain. One speaker said that in view of these services the partridge ought to be protected against the hunter, and the farmer and his boys as well; that no bird is more harmless and none more useful; that to shoot or to trap it for stewing, broiling or making potpies, was very much to be deplored and should be prevented if possible; and that it was the only bird that remained with us through the winter, after being deserted by all others. But this is easier said than done. Human nature, we are a little apprehensive, will need a trifle of change and educating before this partridge millennium arrives.

To show, however, how useful this beautiful and harmless domestic bird is, it was at the same time stated that a flock of partridges were seen running along the rows of corn just sprouting, and seeing them engaged at something which was believed to be pulling up the young plants, one of them was killed and its "crop" examined, which was found to contain one cutworm, 21 striped bugs, and over

100 chinch bugs! Another related that he had adopted measures to protect the bird, and that they had become so numerous and so tame that hundreds of them, after falls of snow, could be seen in his barnyard with the owls where they were fed. As a result of their presence upon the premises, his wheat crops were usually abundant, while in many other places not far off the chinch bug and other insects had destroyed the crop.

This suggestion is worthy the consideration of farmers, and if practicable it ought to be adopted. Of course, when the birds had greatly multiplied there could be no objection in trapping some of them for domestic consumption, or they might get too numerous to be altogether advantageous. — *Germanstown Telegraph.*

OUR LOCAL ORGANIZATIONS.

THE AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular monthly meeting of the Lancaster County Agricultural Society was held on Monday afternoon, May 7, 1883.

The following members and visitors were present: J. M. Johnston, C. A. Gast, F. R. Diffenderfer, S. P. Eaby, city; Lem. S. Fry, Ephrata; Levi S. Reist, Manheim; Harry G. Rush, West Willow; Calvin Cooper, Bird in-Hand; M. D. Kendig, Creswell; E. S. Hoover, Manheim; C. L. Hunsecker, Manheim; Johnson Miller, Warwick; J. H. Moore, West Hempfield.

In the absence of the regular Secretary, M. D. Kendig was temporarily elected to fill his place.

The minutes of the Secretary not being present, they could not be read.

On motion, William Bones, of Safe Harbor, was elected a member of the society.

Calvin Cooper, as one of a committee named to inquire into the expediency of holding a fair, reported that the committee had agreed it would not be advisable to do so in case the State Agricultural Society held its annual fair here. Since then he has learned the State Society will hold its fair in Philadelphia. Mr. Cooper also stated that he had since spoken to the owner of the Park grounds, Mr. McGrann, who offered to give the grounds to the Society at a very moderate price. Several parties from Ohio have tried to secure these grounds for exhibition, but the home Society has the preference.

On motion, the report of the committee was accepted and the committee discharged from the further consideration of the subject.

On motion of Calvin Cooper a special meeting of the society will be called by the Secretary on next Monday at 2 o'clock sharp, for the special purpose of deciding whether a fair shall be held. All the active members of the Society are requested to be present.

Crop Reports.

L. S. Reist, of Manheim, reported the prospect for fruit very good. Grass was never better at this season. Wheat is about as good as last year; the outlook is promising.

Calvin Cooper endorsed all Mr. Reist said. He never saw the prospect more propitious.

Lemuel S. Fry has seen a good deal of the north-eastern section and has never seen the grass better. Wheat is very even and almost uniformly good. The fruit prospect is very fine. Some peach trees in the neighborhood of Ephrata have died without ostensible cause. The late frosts have done no harm. The dying of them was stated to be the result of the cold weather of two years ago.

The President stated grass to be very good. The wheat quite as good as last year. Some of the early strawberry blossoms are frozen. Corn is planted only in small part. The promise of a fine fruit and grain season at the present time is excellent.

M. D. Kendig reported there is still 30 per cent. of last year's tobacco crop unsold. Fleas have destroyed some plant beds. The plants are not large, but well set. There are still many fat cattle standing in the farmers' stalls unsold. Farmers do not like the prices. The rain fall for April was 2 1/5 inches.

E. S. Hoover also said the tobacco fleas were in the tobacco beds. Some of the fruit trees are not blooming so freely as sometimes, but all in all the promise of good crops, both of fruit and grain, is very good.

Is There a Feasible Way to Avoid Boarding Farm Hands?

Calvin Cooper believed every laboring man will be the better by boarding with his own family. Farmers should provide their permanent help with houses. They should give him ground to grow the vegetables he requires. Sell him ground if he wants to buy it. This will make men better citizens and better employes. Such men as have homes he has found to be the best laborers. It is as easy to board at their own homes as with the farmers.

Mr. Kendig said that the trouble was with the single hands. Where shall they board? Then, too, when a man lives at a distance from his work, that would be an inconvenience. He preferred to have the day laborers at the table with him, so that no time is lost. Mr. Cooper's views are better in theory than in practice.

Lem. S. Fry agreed with Mr. Cooper in his principal reasoning. Permanent help can be boarded at home, but when the laborer lives a mile away, how is it possible to render a satisfactory amount of work? For this reason it does not seem feasible at all times to have help board at their own homes. Mr. Cooper's plan is feasible in certain cases, and always desirable.

The President held it was desirable that farm hands should board themselves, but somewhat inconvenient. The farmer can board a man more cheaply than he can board himself. Tenants are not so profitable as outside help; that at least has been his experience. He believed Mr. Cooper's plan would improve the condition of a good many farm laborers, but it would hardly prove profitable to farmers.

E. S. Hoover thought much was to be said on both sides of this question. If permanent labor can be secured for the entire year, it is desirable that it should be. If the man lives on the farmer's premises, he has more of an interest in the farmer's welfare. He is also more apt to be steady in his devotion to duty. Single men are more apt to be careless and unreliable. Expenses are apt to be higher in the case of a man who lives in the tenant house. The farmer, on the whole, can get his labor a little cheaper when he has no tenant laborers.

It was stated that a farmer can board his farm hands at an average of about thirty cents per day. It was also said help could be hired at \$1.10, when they were boarded, and at from \$1.25 to \$1.40 when they boarded themselves.

Miscellaneous.

The question referred to Mr. Paxson several meetings ago was, in the absence of that gentleman, again continued.

C. L. Hunsecker read a short essay on profits in farming, quoting the money made out of special crops. Trucking, peanut growing, apple farming, peach raising and a number of other special pursuits were instanced and the profits stated, to prove that a great deal of money can be made out of careful and methodical culture and cultivation. He asked also why this society dragged along in such a half-hearted way. In Berks county, a county in more than one particular behind our own, they have a most flourishing agricultural society. What can be done to improve this state of affairs?

The chairman, on a suggestion, nominated Messrs. Cooper, Hoover and Miller a committee to prepare questions for discussion at each meeting of the society.

Some very fine seed corn was exhibited from the farm of Mr. S. S. Spencer. The grains were fully an

inch long and some even longer. It suggests very large yields.

Questions for Discussion.

What is the best means of conveying water from wells for house, barn and irrigating purposes? Referred to M. D. Kendig.

What agricultural product is the most remunerative? Referred to H. M. Engle.

Is the cord binder adapted to the wants of the Lancaster county farms? Referred to J. C. Litville.

On motion, the society adjourned.

THE POULTRY ASSOCIATION.

In the absence of the president the regular meeting of the Lancaster Poultry Association was called to order by Jacob B. Long.

The following were present: J. B. Lichty, J. B. Long, H. A. Schroyer, J. E. Schum, F. R. Diffenderfer, Charles Lippold, C. A. Gast, J. M. Johnston, J. Schmidt, city; S. G. Engle, Marletta; J. A. Stoher, Shoeneck, J. L. Brunner, Mount Joy; John E. Denlinger and H. M. Stauffer, Bareville; John Seldomridge, Ephrata.

The minutes of the preceding meeting were read and approved.

The secretary reported that an application for a charter for the association had been applied for and held under advisement by the Court.

The by-laws of the association were read and adopted by sections.

Mr. Long reported that sixty-three shares of stock had been subscribed for, and fifty-one shares paid. Premiums paid amounted to \$104.50; out of a total amount of \$142.50; bills to the amount of \$130.09 had also been paid; leaving premiums to the amount of \$28, and bills aggregating \$74.50, unpaid.

On motion of Mr. Long, those who had subscribed for stock and not paid for the same, were requested to pay for their stock by next meeting.

John E. Denlinger and H. M. Stauffer, of Bareville, were elected to membership in the society.

Adjourned

OCTORARO FARMERS.

The April meeting of the Octoraro Farmers' Club was held at the residence of Wm. Jackson on April 21st. The following members were in attendance: William Wood, Theodore Whitson, Alison Baker, Daniel Webster, Thomas Baker, Samuel Whitson, J. C. Brosius, Alfred Brinton, William Jackson, Asahel Moore, William Moore and H. Brinton. Visitors: George Walter, Levi Scarlet, Dr. Pownall and Iven Gilbert. The minutes of the previous meeting were read and adopted. Farm specimens being called for, William Jackson exhibited some seed corn and a basket of very fine Peerless potatoes, and Levi Scarlet some potatoes of Mammoth Pearl and Beauty of Hebron varieties.

Afternoon Session.

After partaking of dinner the stock and buildings were inspected, and things were found generally in good repair. The stock consisted mainly of dairy cows, and among them were some very good ones. Upon returning to the house, George Walters, who formerly owned the place, gave his experience from the result of liming for the past twenty-five years. Having cleared a large portion of the place himself, it has since frequently had liberal applications of lime, except a portion of one or two acres that has never, within his recollection, had any lime whatever, it having been left without lime as an experiment. The land was all treated alike, with the exception of liming. The result is that to-day no perceptible difference can be seen in any of the crops, on the two pieces, side by side. He thus concludes that many hundreds of dollars were wasted, and labor in proportion on the erroneous idea that lime was beneficial to the farmer in the way of increasing his crops and making the soil more fertile. He thinks the idea originated from the fact that those who generally made a practice of using lime on their land were mostly careful farmers, who cultivated their crops thoroughly and made considerable barn-

yard manure, applying it in a manner that secured good results, thus leading many to credit the good crops more to liming than their otherwise good farming. Some remarks having been made on the wheat field of the host, one-half being much better than the rest, he explained the difference to be caused by drilling fertilizer with the wheat on the part that was best, and on the rest it was sown broadcast previous to drilling—the result, so far, having been much in favor of drilling with the wheat. Members of the club then read their farm reports for the past year, giving the number of acres in grain, with the yield and average bushels per acre, as follows:

	Wheat.		Corn.		Oats.	
	Ac.	Bus.	Ac.	Bus.	Ac.	Bus.
D. Webster.....	10	31	17	65	14	30
T. Baker.....	13	28	14	67	10	36
W. N. Wood.....	14	32	15	60	8	22
T. Whitson.....	19	29	10	70	5	29
Wm. Jackson.....	15	30	15	83	15	28
Asahel Moore.....	11	22	9	57	13	26
Alison Baker.....	14	18	10	52	5	21
J. Jackson.....	17	34	12 $\frac{1}{2}$	74	10 $\frac{1}{4}$	32
Wm. Moore.....	13	26	10 $\frac{1}{2}$	50	10 $\frac{1}{2}$	32
Dr. Brosius.....	10	36	13	42	10 $\frac{1}{2}$	30
S. Whitson.....	22	34 $\frac{1}{2}$	22	65	13	29
A. Brinton.....	10 $\frac{1}{2}$	24	10	72	8 $\frac{1}{2}$	39
H. Brinton.....	10	20	12	40	12 $\frac{1}{2}$	30
Total acreage and average						
1882.....	179 $\frac{1}{2}$	281 $\frac{1}{2}$	170	62	135 $\frac{1}{4}$	30
Compared with last year, 1881.	183	18	163	36 $\frac{1}{2}$	103	34 $\frac{1}{2}$

Other items were mentioned in the reports, including potatoes, tobacco, (though the latter has not been encouraged by the members in general, and but two have made a business of growing it to any extent) dairy products, hogs, sheep, fat cattle, poultry, etc. A few

Items Worthy of Note

were the profits from the dairy of one who averages \$109 for each cow. This included butter sold, calves, and value of pigs fed on the milk. Another item reported was that of a yield of five hundred bushels of salable potatoes, raised on one and a half acres of ground, sold at an average of sixty-five cents per bushel. The host read a practical essay on the construction of plows and plowing, recommending in their structure short beams and longer handles than are now in common use, so as to give the ploughman greater power in steadying the plow and being able to gauge the depth and width of the furrow with greater ease, discountenancing the use of the jointer, on the ground that it threw the surface too much in one place in the bottom of the furrow, instead of turning it on its edge, as the plows did previous to the jointer's introduction. Two instances were cited of a perceptible difference in wheat where the ground was ploughed, using the jointer for part of the field, the wheat being best where it was not used.

A Discussion.

Anna Baker read a selection entitled "The Teacher's Dream," after which the question discussed was, "Is it advisable for farmers to engage in the cultivation of special crops, such as tobacco, potatoes, etc.?" It was thought best to not discard any regular crop and devote too much time and labor to any specialty, owing to the liability of failure and sometimes poor market for farm products, which happen with all at times. A safer plan was to have variety; then, in case of the failure of one, there would be others in reserve that could be depended on. The next question was as to whether it would pay farmers to procure combined reapers and binders for their own use the coming harvest. A few encouraged it, to those having a large acreage of wheat to harvest, in view of the difficulty of procuring good harvest hands who would do the work as well and rapidly as it can be done with a binder; but most objected to them, owing to their cost, the amount of room they require for shelter the greater part of the year, being impracticable for harvesting oats. The question was also asked—"would it be profitable to feed cows while pasturing?" Most of those present thought it would pay to feed them a little, particularly if the pasture becomes short or scant. The following books were received and distributed by the corresponding secretary: Agricultural Department report "The Grange, its origin,

progress and educational purposes;" report upon the number and value of farm animals, etc.; "Climate, soil and agricultural capabilities of South Carolina and Georgia;" report on the distribution and consumption of corn and wheat, and the rates of transportation of farm products; compendium of the tenth census of the United States, in two volumes.

Adjourned to meet at Theodore Whitson's at the usual time in May.

THE TUCQUAN CLUB.

The Tucquan club a social and scientific organization, which has been in existence for several years, recently resolved to hold annual banquets. The first was given Friday evening, April 20, and was a great success in every respect. The club consists of twenty six members all of whom were present except two who were absent by reason of ill health. The supper was served in Mr. Wise's best style, the viands being choice and wines generous. Toasts and speeches, witty sayings and interesting anecdotes kept the company in good humor until midnight, when the party broke up.

Following is the roll of the Tucquaners:

President, Dr. S. S. Rathvon; Vice President, Lewis Haldy; Secretary, Maj. A. C. Reinohl; Wm. L. Gill, J. B. Warfel, Dr. J. P. Wickersham, T. B. Cochran, E. J. Zahn, H. R. Breneman, George B. Wilson, Capt. W. D. Stauffer, John B. Roth, Alderman A. K. Spurrier, Hiram Stamm, A. H. Fritchey, Sam. Matt. Fridy, H. C. Demuth, Wm. A. Wilson, J. B. Kevinski, G. M. Zahm, Philip D. Baker, John H. Baumgardner and Dr. M. L. Herr. Dr. Engle, of Chester county, was present as an invited guest.

LINNÆAN SOCIETY.

The Linnæan Society met on Saturday, April 28th, at 2 P. M., in their Museum-rooms, in Y. M. C. A. building, the President, J. P. Wickersham, in the chair, and seven members in attendance. The minutes of the previous meeting were read and approved, and dues collected.

The donations to the museum consisted of about fifty specimens of gold, silver, lead, iron bearing minerals from the Eureka mines in Nevada, and also a small box of gold bearing sand from the same locality, donated by Mrs. L. V. Rawlins, formerly of Lancaster, but now residing at Grand Island, Nebraska. These minerals yield \$500 worth of precious metals to the ton, and the mines are said to be the most productive on the Pacific slope. Also, a number of dried botanical specimens donated by the same, Mr. George Flick, taxidermist, of this city, donated a cranium of the deer (*Cervus Virginianus*), five bird craniums and the vertebra of an unknown animal, all nicely prepared. Specimens of *Corydalis flavula*, Raf., found in Lancaster county, and *Anemone Patens*, var. *Nuttalliana*, Lin, donated by Prof. J. S. Stahr. Dr. S. R. Baker donated a specimen of terra cotta lumber, a new preparation which is being used instead of wood in buildings. It can be sawed and planed like ordinary wood.

The donations to the library consisted of Nos. 5 and 9 of vol. 1 of Science, published weekly at Cambridge, Mass., by Moses King. *Lancaster Farmer* for April, 1883. Two numbers of Lippincott's Monthly Bulletin. Circular No. 4. 1882, of Bureau of Education, on subject of "Planting Trees in School grounds," from Department of Interior. Three catalogues and four circulars relating to rare and valuable books and publications. Patent Office Gazette, Vol. xxiii., Nos 1 to 17 inclusive. Annual Report of Commissioner of Patents for 1881, *The American Antiquarian*, for January, 1883, and *The Interchange* for April 1883.

Dr. S. S. Rathvon read a highly interesting and valuable paper on "What is an Insect?" This paper was ordered to be published. The committee appointed to revise the by-laws reported progress, and on motion were continued to next meeting. The thanks of the society were, on motion, tendered to the donors to both museum and library. The presi-

dent then made a few remarks in reference to an address on Objects of the Society, and said that he would be prepared to deliver one some time during the fall. After a chat on various scientific subjects the society adjourned to meet on Saturday, May 26, 1883, at 2 P. M. in Museum.

AGRICULTURE.

Potato Growing.

If a potato is planted very shallow, or if the soil gets washed off so that there is but little space between the planted potato and the surface of the ground, it will be seen that the new tubes may have little or no soil to protect them from the strong sunlight in which case they also will take on the green color of the stalks and leaves, and become worthless for table use. A good potato must be grown beneath the surface; and it is entirely contrary to its nature to form below the level of the bud from which it starts. Roots incline to extend downwards into the soil as well as horizontally, but the underground stems or root-sticks, which will swell and enlarge at their terminal bud into the esculent, starchy potato, do not work downward to any considerable degree. The lesson to be learned from this fact is, that if we desire a full crop of good eatable potatoes we must by deep planting or subsequent "hilling up" (or by mulching) give the new tubers plenty of room to form and to grow under the surface, and the hills must be broad enough to contain the potatoes without danger from exposure of the ends through the sides of the hill.

The Supremacy of Grass.

The great arable crop of the country is maize, worth three-fourths of a billion last year, but the value of grass was very much greater. That portion which is cured for winter use is small compared with what is gathered by the farm animals themselves, in summer, and in every season of the rolling year. It is not the grass farm in England that fails to rent, but the arable rain and turnip lands on which the pinch of competition falls soonest and hardest. Illinois has mainly gone to grass, except about a fourth of the area given up to corn, and prospers in proportion to the extent of verdure. Iowa is fast following the example, and is reaping the reward of this stroke of rural economy. Southern Wisconsin and Southern Minnesota are rapidly extending mowing and pasturage, and enlarging flocks and herds, and establishing butter and cheese factories. The South is beginning to think better of grass; there is a field for enterprise in dairying and meat production on the Alleghanian plateaus and slopes which will one day make the fortunes of multitudes. Land can be had at nominal rates, capable of growing clover and orchard grass, in a climate healthful and comfortable as any in the United States, where a near market for butter and cheese at high prices could be enjoyed until competition should equalize the superior advantage.

A Good Way to Cultivate a Small Patch of Potatoes.

Last Spring I planted some Early Ohio and Magnum Bonum potatoes, covering them from four to six inches with soil. When the weeds began to sprout I took a garden rake and raked over every hill, taking off an inch or more of the covering. This operation killed the young weeds coming up in the hills. I then took my shovel plow, cultivating the patch as if the potatoes had been up, (the raking enabling me to see where the hills were.) As soon as the potatoes were up so as to show the rows I plowed them again, repeating the operation every week until the potatoes were on the eve of putting forth buds, when, with a good hoeing (hilling but a little) I laid them by.

And now for the result: I never had as little trouble with weeds, because they didn't get a chance to get a "foothold," and I never harvested so good a

crop of nice early potatoes. Taking courage from the thrifty growth my potatoes made I treated my late potatoes in the same way, and the result was equally satisfactory.

Tobacco Prevents Scab.

A correspondent of the New York *World* says: "I do not pretend to say what causes scabby potatoes, but some of my neighbors vouch for the effectiveness of refuse tobacco as a remedy. Their plan is to cut up the refuse stems and stalks of tobacco quite fine in an ordinary straw cutter and apply a handful to each hill of potatoes at the time of planting. This simple remedy appears to have done good by destroying the grubs of parasites, or whatever is the cause of the scab. It also acts as a good fertilizer."

A New Cereal.

An exchange says: A new cereal has been introduced by a gentleman of South Carolina, a description of which may interest our readers. Millomaize is a native of the Southern hemisphere, being found in large quantities in Columbia, where it is used as a common food of the working people and the grain is fed to working animals. In food qualities it is said to be superior to wheat, and experiments show that fifty to one hundred bushels of clean seed can be raised to the acre. Rev. R. H. Pratt, formerly a missionary in South America, the gentleman who introduced the grain and who has raised it successfully for some years in South Carolina, says the millomaize is allied to the sorghum and Guinea corn families, and should not be planted where there is any danger of mixing them. The grain is small, and more mealy than the Guinea corn families, heads are larger and more compact, and the color is milk white instead of red. It differs from sorghum in this, that the sugar it contains is fully converted into corn when the grain matures—so that the pith of the grainstalks becomes as dry and tasteless as that of Indian corn when the stalk is dead. In Barranquilla, on the coast, where we have a dry season (which is really a drought) of five or six months' continuance, I have had it planted in my garden, and after it had ripened one crop of seed I have cut it down to the roots in the midst of this dry season and had a second crop, of inferior quality, of course, to shoot up at once from the roots. I have been told that a third crop of fully ripened seed can thus be obtained from a single plant. I do not know what this can imply (for the soil at this season gets as dry as a potsherd, and nearly as hard) unless it means that, above most other plants, this lives off the atmosphere which there, certainly, is densely charged with moisture from the sea. It was this unlimited capacity to stand drought which induced me to bring the seed home, in the belief that it would be of incalculable service to our Southern States, where our crop so often fails from drought.

HORTICULTURE.

Strawberries

Any good corn land will raise good strawberries, provided you use well rotted manure and keep the plants well mulched with leaves or cut straw. Set plants in rows, two feet apart, and twenty inches in the row. They should be set out as early in the spring as possible in order to give the plants a good start before hot weather. They should not be allowed to bear the first year. If you set only one kind, use Wilson's Albany.

Currants.

Cuttings from the best varieties should be set out this month in rows two and one-half feet apart, and five inches in the row. In two years they will commence bearing. Every farmer should have a large supply of currant bushes, for, with proper cultivation, they will yield large quantities of fruit that can be marketed in even the small towns, as very few

towns are fully supplied at the present. As soon as the bushes are large enough to bear, mulch with coal ashes; it will keep the weeds down, and keep the ground cool and moist.

Grapes.

Set out vines on high land where they can have plenty of sun, and be out of the reach of early frosts. Do not use stable manure, but enrich the land with wood ashes, or ground bone. Cuttings can now be set out for next season's planting; leave one bud above the ground, and press the earth firmly around the cuttings. The Concord is the best variety for general cultivation.

Raspberries and Blackberries

Should be set out as soon as the ground is dry. The last two years' crop of berries in New England was very poor, and it will pay the farmer to raise a large quantity for market during the next few years. Set raspberries four feet each way, and blackberries six feet each way. Apply heavy mulch to last year's growth and tie up to stakes.—*Farmers' Companion.*

Grafting old Trees.

In selecting old apple and pear trees for the purpose of grafting, care should be exercised to take only those that *retain their foliage late in the autumn.* This will insure the growing of the graft sufficiently long to firmly establish it and cause it to remain unaffected through the winter. In every instance that we have tried to raise fruit grafts on old trees which shed their leaves early, we have failed. They would grow for a few years, bear a few specimens and then die.

In grafting old trees, boughs six inches in diameter can be used. But such boughs only should be selected as have a smooth bark. Say it at an angle so that all moisture will run off; split the bark down an inch and a half; sharpen the graft from one side only; let the slant be the full length of the slit of the bark; raise the bark carefully and set the graft with the cut side next to the wood; then tie up with a cotton string and wax so that neither air nor water can penetrate. The waxing should be examined in a few weeks to supply any defects, etc. Let an inch or two of bark remain, uninjured, between the grafts as they are set round the stump. When the stem is not over two inches in diameter, four grafts can be set by splitting down the stem the usual way twice. If all grow, and are two many, cut out the two less promising ones. With care, every apple or pear graft ought to grow, and never less than nine out of ten.

An Immense Peach Crop Promised.

At no time since the Delaware and Maryland peninsula has been a fruit-growing section has the prospect for the peach crop been better than now. The buds are just bursting into pink blossoms, and there is now little or no danger from frost. Competent judges who have been visiting the orchards say that there will be a million baskets more shipped this year than last. This will be the largest yield ever known, with the single exception of the phenomenal crop of 1875, when so many peaches were shipped that the markets were glutted for several weeks. The growers will probably adopt the suggestion of the Philadelphia Produce Exchange—to sell the baskets with the fruit, and thus avoid the vexatious necessity of the return of "empties."

A Good Weeder.

Get your blacksmith to cut out a piece of plow steel three inches wide and six inches long for the blade. By drilling two holes in the center he can fasten on the shank for the handle, which should be forked and provided with a socket for the insertion of the handle, and should be set at an angle of forty-five degrees to the plane of the blade. The two long edges should be drawn thin and sharpened. You have now one of the most effective weeding hoes

ever invented, and it is not patented. It has a double edge, and can be worked equally well by pulling or pushing. It passes along just under or on the surface, and effectually cuts off every weed between the young plants in the row without too much disturbance of the surface. It is not intended as a cultivator, of course, but as a weeder is hard to beat.

HOUSEHOLD RECIPES.

HAM.—To boil a ham, scrape and wash carefully in plenty of cold water. Put it to cook in boiling water enough to cover it entirely, hock end up; let it remain on the front of the stove till the ham begins to boil; then put it back, and let it simmer steadily for three hours. Take it off the fire and let the ham remain in the water it is boiled in till cool enough to handle; then skin it, put in a baking pan and sprinkle with about three ounces of brown sugar run your pan into a hot oven and let it remain a half hour, or until the sugar has formed a brown crust. This not only improves the flavor of the ham but preserves its juices.

AN EXCELLENT WAY TO COOK A DUCK.—Is to first parboil it; then take a small dripping-pan, or even a sauce-pan will answer if it is deep enough; line pan with small slices of bacon; put in a little water with which to baste the duck. When the duck is tender and brown remove it to a hot platter; make a thick gravy, using for foundation the gravy in the pan, just taking out the bits of bacon; these may be placed around the duck on the platter. To the thick gravy when nearly done you may add canned mushrooms or green peas. Pour the gravy around the duck also. With this should be served mashed potatoes, turnips, onions boiled or cut in thin slices and fried brown in butter and lard. Currant jelly or cranberries cannot be spared.

A NOVELTY IN CAKE.—Bake a loaf of white cake or of corn starch cake; have the loaf when baked about three inches deep. When done and cold, put on the top of the loaf pieces of orange; these should be cut in the size of a caramel. Put them on as close together as possible, and have them smooth or even if you can. Then cover the cake, orange and all, with frosting. If cornstarch cake is made, follow this rule: One cup of flour, one cup of cornstarch, one heaping cup of white sugar, half a cup of butter beaten with the sugar until it is as light as cream, one large teaspoonful of baking powder and the whites of four eggs beaten to a stiff froth and put in last; a large half cup of sweet milk should be stirred in with the butter and sugar after they are well beaten. This cake does not keep well, and should be eaten while fresh. A nice white cake to be covered with orange is made by using the whites of five eggs, one cup of milk, half a cup of butter, one teaspoonful of baking powder, one cup and a half of sugar and about three cups of flour.

"FAVORITE" PUDDING is made by beating three eggs very light, the whites and yolks together; flavor with the juice and grated rind of a lemon and a half a teaspoonful of grated bread crumbs, one cup of finely chopped apple, one cup of English currants and one and a-half cups of sugar; stir these vigorously till well mixed, then put in a buttered pudding dish and boil for at least two hours and a half. Serve with any good sauce, or with cream and sugar alone, or cream and sugar with a wineglass of sherry stirred in.

POTATO SOUP.—A quart of milk, six large potatoes, one stalk of celery, an onion and a tablespoonful of butter. Put milk to boil with onion and celery. Pare potatoes and boil thirty minutes. Turn off the water and mash fine and light. Add the boiling milk and the butter, and pepper and salt to taste. Rub through a strainer, and serve immediately. A cupful of whipped cream, added when in the tureen is a great improvement. This soup must not be allowed to stand, even if kept hot. Served as soon as ready, it is excellent.

CHICKEN FRITTERS.—Cut cold roasted or boiled chicken in small pieces, and place in an earthen dish. Season well with salt, pepper and the juice of a fresh lemon. Let the meat stand one hour: then make a fritter batter, and stir the pieces into it. Drop, by the spoonful, into boiling fat, and fry till a light brown. Drain and serve immediately. Any kind of cold meat, if tender, can be used in this way.

STUFFED POTATOES.—After the potatoes are well washed, bake them until soft. Cut a piece from the top of each potato, and scoop out the soft pulp with a spoon, taking care not to break the skins. Mash the pulp well through a colander, season with salt, and mash with it plenty of butter. Return the mixture to the cases and brown the tips with a salamander or red hot shovel.

INDIAN PUDDING.—Take four eggs, and the weight of three of them in meal, half a pound of sugar and a quarter of a pound of butter, and the juice and grated rind of one lemon. Beat the sugar and butter together till light, then break the eggs in the dish with them and beat briskly; then stir in the meal. Bake in a quick oven; serve in saucers, and pour over it some thin jelly or jam, or fruit sauce.

WATKIN WYNN'S PUDDING.—Quarter of a pound of raisins stoned and opened and laid round a basin or mold, half a pound of suet, half pound of bread crumbs, quarter of a pound of brown sugar, two tablespoonfuls of flour, two eggs, a little candied peel and a glassful of melted currant and raspberry jelly. This pudding can be served with the following sauce: Juice of two large lemons, quarter of a pound of sugar simmered and poured over warm; the lemon peel cut and used to decorate the pudding.

PUFF PUDDING.—Soak over night one cupful of pearl barley in one quart of milk. In the morning put it in a farina kettle, and let it come to a boil; then sweeten it to taste and add the beaten yolks of five eggs, a little salt and one tablespoonful of vanilla or lemon, and bake, but not very long. Take it from the oven and whip the whites of the five eggs very stiff and stir them through the pudding. Eat when about half cold; no sauce required.

GRAHAM GEMS.—One and one-half cups of any milk that is not very sour, one-third cup of sugar, one and one-half teaspoonfuls of soda, thicken with good Graham meal a little thicker than Graham griddle cakes.

CREAM COOKIES.—One and one-half cupfuls of thick sour cream, one and one-half cupfuls white sugar, one egg, one teaspoonful each of salt, saleratus and caraway seed. Mix soft, and roll a little thicker than usual for cookies.

ENGLISH POUND CAKE.—One pound of butter, one pound of sugar, one pound of flour, twelve eggs, one pound of raisins, three pounds of currants, half a pound of citrou, half a pound of almonds and a gill of brandy. Bake like Palmetto cake.

LIVE STOCK.

Raising Calves.

If I wish to raise a calf dropped in winter I let it lie with the cow one or two days and let it suck as much and as often as it pleases, unless the cow's udder is caked. I then milk all I can before the calf sucks. After the first two days I take the calf away and let it go to its mother only twice a day until a week or ten days old, then let him go without one feed so as to be pretty hungry, then put my fingers in the warm milk and put them in his mouth, at the same time bearing his nose down into the warm milk in the pail, and so soon as he gets sucking well slip the fingers from the mouth and let the calf drink, if he will, a few swallows; if not, repeat the operation two or three times until he gets a good taste of the milk; then leave him until the next feeding time, and then try him in the same way, and if he will not drink let him go until he will. Few will go beyond the third time trying. I seldom have one which will not drink some the second time. When they get so

they will drink it, it is a good plan not to give a full mess for two or three days, but let them be rather hungry at each time of feeding until they get the habit of drinking well formed. As soon as this is done, place a trough or dish with some meal in it in such a situation that they cannot turn it over. Nail it up against the side of the stall or pen in which the calf is kept, but convenient to get at, and let him eat all he will, which will not be very much. Place a little hay so he can get it; either rowen or early-cut herdgrass is best. The best meal for a young calf is a mixture of oats and corn, ground in the cob, two bushels of the former to one of the latter. At four weeks skimmed milk, slightly warmed, may be substituted for new milk, but for awhile should not be allowed to stand until it gets very sour. After eight weeks they may be fed and will do well, if given a fair allowance of meal, upon milk that is ever so old and sour.—*N. H. Mirror.*

Competition Against American Cattle.

No little anxiety has been felt regarding the enterprise shown by English subjects in stocking and improving the cattle of distant English colonies. The reported organization of companies, with large capital, for the purpose of bringing frozen meat from the distant colonies to English markets naturally gave rise to the belief that meats would be cheapened—reduced even below what it could be produced for, profitably, on our cheap western lands. That the cattle reared in the English colonies are owned by British subjects, opens no avenue to the cheapening of meats to English consumers, for the English colonist is after the same honest penny of the consumer that the western ranch man is striving to obtain. The man who has his cattle under the best conditions as to climate, etc., has access to the best feed and water, and is nearest to the consumer, will most easily and surely get the penny.

The problem of meat shipment is yet in its infancy; but no matter what mode eventually proves to be the best for shipping, whether entirely in the dressed form or not, that point of production nearest to the consumer, all other things being equal, will have an advantage that no influence can efface, nor time alter. That English capitalists are aware of this fact, we have ample evidence, seen in the large investments being made by foreign capital in our own territories. The growing of meat for sale in a country whose climate is favorable to a free consumption of meat, must naturally be more profitable than where the opposite fact holds.—*National Live Stock Journal.*

Growing Market Lambs.

In growing market lambs, says the *National Live Stock Journal*, the feeder should remember that the lamb must be sustained on the food eaten by its dam, and she must eat enough for two. This consideration shows that her food must be liberal and of good quality. The lamb should increase in weight at least one-half pound per day if growing for market, and this alone requires a fair ration to produce, and therefore the feeder must deal with ewes suckling lambs with a liberal hand. The ewe must produce a profitable fleece besides growing her lamb and keeping up her own flesh. We have produced most satisfactory results in feeding suckling ewes upon the following combined ration: Ten bushels of oats, nine bushels of corn, with one bushel of flaxseed, all ground together in fine meal, and then mixed, and the time of feeding, with one-half wheat middlings. Each ewe had of this one and one-half pounds per day, with about the same weight of fine-cut hay. This was all eaten clean. But the hay is not necessary; equal gain can be made on straw, but in that case the ewe should have two pounds of such a ground ration on straw, and if the straw is cut short all the better. A good shelter is supposed in this case, else such growth on lambs as we have mentioned cannot be made on such a ration, nor perhaps on any ration, in cold weather. This small amount of flaxseed has a remarkable effect in modifying the heating quality of corn. It keeps the bowels in a healthy active condition and prevents all danger of gargle in the ewe.

Carp in Oregon.

Recently 1,500 young carp, sent out by Professor Baird, were received. There were forty-eight applicants from this State for them. They are three inches in length, and are said to be in very good condition after their long trip. As a desirable addition to our splendid supply of fish, they have not a very high reputation in this State. The following clipping, taken from the *Oregonian*, echoes the general opinion among fish growers: The young carp sent out here from the fish commission have all been distributed and reports have been received of many lots reaching their destination in safety. Mr. W. S. Ladd, yesterday, placed a number of them in a pond on his property on the East Side. Captain Harlow, who has ponds at Troutdale, on the Sandy, has had them stocked with carp for several years, and now has thousands of young fish to dispose of. He feels aggrieved that after all his expenditure and trouble the Government should send fish here to give away. The carp is no doubt a fast growing and long-lived fish, and is well adapted for stocking sloughs and stagnant ponds, and may be good enough eating to one raised on Mississippi catfish or Georgia rock-heads, but to those who have been accustomed to the Oregon trout and Columbia river salmon, these garbage eating cousins of suckers can never be acceptable. Tons of fish, equal in every respect to the carp, are caught by Chinamen every week in the river here, and sold in the Chinese quarter, where they are readily purchased. No white man ever thinks of eating them.—*American Field.*

Care of Goslings.

After the first few days regime of chopped eggs and nettles, young goslings may be given a mixture of potatoes, meal, and green vegetables cut up very finely, the nettle, however, suits them better than any other green food, as the juice of that plant seems especially favorable to their digestion, which is so rapid that young geese must be fed five or six times a day. With them, as with all other young animals it is necessary to give abundant nourishment from the very first. Later on they will eat beet root either raw or cooked, and most kinds of green vegetables, as well as any sort of grain, and are especially fond of fruit. The Toulouse goose has a rather inconvenient habit of seeking her own provender, and if she has any chance of doing so, will dig up and consume any number of crocuses and other bulbs. It is not, however, to be supposed that they will be permitted in the garden; but the writer having once suffered severely from an incursion of these marauders, thinks proper to warn others against a like misadventure.

Whoever wishes to have success with geese must be careful to give them a house which is large and airy enough and plenty of clean bedding. The abominable practice of letting ducks and geese sleep in the henhouse cannot be sufficiently reprehended. The goose in particular is a bird which likes cleanliness, and which indeed can never thrive properly where this is wanting.

POULTRY.

The Way to Raise Poultry.

A correspondent of the *Country Gentleman*, after forty years' experience in feeding chickens, has found nothing so good in the morning as corn and oats ground together and wheat bran. These two kinds of meal must be mixed into a stiff dough with boiling hot water. For about seventy-five Brahmas, mix, when the weather is very cold, six quarts; put in one teaspoonful of salt, and three or four times a week put in as much red pepper as you can put on the point of a pocket-knife blade, or say as much as a stuff-taker would take in two pinches. Give this as early in the morning as the chickens come out of the roost. For dinner give three or four quarts of whole corn and oats mixed, or buckwheat instead of oats in winter. In summer they do not need any noon feeding. For the last meal at night give as

much whole corn and scraps as they will eat. Always keep broken oyster shells and dry ashes or gravel where the chickens can get to them. For green food give anything you may have, such as cabbage, turnips cut up fine, or anything of this kind. Turnips and potatoes boiled and mashed at the morning feeding are excellent. If you add these you do not require so much meal. Give the mash in the morning as hot as they can eat it; if you can put your finger into it without pain, you need not fear to give it to the chickens. Any kind of cooked food, such as is left from the table bits of meat, potatoes, all kinds of vegetables—in fact almost anything which is cooked for human beings, is good for chickens. Chickens must not be over fed; if they are, they will not produce many eggs. The best rule to follow in feeding is to give no more than they will eat up clean, without stopping to go away and come back. Chickens fed in this manner and kept in a dry place (not too close; better wide open than closed up so that there is not free circulation of air) will give you eggs from the first of December straight through the winter, and nearly all summer.

Lettuce for Young Chicks.

All kinds of stock like green food, and it is especially desirable for young poultry. Where the fowls have plenty of range it is no trouble to have them supplied in that direction, but there are breeders who have but little room and keep several varieties, who are compelled to keep their birds yarded all through the breeding season, and all poultrymen know how soon the fowls will clear up every vestige of grass in their yards. To keep them supplied with fresh sods is a good thing, but it either necessitates going some distance for the daily supply or soon disfigures a plot of ground by taking so much sod from it. Raising cabbage for them is desirable, but it takes some time to get it. The quickest growing thing to raise is lettuce. In very early spring a small hot-bed will start enough to last until the sowings in the open ground have grown large enough to feed. Small beds can be sown; and if a good growth is kept up at first, the bed will last quite a while as the tops can be cut off as wanted for the poultry, the roots being left in the ground to sprout more leaves and tops, which they soon do if well cared for. The expense of keeping up a small bed of lettuce is not very great, and from it the fowls can be supplied with good wholesome "greens," at a time when other "garden sass," is yet in its infancy. It is one of the best things for pigeons in confinement, and as many of our readers are pigeon fanciers, as well as poultry breeders, the advice above given will be of two-fold advantage to them. Breeders, try it.—*The Southern Planter.*

Poultry Pickings.

Who ever heard of a hen that fed abstemiously that she might remain slim and not be eaten? She comes rushing along with unseemly haste whenever any one calls, "tucky tuck-tuck tuck tucky," (itself an absurd and demeaning formula, suitable only for a hen) gluttony in every feather and lack of grace in every movement.

As fowls are fond of fruit, it would be well to plant currants in their run, and grapevines to run over their house and fence. If one must invest in an incubator, it pays to get one of the best, even though the first cost should be five or ten times as much as the price asked for a cheap machine. All the best incubators are high-priced. There are no reliable cheap incubators in the market.

At the bottom of the nesting boxes place a damp sod of earth and mould it into a concave form. This dampness is beneficial, as it supplies the moisture the eggs lose during the process of hatching.

A dry substance like wool or sawdust, for hens' nests, abstracts moisture from the eggs and ruins them. The hen, if left to herself, will make the nest on the moist earth.

The practice of running hay through a hay-cutter and reducing it to as short pieces as possible, and

then mixing with corn and sending it to an ordinary grist-mill to be ground in provender for poultry, has been followed for several years by certain breeders with good results.

Let any one try roasting corn before feeding it to fowls, and tell you by-and-by if his egg-basket does not fill much more rapidly than usual.

All the malice of civilization has been expended upon fowls. Legs so heavily feathered that the wretched birds only walk by a series of fortunate accidents; heads decorated with tufts so enormous that the creature's circle of vision is limited to the ground it stands upon; combs so wonderful a kind that each cock appears to carry a beefsteak and two mutton chops above his startled visage; these are the results of centuries of scientific breeding.

While the poultry show strikes one blow in a year, and strikes hard, so as to awaken vibrations that last through the whole twelve month, the poultry press works constantly and steadily.

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*, (a 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.

To Keep Eggs.

1. Eggs may be kept for an indefinite time if packed when quite fresh in boxes with rock alum in shape like rock salt. Put in a thick layer of alum, then the eggs, small end down, cover with alum around and over them, and peep in a cool, dry place. 1. Slack fresh lime with boiling water; when cold, thin with cold water to the thickness of cream. Pack the eggs, small end down, in a barrel or in stone jars, then pour on the cold whitewash covering the eggs. Care must be used in taking them out, as they are easily cracked. This has been used with success for forty years. 3. Three gallons of water, one pint fresh slacked lime, one half pint salt. Use perfectly fresh eggs with sound shells. If more lime is put in it eats the shell; if more salt it hardens the yolks. Put them in carefully; they will keep perfectly good for a year or more. 4. Hold perfectly fresh eggs in boiling water while counting six. A wire basket can be used for this purpose. Be sure to have water enough to entirely cover the eggs. Let them dry and cool, then pack in oats. Put a layer of oats on the bottom of the keg or barrel sufficient to support the eggs. Pack them closely, small end down, and proceed till the barrel is filled. Shake it gently to settle oats and eggs firmly. This method has given eggs a year after packing, in as good a state of preservation as when first packed, in answer to several inquiries.

Fifty Per Cent from Fowls.

The truth is that the average barn-door fowl, with no nonsense about her in the way of pedigree, will pay, by actual count, just 50 per cent. If she is moderately well treated. What else on a small farm does that, unless under exceptionally favorable conditions? Last January we had sixteen pullets which had begun their winter's work some weeks before, and eighteen old hens; the pullets kept our egg basket full until late in the winter, when the old hens began to lay. When we summed up in December, we had collected 4,087 eggs, of which \$62 worth were sold. Cats and rats made love to our little chickens in the early spring, and we only sold thirteen, beside keeping pullets to lay in the winter. This, and the fact that heavy rains prevented several broods from doing at all well, reduced our profits somewhat, but after valuing all grain fed out at the market price, the sixty-nine old dollars we received for eggs and chickens were clear gain, as the eggs and fowls used in the house balanced the expenses. Also, we have a stock to go on with, both pullets and old hens.

This is not the result of any very great outlay in time or trouble, for we were too busy to do many things that would have swelled our total; it is only what any small farmer can do easily enough. We used common coops knocked together from any old boards, but whitewashed often, and with kerosene and carbolic acid in the whitewash. For food we give corn, oats, rye and buckwheat, some table scraps, and in the winter pounded shells and bones, warm messes for at least one meal and warm water to drink. Hens are fond of sour milk, and during the warm weather we gave them all they wanted, it being the only item we did not count up in our estimate. New coops and all manner of patent appliances are nice if one can get them, but we have been obliged to do without, and find it is possible to have a creditable result; every year the 50 per cent. is the same, and we have more chickens to sell, but always we find that the little book in our egg basket balances in the same fashion. Dame Partlet pays quite as well for her board and lodging as the Jerseys we all regard so complacently, and needs far less care and trouble.—*M. S. S., Ridgefield, Conn.*

LITERARY AND PERSONAL.

CHOICE MUSIC.

"Under the willows, the drooping green willows
Under the willows lies beautiful May."

Very many ballads of the "Lilly Dale" order have, of late years, been given to the public, but very few of them have such smooth, beautiful music as that to the above words, which belong to the song "Under the Willows," (30 cts.) by C. Connolly.

Another charming musical tid-bit by the same author is "That first little Kiss he gave me," (35 cts.) an artistic song and dance in the play of "My Sweetheart."

Still another beauty is "Sleep, Baby Sleep!" (30 cts.) a charming lullaby by Angelica McCoun Fellows.

"The Train," (35 cts.) by Motloy is a song of our hurrying time, and "Oh that I had wings," (25 cts.) by Havens, will sound well in church.

"Emma Polka," (40 cts.) by Granado, is one of the pieces played by the Spanish Students.

"Heart and Hand Waltz," (30 cts.) by Le Baron, is a good arrangement.

"Sunshine Polka," (30 cts.) by Ida Hurley, is a pretty piece of brightness.

All these songs and piano pieces come to us in a package sent by the well known publishing house of Oliver Ditson & Co., Boston.

How we regret that "when we could we would not, but now we would but cannot" sing the beautiful songs so elaborately provided by this enterprising company. He that "is moved by concord of sweet sounds," can feel assured that he will not be influenced by "stratagems, by treasons and by spoils," whilst he is engaged in such exercises as are shadowed in the above.

THE BIOGRAPHER, ILLUSTRATED, for May, 1883, published at No. 23, Park Row, New York, at \$2.50 per year, has found its way to our editorial table, and we accord it a cordial welcome. If an illustrated biographical periodical elicits any astonishment at all, it ought to be that a publication of the kind had not been initiated long ago. This is the first number of a royal octavo of 64 pages, containing 35 biographical sketches of eminent men and women of the continents of Europe and America, 32 of which are accompanied by very striking portraits (so far as we are able to judge) executed on wood. The letter press and material are unexceptionable, and the satisfactory condensation of the sketches into such limited spaces, and yet retaining the essential facts, certainly exhibits as much ability as is displayed in more elaborate works. We do not know that this field has ever been occupied in this country before by a regular serial; and, at first blush, one might suppose that such a work must necessarily be limited. "Bless your soul," no. There is stock enough on hand for a long line to come; moreover, every day of the entire year, a hero, a statesman, a philosopher, a scientist, a soldier, a philanthropist, an artist, a machinist, or a professional, is born, so that the "tether" of such a journal might extend to the end of time. It certainly fills a vacuum that hitherto existed, and considering the amount and quality, it fills it creditably and cheaply. Should every number equal this, its patrons will find, at the end of the year, themselves in possession of an octavo volume containing 768 pages, 400 biographies and 384 portraits, and all for the sum of \$2.50. Its value to editors, essayists, lecturers, historians and the literati in general, is unquestionable.

SCIENTIFIC AND LITERARY GOSSIP.—A monthly magazine of notes, news and reviews in science and literature, 50 cents a year. Published by S. E. Cassino & Co., 41 Arch street, Boston, Mass.

THE SOUTHERN CULTIVATOR FOR MAY.—This popular and sterling agricultural journal is again on our table. An examination of its contents show it to be fully equal to previous numbers. The proprietors have purchased *The Southern Farmer's Monthly*, and by this act have absorbed the only remaining rival in their particular field.

The Southern Cultivator stands in the very front rank of agricultural papers, and for the South is certainly unequalled by any. As usual, Thoughts for the Month and the Inquiry Department are full of standard advice to Southern farmers, and if *The Cultivator* contained only these it would be well worth the subscription price. But to these are added very many other features of interest and importance, embracing the subjects of Truck Farming, Laws for the Farmer, Sheep Husbandry, Fertilizers. Letters from the Field, Dickson's Letters on Intensive Farming, The Patrons of Husbandry, Jersey Cattle Notes, The Poultry Yard, The Household, Children's Department, Fashions, etc. Price, per annum \$1.50. Address, Jas. P. Harrison & Co., Atlanta, Ga.

STRAWBRIDGE AND CLOTHIER QUARTERLY, published by Strawbridge and Clothier, merchants, Eighth and Market street, Philadelphia, Pa. and devoted to Fashion, Home-Art, and Household Economy. No. 2, Vol. I. of this splendid Quarterly Quarto is before us, and perhaps there is no mercantile enterprise of the kind in the entire country, that makes any approach to it, in fine and elaborate illustrations, fair and readable letterpress, in quality and variety, all relating to taste in dress and household economy. 88 pages of reading matter, with nearly 600 illustrative figures, eight of which are full page, and three additional pages of music. Its contributors are many, and they all seem to be able and practical, writing upon topics appropriate to the journal, upon which they seem to be specially posted. The publishers say—"The ultimate aim is, to afford the large number of our patrons whom distance precludes from visiting us in person, the opportunity of posting themselves with tolerable thoroughness upon the

subjects of dress and house-furnishing, and to supply their needs through the information the *Quarterly* presents." Doubtless, such an effort will be crowned with ultimate success, both the buyer and the seller, otherwise it would only be a self-serving machine. The tremendous efforts in the world to cater for the physical man, when legitimately exercised, are commendable, the pity is that similar energies, devices and forces, could not be brought to bear upon man's spiritual condition. It is good, in a natural sense, to "make friends of the unrighteous mammon," but there surely must be higher and worthier aims in human life. But a truce to moralizing—Strawbridge and Clothier conduct a first class establishment, and publish a first class journal, in which they tell what they have to sell, how you may adorn your body and your mansion, from head to foot, from the kitchen to the attic, and a large amount of miscellaneous matter relating to domestic, sanitary, and literary subjects.

AMERICAN FARMER, published by E. A. K. Hackett, No. 107 Calhoun St., Fort Wayne, Ind., at \$1.00 a year. This is a 16 page quarto, devoted to agricultural and domestic affairs. A neat, compact, and well arranged journal, containing beautiful stock illustrations, and edited with ability.

BULLETINS Nos. 1 AND 2. DIVISION OF ENTOMOLOGY. U. S. Department of Agriculture. Containing reports of experiments, chiefly with kerosene, upon the insects injuriously affecting the orange-tree and the cotton-plant, made under the direction of Dr. C. V. Riley, entomologist of the Department. And reports of observations on the Rocky Mountain Locust and Chinch Bug, together with extracts from the correspondence of the Division on miscellaneous insects, by the same. In all 100 pp. 8 vo. We thankfully acknowledge the receipt of these documents, with the compliments of the Chief. These bulletins are mainly compilations from the observations and experiments of local reporters, and extracts from correspondence, and are eminently practical, and of special value to those residing within the region infested by the insects referred to. The Government seems to be slowly recognizing the fact that "Eternal vigilance is the price of liberty," and that its employees cannot execute a "job" once for all, but that their labors are continuous—and, for aught any one may know to the contrary, they may be perpetual.

A graduated physician enters the sphere of medical life at one-and-twenty, practices his profession for a period of sixty years, and finally passes off the stage an octogenarian. What has been the result of his medical experience? Why, his professional services were needed during the last year of his medical life, as urgently as they were during the first. It will be even so between the agricultural and domestic interests of the country and practical entomology. The natural work moves slowly.

SPECIAL REPORTS, Nos. 57 and 58 Department of Agriculture, on the distribution and consumption of Corn and Wheat, and the rates of transportation of Farm products. March, 1883. And, Report on the Area and Condition of Winter Wheat, and the Condition of Farm Animals; also the spring rates of transportation of farm products. April, 1883, 85 pp. 8 vo. From Department of Agriculture.

THE MECHANICAL NEWS. An illustrated journal manufacturing, engineering, milling and mining. A demi-folio of 20 pp. architecturally and biographically (Peter Cooper) illustrated. Semi-monthly at one dollar a year. No. 110 Liberty street, N. Y., and Springfield, Ohio. The paper and letter-press of this journal are very fine, and the mill-work illustrations very elaborate and well executed.

MASTERY.—Useful Pastimes for Young People, embracing Home-handicrafts, Household affairs, Rural Occupations, Industrial Arts, Amateur Mechanics, Experimental Sciences, etc. An illustrated demi-quarto weekly magazine of 16 pages, in tinted ornamental covers, published at 342, Broadway, New York, at \$3 a year in advance. No. 1, vol. 1,

for May 10, 1883, of this beautiful and instructive publication is before us, and contains eighteen separate articles on practical subjects relating to the above, with twenty-five appropriate illustrations exemplifying the same.

Mastery is devoted to the instruction of childhood and youth, and in the language of its introductory, it "seeks to be your companion and guide in the exploration of this nearly yet imperfectly known world of action and utility, of beauty and mystery, which is now yours to possess and control."

Think of that ye young ones, and endeavor early to cultivate a useful aim in life, and if you never come into possession of anything to control but *self*, "Satan will find no mischief still for idle hands to do," because you will be "out of the bounds" of his workshop, which is *idleness*.

TEXAS FARM AND RANCH.—A double folio of eight pages and forty-eight compact columns of very readable reading matter; published monthly by the "Texas Farm and Ranch" Publishing Co., Austin, Texas, at one dollar a year.

Number 1, volume 1, of this enterprising publication has found its way up from the "Sunny South" to our Northern sanctum, and brings with it its genial rays in illumination of many subjects relating to the "farm and ranch," domestic affairs, industrial interests, and general literature. According to the census of 1880, Texas at that period had in her 226 counties, a population of 1,601,749 inhabitants, a number more than half as large as the entire population of the thirteen colonies at the close of the Revolution. Yes, we think the *Farm and Ranch* will succeed, and *ought* to succeed.

THE SUGAR BEET.—Devoted to the cultivation and utilization of the sugar-beet—Royal 4 to., published quarterly at 50 cents a year; 16 pages. An intelligent, persevering and efficient advocate of this useful and beneficent home product.

THE KEYSTONE. In the interest of the jewelry trade, Philadelphia, Pa., 1883. A demi-folio of 8 pages, published quarterly at 52 and 54 North Sixth street, by John L. Sheperd, at 50 cents a year, and devoted wholly and solely to the traffic in jewelry, and especially gold and silver watches, in which it is elaborately illustrated. The designs are "just splendid," and the paper and letter-press of a superior order.

SCIENCE, No. 11 April 20, 1883, a weekly magazine published by Moses King, Cambridge, Mass., U. S. A., at \$5.00 a year, with a rapidly increasing subscription list, which it unquestionably deserves. As an illustration of its value as an advertising medium we insert the following, from the number before us: "Moses King, Publisher of *Science*, Cambridge, Mass.:

Dear Sir—In accordance with your request we herewith furnish you a statement of the sixty-nine thousand (69,000) copies we have actually printed of the illustrated weekly journal "*Science*," and have made affidavit to same before a Justice of the Peace:

No. 1, Feb. 9,	6,000 copies.	No. 6, Mar. 16,	6,000 copies.
" 2, " 16,	6,000 "	" 7, " 23,	10,000 "
" 3, " 23,	6,000 "	" 8, " 30,	6,000 "
" 4, Mar. 2,	7,000 "	" 9, Apr. 6,	6,000 "
" 5, " 9,	10,000 "	" 10, " 13,	6,000 "

It is our understanding that the regular issue of *Science* is never to be less than six thousand (6,000) copies every week, and that during the year we are to print fully four hundred thousand copies (400,000). Yours Respectfully, Rand, Avery & Co.

Commonwealth of Massachusetts, } ss, Boston,
Suffolk County. } April 16, 1883.

Personally appeared Avery L. Rand, to me well known as the member of the firm of Rand, Avery & Co., who signed said firm's name to the foregoing and made solemn oath that the statements therein contained are true.

JNO. L. PAIGE, Justice of the Peace.

We have already noticed this journal in the literary columns of the *FARMER*, and it gives us pleasure to be able to record these evidences of its success, and incidentally, its value as an advertising medium to those who engage in buying and selling. Its success, as a scientific journal, is very extraordinary.

A KNABE IN THE WHITE HOUSE.

There was seen yesterday at Messrs. Knabe & Co.'s factory a magnificent concert grand, just finished by them for the presidential mansion. President Arthur, who is a thorough connoisseur of music, in selecting a piano for the White House decided in favor of the Knabe Piano as his preference, and ordered accordingly the instrument referred to. It is a concert grand of beautiful finish in a richly carved rosewood case, and of superb tone and action—an instrument worthy in every respect of the place it is to occupy. It was shipped to its destination yesterday.—*Baltimore American.*

COMPLIMENTARY NOTICE.

We desire to call attention to the advertisement in another column of D. M. FERRY & Co., Detroit, Mich., the great seedsmen, whose mammoth establishment is one of the sights of the chief city of Michigan. They do the largest business in their trade in the United States, reaching across the Atlantic and Pacific oceans. The house is cutely reliable, and if you wish to get exactly what you order, you cannot do better than send to them for your seeds, and you may depend upon it you will get the best that the market can supply. Their seeds have become known over the entire civilized world for purity and fertility, and have gained for them an enviable reputation. Their Annual Seed Catalogue just issued for 1883, replete with information and beautifully illustrated, will be sent free on application. It

COLMAN'S RURAL WORLD.

This sterling Agricultural paper entered its thirty-sixth year on the first of January, and appears in a new dress, and gives evidence of increased prosperity. To the Farmer, Stock Breeder, Fruit Grower and Cultivator of Sorghum for Syrup and Sugar, it is almost indispensable. It should be read by every one owning a farm. It is published weekly, in the best style, at only \$1.00 per annum, by NORMAN J. COLEMAN, St. Louis, Mo. It

CORN SHELLERS AND SEPARATORS.

GAIN FANS, OOT CUTTERS, GRUBBING HOES, FODDER CUTTERS, PICKS and MATTOCKS, COOLEY CREAMERS, CHURNS, BUTTER WORKERS & BUTTER PRINTERS, BULL LEADERS, BULL RINGS, OX BALLS, COW MILKERS, CALF WEANERS, etc., etc., etc.

FOR SALE BY
D. LANDRETH & SON'S,
Nos. 21 & 23 SOUTH SIXTH STREET
PHILADELPHIA.



Fruit, Shade and Ornamental Trees.

Plant Trees raised in this county and suited to this climate. Write for prices to

LOUIS C. LYTE.

Bird-in-Hand P. O., Lancaster co., Pa.
Nursery at Smoketown, six miles east of Lancaster.
79-1-12

WIDMYER & RICKSECKER, UPHOLSTERERS,

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WAREHOUSES:

102 East King St., Cor. of Duke St.
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79-1-12]

Special Inducements at the NEW FURNITURE STORE

OF
W. A. HEINITSH,

No. 15 1-2 E. KING STREET

(over Bursk's Grocery Store, Lancaster, Pa.)

A general assortment of furniture of all kinds constantly on hand. Don't forget the number.

151-2 East King Street,
Nov-ly] (over Bursk's Grocery Store.)

For Good and Cheap Work go to

F. VOLLMER'S

FURNITURE WARE ROOMS,

No 309 NORTH QUEEN ST.,

(Opposite Northern Market),

Lancaster, Pa.

Also, all kinds of picture frames. nov-ly

GREAT BARGAINS.

A large assortment of all kinds of Carpets are still sold at lower rates than ever at the

CARPET HALL OF H. S. SHIRK,

No 202 West King St.

Call and examine our stock and satisfy yourself that we can show the largest assortment of these Brussels, three piles and Ingrain at all prices—at the lowest Philadelphia prices.

Also on hand a large and complete assortment of Rag Carpet.

Satisfaction guaranteed both as to price and quality. You are invited to call and see my goods. No trouble in showing them even if you do not want to purchase.

Don't forget this notice. You can save money here if you want to buy.

Particular attention given to customer work. Also on hand a full assortment of Counterpanes, Oil Cloths and Blankets of every variety. nov-lyr.

C. R. KLINE,

ATTORNEY-AT-LAW,

OFFICE: 15 NORTH DUKE STREET,
LANCASTER, PA.

Nov-ly

SILK-WORM EGGS.

Amateur Silk-growers can be supplied with superior silk-worm eggs, on reasonable terms, by applying immediately to

GEO. O. HENSEL,

may-3m] No. 28 East Orange Street, Lancaster, Pa.

LIGHT BRAHMA EGGS

For hatching, now ready—from the best strain in the county—at the moderate price of

\$1.50 for a setting of 13 Eggs.

L. RATHVON,

No. 9 North Queen st., Examiner Office, Lancaster, Pa.

WANTED.—CANVASSERS for the LANCASTER WEEKLY EXAMINER

In Every Township in the County. Good Wages can be made. Inquire at

THE EXAMINER OFFICE,

No. 9 North Queen Street, Lancaster, Pa.

\$150,000 GIVEN AWAY!

THE PRACTICAL FARMER, OF PHILADELPHIA, from an intimate acquaintance with its readers, has found there is a general desire to possess Farms and Homes in the West. Now, in order to give each of our Subscribers an opportunity to obtain an Improved Farm, a well-known, reliable real estate man has carefully selected for us **100 FARMS**, to be offered as Premiums to our paper. We also offer, in connection with the Farm property, as Premiums, fine Steel-Plate Engravings—superb reproductions of the works of the greatest masters. These are alone worth the price of the paper; and when we give, in addition, the opportunity to obtain an Improved Farm, we are making **The Most Splendid Offer Yet!** Every Subscriber will receive a Premium. **The Practical Farmer** was founded by Paschall Morris in 1855, and is one of the oldest Agricultural, Literary and Family Journals published. Its character and reputation are of the highest, and Subscribers rarely drop from our lists. It has 16 pages, published weekly, at \$2.00 per annum. We want 75,000 new Subscribers in two months, and offer as Premiums the Steel-Plate Engravings and

100 GOOD IMPROVED FARMS Located in the States of Kansas, Missouri, Iowa, Nebraska and Dakota, aggregating **16,630 ACRES AND WORTH \$140,000.**

These Farms are all in good condition, and are in size from 50 to 600 acres, and worth from \$600 to \$10,000 each. The Farms will be conveyed by Warranty Deed, and a clear and perfect Title shown from the United States down. They are all ready to occupy, and will be productive homes from the start. As high as **30 TONS OF WHEAT** per acre was harvested from some of these Farms last year. All of these lands are just as good and will produce as much under like circumstances. The tenancies are such that possession can be given at once. **How you may obtain one of the Farms.** Subscribe for the "PRACTICAL FARMER." Immediately upon receiving the Subscription price—\$2.00, a receipt and the current number of the **Farm** will be mailed to the sender, his name entered upon our subscription list, and the paper continued for one year. As soon as we have 10,000 new Subscribers registered on our books, or in ten days from date, we will award to each of them a premium, aggregating in value \$20,000, in such a manner that each subscriber will have a fair and equal opportunity to obtain one of the Farms and Engravings. In the same way the second and following series of 10,000 Subscribers will receive their Premiums until the entire \$150,000 worth of property is given away. These Farms and Engravings are intended as premiums to our Subscribers. The distribution of these is entirely gratuitous upon our part, and is intended by us as a means of dividing with our subscribers the profits of the year. The name and address of those securing the valuable Premiums will be published in the **PRACTICAL FARMER.**

Having made up our mind to secure, at any cost, the largest circulation of any Agricultural Paper in the World, we have resolved to forego all profits and give our Subscribers the Farms and Engravings for the benefit derived from the present and future large circulation. A sample Paper, containing description of the Engravings and of the 100 Farms, with a description of the improvements, dimensions of houses, etc., will be sent free.

CLUB RATES. In order that your name and your friends names may be among the first series of 10,000 subscribers to whom the first \$20,000 worth of property will be awarded, subscribe at once and get up clubs in your neighborhood immediately. **Go to work at once.** Show the paper containing the list of Farms and description of improvements. If you will get 10 Subscribers and send \$20, we will give the get-up of the Club a subscription for himself **FREE**, which will give him equal right with other subscribers to obtain one of the Farms. For 20 subscribers and \$40 we will give two extra subscriptions; for 25 subscribers and \$50, three extra subscriptions; for 30 subscribers and \$60, four extra subscriptions; for 35 subscribers and \$70, five extra subscriptions; for 40 subscribers and \$80, six extra subscriptions; for 45 subscribers seven extra subscriptions. The extra subscriptions can be sent to any one to whom the get-up of the Club desires. Each of whom will have an equal opportunity to obtain one of the Farms. **By this means you may get the 960 acre Farm.** Let every reader of this advertisement send at least one name with his own, and we will get 75,000 subscribers and will distribute the \$150,000 worth of property at once. Remember you may get a Farm worth \$3,000 or \$10,000, free of every encumbrance.

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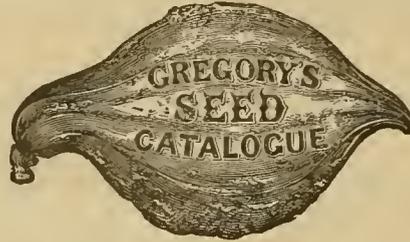
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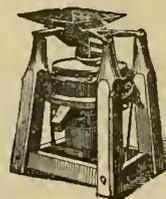
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WE TWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express*.....	2:40 a. m.	4:05 a. m.
Way Passenger.....	5:00 a. m.	7:50 a. m.
Niagara Express.....	..... a. m.	11:20 a. m.
Hanover Accommodation..	11:05 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy.....	10:20 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:25 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:40 p. m.
Fast Lins*.....	2:30 p. m.	3:25 p. m.
Frederick Accommodation.	2:35 p. m.	Col. 2:45 p. m.
Harrisburg Accom.....	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express.....	7:30 p. m.	8:40 p. m.
Pittsburg Express.....	8:50 p. m.	10:10 p. m.
Cincinnati Express*.....	11:30 p. m.	12:45 a. m.

EASTWARD.	Lancaster.	Philadelphia
Cincinnati Express.....	2:55 a. m.	3:00 a. m.
Fast Lins*.....	5:08 a. m.	7:40 a. m.
Harrisburg Express.....	8:05 a. m.	10:00 a. m.
Columbia Accommodation..	9:10 p. m.	12:0 p. m.
Pacific Express*.....	4:40 p. m.	3:40 p. m.
Sunday Mail.....	2:00 p. m.	5:00 p. m.
Johnstown Express.....	3:05 p. m.	5:30 p. m.
Day Express*.....	5:35 p. m.	7:20 p. m.
Harrisburg Accom.....	6:25 p. m.	9:30 p. m.

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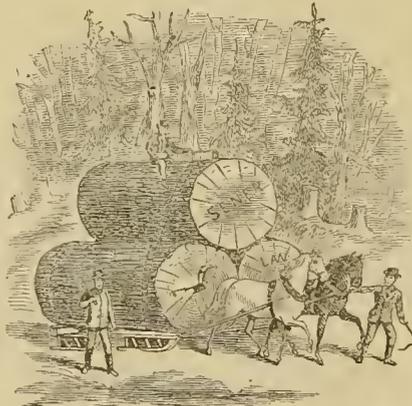
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., JUNE, 1883

Vol. XV, No. 6.

EDITORIAL.

THE COUNTY FAIR.

The project of holding a county fair this year in Lancaster seems to have been abandoned. The idea of holding a meeting on Whitsuntide Monday in Lancaster to consider the subject seems to have been the precursor to its abandonment. Perhaps it was thought, as more people visit the city from the country on that day than on any other day of the year, there would be more likelihood of being a full meeting, but this was a mistake. The people who attend such gatherings do not come to discuss, concoct, and carry out public exhibitions, but to participate in and enjoy what had been previously established. They don't come to think, to propose, and to assume responsibilities, but to see what is to be seen, to commune with their friends, and to indulge in such recreations as seem suited to their various tastes—some of them perhaps wise, but many of them otherwise. To get up and sustain a successful agricultural and mechanical exhibition requires special energies, backed by determination, and directed towards a specific end—it involves head-work and hand-work, such as is not included in the category of a gala-day.

Without some personal sacrifice of time, comfort, and perhaps also of money—at least some risk of money—it is idle to think of getting up an exhibition with any reasonable prospect of success. Because our neighboring county Berks can do so—and time and again has done so—it does not legitimately follow that we can do so; and the very fact that we never have done so, ought to enable us to look at the subject from a different standpoint than that from which we have been in the habit of viewing it—a standpoint from which we can take a broader view of the subject, than the narrow one of self-interest alone. Again, Berks county and various other counties succeed, because there seems to be more of a unity among their citizens, as to what ought to constitute the leading elements of a fair, how these should be combined and carried into practical effect. Another element of success involves the co-operative interests of those who are not farmers or fruit growers in the community, but who “move heaven and earth” to extend their personal interests among farmers to secure their pecuniary patronage. Agricultural productions constitute the basis of human material existence. But where it comes to a display, in which the whole community is interested, collaterally or otherwise, all those collateral interests are expected to be represented. If some of them are ruled out as “contraband,” which in other communities are accepted as perfectly legitimate, there most likely discordant opinions will arise, and a lack of that unity, so essential to any enterprise of magnitude, will follow. And the strength with which these opinions will be asserted and maintained, will be proportioned to the conscientious convictions of

those who entertain them. If they cannot be compromised for the advancement of a special end, then it seems more wise to abandon such an end than to subject it to even possible failure—not a mere financial failure, but a failure to secure a truly representative display.

A FIELD NATURALIST.

Forty years ago, or more, a brightly-spotted turtle was described as living near Philadelphia, and two miserable specimens were sent to Professor Agassiz. It was called Muhlenberg's turtle, and since then not one has been seen until last summer. My friend was always on the lookout, never failing to pick up or turn over every small turtle he met on the meadows or along the creek, and examine whether the marks on its undershell were those of the lost species. Finally, one of the ditches in the meadows was drained off to be repaired, and there, within a short distance, were picked up six Muhlenberg turtles! If you go to Cambridge, Mass., you can see four of them alive and healthy to-day. They could easily have gone out of that ditch into other ditches, and so into the creek; but if they ever did, they have succeeded for twenty years in escaping some pretty sharp eyes.

This little incident has a moral for us in two ways. One is, that often the apparent rarity of an animal comes from the fact that we don't know where to look for it; and the other, that it takes a practiced eye to know it when we have found it, and to take care that it doesn't get lost sight of again. Practice your methods of observation, then, without ceasing. You cannot make discoveries in any other way. And the cultivation of the habit will be of inestimable advantage to you.

This is the merest hint of how, without going away from home, by always keeping his eyes open, a man, or a boy or a girl can study to the great advantage and enjoyment not only of himself (or herself,) but to the help of all the rest of us. I should like to tell you how patiently this naturalist watches the ways of the wary birds and small game he loves; how those sunfish and shy darters forget that he is looking quietly down through the still water, and go on with their daily life as he wants to witness it; how he drifts silently at midnight hid in his boat, close to the timid heron, and sees him strike at his prey; or how, concealed in the topmost branches of a leafy tree, he overlooks the water-birds drilling their little ones, and smiles at the play of a pair of rare otters, whose noses would not be in sight an instant did they suppose any one was looking at them. But I cannot recount all his vigils and ingenious experiments, or the entertaining facts they bring to our knowledge, since my object now is only to give you a suggestion of how much one man may do and learn on a single farm in the most thickly settled part of the United States.—*St. Nicholas for June.*

More than forty years ago we made a collection of all the tortoises, turtles and terrapins of Lancaster county, which we very laboriously skinned, stuffed and mounted.

These consisted of *Cistula carolina*, *Emys geographica*, *Emys picta*, *Emys guttata*, *Emys insculpta*, *Emys rubriventris*, *Sternotherus odoratus*, *Kinosternum pennsylvanicum*, and *Emys saura serpentina*. But the *Emys Muhlenbergii* we were not fortunate enough to find, and the late Prof. S. S. Haldeman, in his list furnished for Rupp's History of Lancaster County, published in 1844, expresses a doubt as to its

being a native of Lancaster county, in which doubt, after a hunt of thirty years we strongly felt inclined to acquiesce. But in July 1880, that doubt was happily dissipated at an encampment of the “Taequan Club,” at York Furnace Spring, on the Susquehanna.

On that occasion, Mr. Luther Richards, the senior of the club, without a knowledge of its scientific value, picked up a fine specimen near the camp, and presented it to us. Not having time to prepare it in the usual manner, we embalmed it in a jar of alcohol, and it is now in the museum of the *Linnaean Society*. In 1848 we donated our collection to the *Libhart Museum*, of Marietta, Pa., and some years afterwards Judge Libhart donated them to the *Linnaean Society* in whose museum they now remain. Of course since this collection was made a great revolution has been made—either backward or forward—in the nomenclature of these animals, but that does not effect the *personale*; they are the same “shillgrutten” that they were in the olden time, and before they were scientifically named.

INSECTS INJURIOUS TO FRUITS.

The above is the title of a handsome octavo volume of 136 pages just issued by J. B. Lippincott & Co., of Philadelphia. It is beautifully illustrated by 440 wood cuts, and is printed in the publishers' best style. The book is written by one of our fellow-citizens, Mr. Wm. Saunders, who is already well and favorably known, not only in Canada, but in the United States and Europe, for his original papers on Entomology, both in its scientific and economic aspects. The need of such a work as this has long been felt by the fruit growers, who are necessarily engaged in constant warfare with insect enemies; for there is no part of the continent where fruit culture can be profitably carried on without constant vigilance in this direction. But among the insect tribes there are many friends as well as foes, and one of the objects of this book is to convey such information, aided by illustration, as will enable the reader to distinguish readily between these several classes of insects, and to act intelligently in all cases.

In this book there is brought together in a condensed form all that a fruit grower requires to know in reference to insects injurious to fruits in all parts of Canada and the United States. With the information obtainable from all other sources there is incorporated the results of the author's own large experience of over twenty years as a fruit grower and student of entomology. The matter is presented in a concise and plain manner, avoiding all scientific phraseology except such as is necessary to accuracy.

The arrangement of the work will make it convenient as a book of reference. The insects are treated of under the fruits they specially injure, and again are divided into separate groups, such as those which injure the roots, trunk, branches, leaves and fruit of the several trees and vines, thus enabling any person without any scientific knowledge of entomology to recognize and determine such injurious species as he may meet with. Then having before him the life history of the insect briefly traced and the remedies which have been found useful in subduing it fully explained, the reader will be enabled without delay to adopt the best measures for destroying it.

The book, although only a few days out, has already received much praise, and is being strongly recommended by many of the leading entomologists and fruit growers of the United States. It is a credit to Canada, and to our own city in particular, that so valuable a work, one which will at once take its place as a standard book of reference for the use of fruit growers throughout the American continent, should have been written by one of our own citizens. The work is unique, has no competitor in its own field, will be indispensable to every intelligent fruit grower, and must meet with a large demand.

We clip the above from the editorial columns of the *Free Press*, published at London, Ontario, Dominion of Canada; and, we do not hesitate a moment in recording our exception—not, however, to the book, for that we have not yet seen, but to the notice itself, in that it makes no mention of the *price*, a very important matter to all patrons of any kind of literature, but most especially to those who possess *just so much*, and desire it to go *just so far*.

We know Mr. W. Saunders—have known him for quite a number of years—although we do not remember that we ever saw him; our knowledge of him being mainly based upon the reputation he has achieved as a practical observer and writer in the fields of fruits, flowers, insects and their correlatives in nature; and we do not hesitate (again) in assuring the fruitgrowers and gardeners among our patrons, that the book under consideration is likely to be the very thing they need, or *may* need, in their horticultural experiences. We wish we could inform them exactly what it will cost them, and where it will be conveniently and certainly kept for sale, for we do not think it follows as a matter of course that the publisher is the salesman of a book. Notwithstanding this work occupies part—and a very large part—of the ground we had intended to occupy in a similar publication, we are gratified that it has been published; *first*, because, under all the circumstances we think it is done better than we could have done it; and, *secondly*, because it now seems probable that we shall never be able to command the time and means to publish such a work as we designed. Without pecuniary aid from the State, or elsewhere, we shall never attempt it. Even under strong probabilities of ultimate success, situated as we now are, and have been for the past three years, we do not feel like risking “a certainty for an uncertainty.” To illustrate such a work, as we think it ought to be illustrated, in order to make it really practical, and yet to offer it to the public at a moderate price, would require outside pecuniary assistance, either from the State or some other source, and this would require more energetic force than we are now able to apply to the subject. To our patrons, therefore, we commend the work of Mr. Saunders, just issued from the press.

EXCERPTS.

WET lands should not be ploughed deep until they have been thoroughly drained.

WATER in which a bit of soda has been dissolved is the best solution with which to clean painted plastered walls.

DR. STURTEVANT says that potash, whether in the shape of wood ashes or in the form of sulphate or muriate, is a special fertilizer for melons.

CHARCOAL should be fed hogs and poultry. Experiment has demonstrated that the same amount of feed will produce a far greater amount of flesh and fat when fed with plenty of charcoal.—*Cincinnati Times*.

NONE of the tuberous-rooted grasses, like timothy, are suitable to permanent pastures. They cannot stand close cropping nor constant tramping. Pasture grasses must be fibrous and deep-rooted varieties.—*Chicago Journal*.

OAT MEAL GEMS:—One beaten egg, one cup of sweet milk, one cup of cold oat-meal pudding, beat all together, add half a teaspoonful of soda, and one and one-half cups of flower. This quantity will fill the gem pan. Does not hurt some dyspeptics.—*The Household*.

A PRETTY tidy is made by embroidering a spray of flowers or a bird on a small square of satin; then put a band of satin around this; have it of a contrasting color; then another band outside of this, and finish with fringe. If the satin is of a bright color and of good quality, it needs no other decoration.—*N. Y. Post*.

TOP dressing, unless with very fine manure, is of doubtful advantage with the clover plant. The clover is easily smothered by anything covering its leaves. It may, however, pay if the clover is to be turned under early for a corn or potatoe crop this season. The best time to manure is before the seed is sown. A very light top-dressing then will secure a heavy growth.

THE value of wood ashes as a fertilizer is too little appreciated. They contain in varying proportions the valuable mineral properties needed by plants. They are especially valuable for orchards in bearing, having an as yet unexplained effect in perfecting the fruit. It is better to give a light dressing of any potash manure every year than to give large doses at any one time.—*N. Y. Times*.

THE brilliancy of gold can be imparted to brass ornaments by just washing them with strong lye made of rock alum, one ounce of alum to a pint of water; when dry, rub with leather and fine tripoli.

PASTE FOR WALL PAPER.—Take sifted flour, add sufficient cold water to wet it, mixing well. To each quart, add a teaspoonful of salt, and the same of powdered alum, then pour on boiling water, stirring all the time until the mixing thickens. Pour on boiling water slowly and stir briskly.

As a material for fire-proof stage curtains the New York fire commissioners have experimented with asbestos and found it satisfactory. It is claimed that curtains prepared with this material will resist heat, without burning, long enough to allow any theatre audience to leave the house before the fire could break out beyond the stage.

SAVE THE CHILDREN'S STOCKINGS.—How many mother's know they can knit up as well as down? When children have reached the age when they wear out the knees of their stockings, and the heels and toes also, the ingenuity of woman must be exercised. In the most hopeless looking stocking there is usually a strip at least an eighth of a yard long which is too good to throw away, and yet is too much worn to pay to ravel out and

knit over; from this then cut off the ragged top and bottom, and knit up as well as down. If you cannot match the color use another shade, or to a brown strip knit a scarlet or grayish brown top.

YOUR OWN BLACKING.—An English receipt recommends the following: Put into a large basin one pound of ivory black, one pound of treacle, and a quarter pound of sweet oil. Stir these ingredients up with a stick, and let it stand for twenty-four hours, then add a quarter-pound oil of vitriol, mix with three times its weight of cold water. Stir well and let it again stand for a few hours, then add a quart of sour beer water. Pour it into a stone jar, which keep in a dry place. Before pouring some into the small bottle for daily use, thoroughly shake the contents of the large jar for several minutes. Some of the cheap “blackings” sold are very injurious to shoe leather, as they crack and burn it.

If you dip your broom in clean, hot suds once a week, then shake it and hang it up, it will last twice as long as it would without this operation.

A SIMPLE and easy way to ornament a common pillow-case for the baby's pillow is to feather-stitch it all around with scarlet marking cotton. Choose the cotton which is warranted not to fade.

THERE is danger, as many people have found to their sorrow, of a gossamer waterproof cracking when stiffened by cold; so, before putting it on in severe weather, warm it before the fire, both outside and in, and this danger is averted.

THE skill of the Chinese in dwarfing plants as well as ladies' pedal extremities is well-known. It is stated in a recent work on China that the ladies of the “upper ten” in the Celestial empire wear in their bosoms little fir trees, which, by a carefully adjusted system of starvation, have been reduced to the size of button-hole flowers. These remain fresh and evergreen in their dwarf state for a number of years, and are regarded as symbols of the perpetuity of love, to express which they are used by ladies of the highest rank.

AN excellent lubricant for wagons is palm-oil, which is thick and adhesive. It may be improved by adding to it an equal weight of black lead and thoroughly mixing it. A very small quantity need be used. For road wagons and buggies castor-oil is an excellent lubricant.

There is nothing better for butter dairy cows in the shape of grain feed than a mixture of 200 pounds of corn-meal, 200 pounds of fine middlings, and 100 pounds of cotton-seed meal. Of this five pounds a day may be given with benefit, and will return a good profit in butter or milk.

SHEEP are very subject to catarrh of the nasal membranes; their woolly coat sometimes overheats them and they take cold, especially on the back, where they are tender. Some warm gruel, a dram of salt-petre, a dry, warm lodging for a few days, and a little pine tar rubbed on the nose generally cures the trouble.

Too much confinement is injurious to a colt, and will tend to produce weakness of

the tendons, which causes cocked ankles. If kept up a colt should have a roomy box stall, and it is better to give it a run in the yard quite often. To remedy the defect rub the legs with cold salt water and rub dry; then apply a little turpentine or stimulating liniment, with vigorous rubbing with the hand. Give plenty of exercise and bran-mash frequently, with a small tablespoonful of Peruvian bark.

It is very important to work horses very moderately the first two or three days of spring work. Let them rest frequently, and ease the collar at least every half hour. A little care in beginning right will save horses from galls that, if neglected, will make them of little use through the season.

AN exchange says: "A friend tells of the remarkable success he has in the use of decayed wood as a fertilizer for his fruit trees. He has fine, thrifty trees and plenty of good sound fruit since he adopted the common sense plan of fertilizing his orchard with decayed logs and stumps."

GEORGE SYPHER, of Mt. Kisco, found in crossing a piece of land belonging to Isaac Thorne, about three-quarters of a mile from the village, from which the snow had disappeared, myriads of what appeared to be black grasshoppers, varying in length from a quarter to three-quarters of an inch. The surface of the field seemed to be alive with them. Mr. Sypher revisited the field, accompanied by a friend, who caught a number of the insects, and exhibited them in the village. The villagers and farmers are considerably alarmed at this discovery, fearing a worse plague than the potato bug.

ADD one ounce of alum to the last water used in rinsing children's clothing, and it will be rendered uninflamable.

SWINE should always have access to charcoal, ashes and salt, which should be supplied in a separate trough in some convenient sheltered corner.

COCONUT cookies: Two cups of white sugar, one cup of butter, two cups of grated coconut, two eggs, one teaspoonful of baking powder, and mix with enough flour to roll easy. Roll very thin, bake in a quick oven but not brown.

It pays to take good care of young chicks for the first three weeks. Feed the yolk of a hard-boiled egg for the first day or two and then give broken rice and coarse oatmeal alternately. Steep the latter in warm skim milk. They eat very little, and this manner of feeding is not expensive if the older fowls are not allowed to share it.

THE *London Truth* says: "Whatever the internal application of hot water may effect, girls desirous of having a good complexion would do well to apply it to their faces. They should either dip their faces into a basin of very hot water or apply the water with a sponge. At first they are like lobsters, but in a few moments this is replaced by the tints of peaches and hlies."

A cow will give more milk and make more butter on a bright sunshiny day than during one of a dull, dark character. The animal eats more heartily, digests better, while the vital forces are active during the pleasant

day. These facts are not in themselves very important, yet they suggest the query whether close stabling of cows in winter or summer is better than giving them the run of a yard or pasture lot.

TO CONTROL a vicious bull put a ring in his nose in the usual way; from this ring pass a small chain through a small staple near the point of the horn across to the point of the other horn, then through the second staple down to the ring in his nose. The chain thus forms a triangle. It should move freely through the staple, so that even the slightest pressure on the chain on either side of the head, or between the horns, will instantly make itself felt through the ring.

There is a farmer who is Y's
Enough to take his E's,
And study nature with his I's
And think of what he C's.

He hears the chatter of the J's
As they each other T's
And e's that when a tree D K's
It make a home for B's.

A pair of oxen he will U's
With many haws and G's,
And their mistakes he will X Q's
While plowing for his P's.

In raising crops, he all X L's,
And therefore he little O's,
And when he hoes his soil by spells
He also soils his hose.

—*Whitehall Times.*

SELECTIONS.

STALE FRUITS AND VEGETABLES.

We have some decided opinions upon the deleterious effects on children especially and adults generally, of unripe, wilted, green, overripe or partially decayed vegetables and fruits. The vegetables of the city are not as the vegetables of the country. Those of the country are gathered and eaten in the time of their perfection and are healthy and beneficial to the system. Those which are usually bought in the market in the city are brought long distances, exposed to the sun, drying winds and the noxious vapors of confined fruit and vegetable cars, until they are totally changed in their chemical constitution, and are injurious to the stomach, and dangerous especially to children. This will account in a degree for the large amount of sickness among children and persons of feeble constitution in the city more than in the country. There is too great a greediness among not only children but heads of families for these early, unripe and partially decayed vegetables and fruit. And in this matter do not console yourself that the specimens you buy are harmless from the fact that they have a fresh appearance. A potato when it decays passes at once into utter dissolution. This is not the case with most other vegetables and fruits. The power of assimilation by contact is quite universal in all classes and varieties of decay in vegetables as well as in animal substances. And it is a depraved appetite that demands this unhealthy food, and the judgment is weak and the head a poor guide to parents and guardians who buy these dangerous articles for feeble and delicate stomachs of innocent children.

The countryman when he gathers the fully-

matured vegetables and ripe fruits from his fields knows that he is providing for himself and the precious ones entrusted to his care luscious gifts from the goddess of health. The resident of the city when he buys these things out of season in the place where purchased knows they have been long from the parent stem, and have gone far in a change of their chemical nature, and that he is catering to the goddess of greedy traffic instead of health.

It is well to pause and think of what you are doing; health and life are precious boons, too valuable to be sacrificed to a craving appetite or a thoughtless attention to the duties of life. We should like to lay down some general rules for purchasing vegetables and fruits which will do for the entire season's practice:

1. Use fruits and vegetables only when in prime condition.
2. Never allow in your house or offer to your family berries or vegetables when green, unripe, overripe, wilted or decayed.
3. It should be made a serious crime to sell or buy fruits or vegetables which are so partially decayed that they have to be sold at a reduced price.
4. Salads, lettuce, kale, cucumbers, peas and green corn wilt under any circumstances in a few hours. They should, therefore, only be eaten within a few hours from the time they are gathered.
5. Berries, melons, tomatoes and all other juicy fruits have but a brief healthy state, and should always be treated with suspicion.—*Iowa State Register.*

SMALL FRUITS AND "FIXING UP."

The culture of small fruits is a subject that ought to interest any one who owns a foot of land. It has been truthfully said that "if the whole world was a city there would be sufficient room to grow grapes enough for the population." How often we hear people say, among them farmers, if I was only "fixed" I would plant fruit. At first thought it would appear as if "fixing up" was a terrible thing, but I must confess for one that in reality this matter of getting fixed is a very small job, especially for small fruit or a nice door-yard. Now, readers, let us look this matter square in the face, and see what there is in it.

We will suppose you only have a small lot of land, 50x150 feet. This is a small town lot, and a farmer would think this no land at all for fruit, so small that it would not be worth bothering with; at the same time this is sufficient land to grow enough small fruits for one family, yet they will say they cannot get "fixed." The trouble is, they don't try to get fixed.

A lot 50x150 feet contains 7,500 square feet, and if the plants can be set on an average of five feet square (while strawberries can be much closer) it will take 300 to occupy the ground, and ought to be planted somewhere near the following proportions: 24 currant bushes, 12 gooseberry bushes, 10 grapevines, 100 raspberry bushes, and this will leave sufficient room for 200 strawberry bushes, while on the north or west side there can be four cherry or plum trees, which in reality will be an advantage to the lot, and if it is wished to make the lot attractive plant an evergreen or Russian mulberry hedge in front and keep it trimmed in any desirable shape.

A lot planted as described will afford sufficient fruit in their season for any family, besides increasing the value of the land, and be a credit to the owner. Any land owner can have a lot like this if he wants it, and another advantage to be gained is the growing of small fruits while the bushes are small. I have yet to find any one who has commenced the growing of fruit but will become so interested that he will be constantly increasing his stock. It is a duty we owe to ourselves and our children to make home pleasant, and I tell you reader, we cannot afford not to fix up our homes, and if you have not thought of the matter it is time you had, and so this very spring commence, and if you have children get some small fruits of some kind and give them to them. Show them how to plant and care for them; tell them how in course of time, with proper care, they will bring forth fruit; and it will do you good to notice the interest it will awaken in them, and they will soon try to have the nicest door-yard and garden in the neighborhood. Come, let us wake up and try and make home pleasant, and the children will not want to leave home.—*Northwestern Farmer.*

CONSIDERATIONS OF IMPORTANCE IN FEEDING.

A good feeder is not necessarily the man who, having an abundance in his crib, throws into the feeding-box according to the abundance in hand. To build up a living organism with success and without interruptions, hence with profit, is something different from what the average farm hand is capable of doing correctly. As regards economizing food, much, of course, depends upon the market value of this, yet not so much as might at first sight appear, because corn at a low price is likely to go hand in hand with low-priced beef. And when beef is low in price, no man can make much profit in feeding. This condition, it is true, may be better under this state of things than it would otherwise be, through the moderate prices on articles he is compelled to buy, as low-priced corn and meat are quite likely to be accompanied by moderate prices on some, if not all the necessaries of life.

One of the principal factors in the gain made by a fattening animal is comfort. Discomfort makes war upon the vital forces, and these being sustained only through nutriment consumed, it follows that the less the discomfort the less the waste of food. Hence, to reason that, as winter is over, animals can now be left without shelter that have heretofore had protection, is wrong from every point of view. The outer hide and hair, protected through the winter, will be doubly sensitive to cold and wet if exposed during storms in early April. Comfort is the criterion as to probable thrift, and any weather that a domestic animal can not remain out in without showing discomfort, it should not be exposed to.

Animals in the natural state—we refer to domestic animals having their freedom upon the farm—eat regularly and with a degree of moderation, hence are not liable to the repletion which comes to the feeding beast induced to eat immoderately. While artificial stimulation may, under certain conditions, and within certain limits, prove helpful, still we can not always be assured that no disorder will

occur to interrupt nutrition. Artificial conditions, when brought to bear upon the living animal, so change it from accustomed influences that, so far as the fattening beast is concerned, it requires good management to insure that it will go through to the end of its short journey, the butcher's block, in good, healthy condition, and yield a profit.

All men who feed stock can not be expected to study physiology, though its principles are brought into requisition every day, and it is really as necessary that the living machine be understood, that they may conduct their business successfully as that the engineer, to be an expert with the engine, be minutely acquainted with its every part. One of the lessons easily learned in every feeding lot is, that the chilling weather of early spring tells upon exposed cattle more than the dry, frosty air of a cold winter. If shelter, dry bedding and painstaking care are required at one season more than another, that time is very likely to come in the early months of spring. The mercury may not run low, but the vitality of farm animals will go down in the scale more rapidly when the atmosphere is charged with a damp, depressing chill than when the mercury is well down below the freezing point and the air clear and dry.

While by analysis, and through experience in feeding, it has been often proved that corn leads all of the farm-grown grains in making flesh, still it is equally well-known that as the extreme cold disappears a mixture, made up of the lighter grains, shorts, and bran, with a little oat meal added, will bring better results than corn alone, though, chemically, it may be superior to the combined foods.

No man can feed successfully until he has learned to vary the food according to the condition of his animals, giving rest to the digestive organs as occasion calls. When in good condition it is safe to calculate that a fattening beast will bear a pound of grain per day for each hundred pounds of its own live weight. It will consume more than this in cold weather, because no inconsiderable amount is required to keep up a successful battle with the outside temperature. From early spring till grass comes it should be made a rule that the gain be more rapid than during the extreme cold of winter. That gain can be made if due care be taken. The conditions, in some important regard, will be more under control than heretofore during the winter.

There is a double inducement to exert great vigilance in adding to the daily gain, namely, (1) the gain in pounds at that time in the history of the beast when his weight upon the scales is approaching his highest value per pound; (2) the advantage of the increased fleshiness—ripeness—as an important factor in increasing the price of his weight per pound. Then, too, the manure—and no farm anywhere is so good that it does not need all the manure made upon it—is rich, hence valuable, in the ratio of the richness of the food given and its quantity. The matured bullock carries less away from the productive element in the soil than does the load of wheat or other grain sold off the farm, dollar for dollar of value. Yet he does carry something, in fact no inconsiderable amount of bone and flesh elements; but bear in mind that he

leaves no inconsiderable substance behind him in the form of manure, while the grain and hay hauled off the farm leaves nothing—is a dead tax upon fertility. It is the fact that the steer provides for others of his kind to follow after him that gives stock-growing one of its most valuable features. That kind of husbandry that will bring the most dollars for the manual labor expended, at the same time taking the least substance from the soil, in view of the returns, is the sort that is each year receiving greater attention from the more intelligent class of farmers.—*Live Stock Journal.*

THIN OUT THE FRUIT.

As the season seems favorable, the prospect is that the trees, of all kinds, will be loaded with fruit. Too much fruit is something unusual, for the market is never overstocked in quantity, but too much inferior fruit is a yearly infliction on all who buy. Pruning, trimming and cultivating, while pushing forward the trees in vigor and productiveness, also assist in the development of a surplus of blossoms, the stimulus causing the trees to bend their energies in that direction in preference to an excess of leaves, for the embryo buds are alike, and diverge into leaf or fruit as the conditions direct.

Thinning out fruit seems repulsive to those who are accustomed to seeing heavy clusters of fruit on trees, and the operation appears to be a wasteful one; but, when we consider that fruiting is but an effort of natural reproduction, it is to be wondered, rather, that thinning is not more commonly practiced. If the tree cannot propagate by seeding it will endeavor to do so from the root by sending out shoots. It either sends out shoots or fruit buds, or both, and this must be accomplished only with the material which the tree affords, part of which is stored and part new, taken directly from the soil at the time of blossoming or a little before. This material is distributed to every part of the tree, the remotest blossom not being forgotten, and the tree can only nourish according to its capacity to supply. Where the fruit is overcrowded on the tree the fact is apparent that inferiority of size must be the consequence; and whenever the fruit is dwarfed the flavor and appearance is below the average, to say nothing of the drain on the vitality of the tree, which is thereby compelled to use its utmost endeavor in order to develop its fruit.

By thinning out the inferior specimens, leaving only that which looks promising, the sap is directed into fewer channels instead of the many, the fruit, being supplied with a greater proportion of nourishment, grows more rapidly, ripens sooner, and is improved in appearance and quality. Nor will the actual production be less, for the chances are that by measurement the quantity will be more than if no thinning process had been practiced, the chief benefit being the doubling of the price owing to the superiority of the fruit. Strawberries so treated have been grown to such proportions as to readily command fifty cents per quart when inferior kinds were not in demand, and pears have been sent to our markets that sold singly at good prices, while others were sold by measurement. Thousands of bushels of apples rot in

our orchards annually simply because the trees are overcrowded and the fruit becomes unsaleable, and cherries, peaches and even the small fruits are no exception.

Another point to be observed is that trees and vines must not be allowed to make any effort other than by seeding. The shoots and runners must be kept down, as they rob the parent stock of vital power—as is well known to those who grow strawberries especially, the runners of this year being detrimental to fruit production the succeeding season. Let every fruit-grower endeavor to produce good, well-formed, marketable fruit, culling out that which is inferior, and allotting to the trees only that which is suitable to their capacity, and the increased prices and quick sales will be more than a satisfactory remuneration for a small amount of extra labor required.—*Philadelphia Record.*

STUDY YOUR FARM.

There is too much farming done at random. Failure frequently pursues a man through life for want of a clear and determined conception of the object that he ought to aim to accomplish. A forcible writer in the Library of Useful Knowledge urges every farmer to consider the nature of his farm; the quality, abundance, or the deficiency of his pasturage; the character of the soil; the seasons of the year when he will have plenty or a deficiency of food; the locality of his farm; the market to which he has access, and the produce which can be disposed of there with the greatest profit. These things when well studied and decided will point him to the breed of stock he should raise, and the kinds of grains or grasses he should cultivate. The man of more means and more ambitious aims may take in more extensive views, and look scientifically to the question of improvement of stock. But the farmer with limited means and less ambition, with whom we have most to do, need not feel like running any risks, or engaging in the least doubtful enterprises. Such regard their cattle as a valuable part of their yearly income, and that source of revenue cannot be disturbed by interrupting the regular routine of business. And yet by careful study this necessary inflow can be kept up, and the income of his farm greatly increased without much enlarged expense, while the annual outlay otherwise may be lessened, and labor lightened. Rich or poor, humble or ambitious, he ought to study closely what will best suit his farm, examining closely the points and qualities of his own cattle and those of his neighbors. If he determines dairying is best for him, he must examine the question of quantity and quality of milk, and its value for the production of butter and cheese; the time that the cows continue in milk; the character of the breed for gentleness, their predisposition to disease, and the natural tendency to turn to nutriment or to milk; the ease with which she is fattened and value as a beef when she is given up as a milker; the proportion of food requisite to keep them in full milk or to fatten when dry. If grazing is decided to be the main business, then consider the kind of stock which the farm will be best suited for, the kind of meat most in demand at the greatest profit in his neighborhood, the early maturity, the quick-

ness of fattening at any age; the quality of the meat; the parts upon which the flesh and fat are principally laid, and, last of all, the hardihood and adaptation to the climate and soil. When a farmer wisely settles all of these questions, he will find he has but little time to loiter about neighboring street corners.—*Iowa State Register.*

A PROFITABLE FRUIT TO GROW.

Of all the varieties of fruit usually grown on the farm, perhaps the quince is less frequently seen than any other. Of late our farmers have begun to set out peach trees in hope of obtaining partial crops at least. There are many reasons why every farmer's garden should have a few quince bushes growing therein in order that a supply for the family may be secured, if none are marketed. The quince is a hardy, deciduous shrub, reaching a height of from ten to fifteen feet and bearing large white and pink blossoms quite late in the season. The fruit is of a rich golden color and in some respects resembles the orange. The quince is easily propagated from seed, layers or cuttings. The soil most suitable for this fruit is a deep moist loam and when well manured if the bushes are thrifty abundant crops may be secured. It bears easily and with a favorable growth in four years from transplanting the trees ought to bear a peck of fruit. There are a number of sorts grown in this country, the Champion being the latest acquisition and said to be the largest variety grown. The most extensively grown variety in this country is the Orange. This sort is of good size, color and flavor; it is remarkably productive and with good treatment bears fair, smooth fruit that uniformly stewes tender and is excellent for drying purposes.

There is one thing to be considered in growing this fruit—that it is never grown in such quantities but what the farmer can get at least \$1 per bushel, and it is oftener that he gets twice that amount. The canning of vast quantities of this fruit always render their sale assured. Very many growers do not properly prune the bushes so as to admit the sunlight and thus avoid having so much green fruit. When the bushes are overloaded the fruit should be thinned out and the rest will be larger and better. When set in rows about twelve feet apart is the right distance, and if in very rich soil fifteen feet may not be too great a distance. The bearer is liable to attack the young bushes and even those that have reached a considerable size. In this section the quince is chiefly grown in the garden, but in the Middle States and at the West large orchards of the quince are cultivated. Riding into a gentleman's door-yard recently we noticed three large bushes close by his hennery. The fruit had been gathered, but the owner informed the writer that from the three bushes he obtained two barrels of large marketable fruit. When properly cared for there can hardly be a more paying crop, since almost every family "puts up" a few quinces.—*Springfield (Mass.) Republican.*

STEERS IN PASTURE.

Thirty steers of 800 or 900 weight, on good pasture from May 1 to November, should gain each 400 pounds. Much depends on their

condition when turned out in spring. Those wintered around straw stacks, without grain, will not begin to gain for several weeks. Their digestion is bad; much blood is needed to renew their coat of hair and loosen the hide. On the other hand, a steer already fat will not gain so much as one in what is called good condition. Such an animal will increase very fast from May 1 to the middle or last of June, averaging perhaps (with a little grain at first) four pounds per day, but during July and August very little gain would be manifest, while the thin steer would then be in condition to be adding some weight. It is much better to market July 1 the steers that were fat when turned upon grass in May.

Cattle wintered around straw stacks will be in good condition without any grain if they are fed at the same time with a moderate amount of corn-fodder, or four or five ears of corn per day without the fodder. A farmer will make it pay to borrow money with which to buy corn to feed cattle wintering around straw stacks, as the most of the cattle do in all States West of Pennsylvania. It is no unusual thing in this country of cheap and abundant corn to see during March dead cattle lying around straw stacks, starved to death! Two months ago I saw such a sight within two miles of my residence; the owner worth \$25,000, with hundreds of bushels of corn conscientiously kept to feed hogs—the everlasting hog. Farmers make an expensive mistake in thinking grain fed to stock cattle is wasted.

A correspondent from Michigan, whose inquiries suggested this article, speaks of having pasture in an open grove, and also of a pasture well set in timothy and clover. Now much depends upon the way these lots are pastured. The wool-lot should be pastured first, and the cattle kept off the timothy and clover, because the grass among the trees will be much richer and more palatable if fed before the trees come into full foliage. This pasture then should be allowed to grow until October 1, when it will again be in prime condition at a time when timothy and clover have stopped growing.

Many persons overstock their pastures, and the animals fail to gain as much as they would with a better range. During May and June the grass seems so abundant they purchase more stock to keep down the growth, and the result is, the cattle during August and September frequently gain nothing. The farmer must recollect that he can not depend upon the growth of any grass except red clover from middle of July until fall rains set in. With plenty of rain in latter part of summer the grasses do not grow half as fast as during May and June. These things must be considered by the breeder of cattle if he expects the largest gain in weight, and his pastures must be at all times such that the cattle can readily and quickly find sufficient grass.—*Cor. N. Y. Tribune.*

INSECTIDES

Very soon the farmers and gardeners throughout the country will have to commence the annual battle with noxious insects. We have learned how to manage some of these enemies, and to conquer them every time; but others continue to resist every known

method of destruction. We give a list of some of the best known insecticides and the manner of applying them in order that our readers may get them ready for use the present season.

For the Colorado potato beetle nothing more efficient or cheaper than Paris green has been discovered. One pound of the green to fifteen of any cheap kind of flour is the best mixture, and this should be scattered over the leaves of the potato vine as soon as the larvæ or grubs appear, and the application repeated as often as necessary during the summer. Two or three applications are usually sufficient. Tin dusters, made for the purpose, can usually be had of any tinsmith; if not, one can be made out of an ordinary tin can, which must be fasted to a handle four or five feet long. This same mixture may be used to destroy canker worms on apple trees, but is rather more difficult of application, although with a long handle to the duster the leaves and twigs of ordinary sized trees can be readily reached.

The asparagus beetle, which usually comes from its winter quarters about the time the first shoots of the plants appear, is not readily destroyed by insecticides, as it will not answer to apply poisons at this time, or any offensive substance; but as the beetles do little injury now, all attempts to destroy them may be deferred a few weeks, or until the cutting season is over, at which time the beetles will have laid their eggs on the stems, whence will presently come the little black slug-like larvæ. These have soft, rather sticky skin, to which almost any dry dust-like application will readily adhere. Dry caustic lime is a cheap and efficient poison for this pest, and a few applications during the summer will clean an asparagus plantation of the pest. We have used lime on our asparagus bed to destroy these grubs for more than twenty years and never knew it to fail to destroy this pest. Lime will also destroy the rose and cherry tree slug—in fact, all kinds of slug-like larvæ which have a sticky, slimy skin.

To destroy squash and melon bugs tar water is of great value. An old tar barrel, with a quart or two of tar left in the bottom, and filled up with water, will in a few days furnish a moderate supply of a very efficient insecticide for various kinds of bugs and flea beetles which frequently attack cabbage and tomato plants early in the spring or summer. Pine tar is best, but coal tar will answer very well. Carbolic acid, one part of the acid to sixty or seventy of water, is as strong as can be safely applied to delicate kinds of plants. Flowers of sulphur are sometimes used upon melon vines with good results; a teaspoonful scattered over the young plants or thrown on the ground under the leaves will usually drive away insect enemies, especially during hot weather, when the fumes of the sulphur are dispelled by the heat.

Salt-peter has been found an excellent insecticide in some instances, and this salt is also a good fertilizer, and therefore answers a double purpose. One tablespoonful of salt-peter dissolved in a pail of warm water is a most valuable solution with which to sprinkle cabbage plants infested with the caterpillars of the cabbage butterfly. Several applications will usually be necessary, for the butter-

flies remain a long time, and the females visit the cabbages daily to deposit their eggs, from which the caterpillars are hatched in succession during the early summer as well as autumn months.

Alum is also a first-rate insecticide, especially for ants, cockroaches and various insects inhabiting houses and upholstered furniture. The alum should be put in hot water and the water kept boiling until it is dissolved; then inject the solution with a syringe or brush into all cracks and holes where the pests live or hide. This solution may be used freely, as it is not poisonous nor injurious to furniture, unless applied to varnished surfaces and in a condensed form.

For the different species of caterpillars infesting currant and gooseberry plants powdered white hellebore has been found the most efficacious after Paris green; the latter, however, is the most dangerous, as it is a more virulent poison than the hellebore, although the latter is a strong vegetable poison, and no fruit from the plant dusted with it should be used during the season of its application. We would advise trying solutions of alum or salt-peter for this pest by those who have it to contend with.—*N. Y. Sun.*

SHORTAGE OF THE WHEAT CROP.

S. H. Seamans, of Milwaukee, Wis., Secretary of the Millers' Association, some weeks ago sent out over 3,000 inquiries to millers in the twenty-one leading wheat States, asking them for the best information to be had concerning the outlook for the wheat crop.

Mr. Seaman issued a private circular on Friday to the members of the association, in which he gives the estimate of the crop based on the report, placing the shortage for the year at 93,000,000 bushels in the twenty-one States. This not being the kind of report desired, particular pains were taken to keep it from the papers. From a stray proof, however, the following estimate of the yield by States is taken: California, 4,500,000; Nebraska, 1,500,000; Texas, 2,100,000; Kansas, 23,000,000; Missouri, 21,400,000; Iowa, 15,300,000; Minnesota, 3,700,000; Wisconsin, 18,500,000; Illinois, 25,000,000; Kentucky, 12,400,000; Tennessee, 6,800,000; Georgia, 3,800,000; Virginia, 8,300,000; Maryland, 9,000,000; Delaware, 1,000,000; New York, 10,800,000; Pennsylvania, 22,300,000; Ohio, 26,000,000; Indiana, 29,000,000; Michigan, 73,300,000. The total yield of these States in 1882 was 466,297,900 bushels. It will be noted that the estimates in some of the States, notably California and Minnesota, differ materially from those made by several statisticians. Mr. Tallmage, Milwaukee, whose estimates have been so generally quoted, was shown the miller's estimates last night. He said: "The California and Minnesota estimates are ridiculous. In my estimation of the aggregate yield of the country I have given the figures of these two States as furnished me by the official authorities." The Secretary of the California State Agricultural Department said: "Our crop can't exceed 30,000,000 this year." H. H. Smith, the United States statistician, states that the official report of the Minnesota acreage shows 739,500 acres. The average yield per acre of

that State for three years is 79.12 bushels, 80.13 bushels, 81.90 bushels. Estimate this year's crop at 12 bushels per acre, and we have but 2,810,000 bushels.

Mr. Seaman, in closing his report, says: "In presenting this report to our members for their information, I have only to say that it is based entirely upon replies to my inquiries, which have been carefully taken, thoroughly analyzed, and the averages closely figured; in short, the conclusion was arrived at by the most careful investigation of the replies, and is given to you with the confident assurance that, so far as it is possible to arrive at the probabilities of the growing crop, we are approximately correct."

HOW TO KILL CABBAGE WORMS.

The ravages of the caterpillars of the cabbage butterfly caused a great deal of trouble last summer at the State Agricultural Experiment Station, Geneva, N. Y., particularly those of the second or August brood. In order to test the efficacy of various reputed remedies for the cabbage worms, the director applied them to special collections for worms, and noted the effects. One specimen confined for three hours in a bottle partly filled with black pepper crawled away discolored by the powder, but apparently unharmed. The second, repeatedly immersed in a solution of saltpetre, and a third in one of boracic acid, exhibited little indications of inconvenience. Bisulphide of carbon produced instant death when applied to the worm, though its fumes were not effectual. The fumes of benzine as well as the liquid caused almost instant death, but when applied to the cabbages small whitish excrescences appeared on the leaves. Hot water applied to the cabbage destroyed a portion of the worms, causing also the leaves to turn yellow. One ounce of saltpetre and two pounds common salt dissolved in three gallons of water formed an application which was partly efficient. The most satisfactory remedy tested, however, consisted of a mixture of one-half pound each of hard soap and kerosene oil in three gallons of water. This was applied August 26; an examination the following day showed many, if not all, the worms destroyed.

The growing cabbage presents such a mass of leaves in which the caterpillars may be concealed that it is hardly possible to reach all the worms at one application. It is of importance, therefore, to repeat the use of any remedy at frequent intervals.—*Scientific American.*

BEEES AND HORTICULTURE.

If some of our fruit-growers were to write upon this subject, they would place as the title: *Bees versus Horticulture*. Some of our ablest entomologists are persuaded that bees do not always play the role of friends to the pomologist.

What I am to say of bees would apply equally well, in some cases, to many other sweet-loving insects, as the wild bees, the wasps, and many of the dipterons, or two-winged flies; only as early in the season other insects are rare, while the honey bees, though less numerous than they are later in the season, are comparatively abundant, even early in the spring months.

My first proposition is, that plants only secrete nectar that they may attract insects. And why this need of insect visits? It is that they may serve as "marriage priests" in the work of fertilizing the plants. As is well known, many plants like the willows and the chestnuts, are dioecious. The male element, the pollen, and the female element, the ovules, are on different plants, and so the plants are absolutely dependent upon insects for fertilization. The pollen attracts the insects to the staminate flowers, while the nectar entices them to visit the pistillate bloom. Some varieties of the strawberries are so nearly dioecious, that this luscious fruit, of which good old Isaac Walton wrote: "Doubtless God might have made a better fruit than the strawberry, but doubtless God never did," would in case of some varieties be barren, except for the kindly ministrations of insects. Other plants are monœcious; that is, the stamens and pistils are on the same flower, but the structural peculiarities are such, that unless insects were wooed by the coveted nectar, fertilization would be impossible. Many of the plants with irregular flowers, like the orchids, as Darwin has so admirably shown, are thus entirely dependent upon insects to effect fructification. In many of these plants the structural modifications, which insure fertilization consequent upon the visits of insects, are wonderfully interesting. These have been dwelt upon at length by Darwin, Gray, Beal and others, and I will forbear to discuss them further.

But many of our flowers, which are so arranged that the pollen falls easily upon the stigma, like the clovers, squashes and fruit blossoms, fail of full fruitage, unless forsooth, some insect bear the pollen of one flower to the pistil of another. As has been repeatedly demonstrated, if our fruit bloom or that of any of our cucurbitaceous plants be screened from insects the yield of seed and fruits will be but very partial. Professor Beal and our students have tried some very interesting experiments of this kind with the red clover. All of the plants under observation were covered with gauze that the conditions might be uniform. Bumble bees were placed under the screens of half of these plants. The insects commenced at once to visit and sip nectar from the clover blossoms. In the fall the seeds of all the plants were counted, and those from the plants visited by the bumble bees were to those gathered from the plants which were shielded from all insect visits, as 236 : 5. Thus we see why the first crop of red clover is barren of seed, while the second crop, which comes of bloom visited freely by bumble bees, whose long tongues can reach down to the nectar at the bottom of the long flower tubes is prolific of seed. This fact led to the importation of bumble bees from England to New Zealand and Australia two years since. There were no bumble bees in Australia and adjacent Islands, and the red clover was found impotent to produce seed. When we have introduced *Apis dorsata* into our American apiaries, or when we have developed *Apis Americana*, with a tongue like that of *Bombus*, seven-sixteenths of an inch long, then we shall be able to raise seed from the first crop of red clover; as the honey bees, unlike the bumble bees, will be numerous

enough early in the season, to perform the necessary fertilization. Alsylke clover, a hybrid between the white and the red, has shorter flower tubes, which makes it a favorite with our honey bees, and so it gives a full crop of seed from the early blossoms.

In all these cases we have proof that nature objects to close inter-breeding; and thus through her laws, the nectar-secreting organs have been evolved, that insects might do the work as cross-fertilization. As in the case of animals, the bisexual or dioecious plants have been evolved from the hermaphroditic as a higher type; each sex being independent, more vital force can be expended on the sexual elements, and so the individual is the gainer.

It is sometimes contended by farmers, that the visits of bees are detrimental to their crops. I have heard farmers say that they had known bees to destroy entirely their crops of buckwheat, by injuring the blossoms. There is no basis of fact for this statement or opinion. Usually bees visit buckwheat bloom freely. If for any reason the seed fail, as from climatic condition and influence it occasionally will, the bees are charged with the damage, though their whole work, as shown above, has been beneficial and that only.

It is true, as I have personally observed, that species of our carpenter bees (*Xylocopa*) do pierce the flower tubes of the wild bergamot, and some of our cultivated flowers, with similar long corolla tubes, that they may gain access to the otherwise inaccessible nectar; the tubes once pierced, and our honey bees avail themselves of the opportunity to secure some of the nectar. I have watched long and carefully, but never saw the honey bee making the incisions. As I have never heard of any one else who has seen them, I feel free to say that it is entirely unlikely that they are ever thus engaged.

My last proposition is, that though bees, in the dearth of nectar secretion, will sip the juices from crushed grapes, and other similar fruits, they rarely ever, I think never, do so unless nature, some other insect, or some higher animal has first broken the skin. I have given to bees, crushed grapes, from which they would eagerly sip the juices, while other sound grapes on the same stem—even those like the Delawares, with tenderest skin, which were made to replace the bruised ones—were left entirely undisturbed. I have even shut bees up in an empty hive with grapes, which latter were safe even though surrounded by so many hungry mouths. I have tried even a more crucial test, and have stopped the entrance of the hive with grapes, and yet the grapes were uninjured.

In most cases where bees disturb grapes, some bird or wasp has opened the door, to such mischief, by previously piercing the skin. Occasionally there is a year when an entire vineyard seems to be sucked dry by bees in a few hours. In such cases the fruit is always very ripe, the weather very hot, and the atmosphere very damp; when it is altogether probable that the juice oozes from fine natural pores, and so lures the bees on to this Bacchanalian feast. I have never had an opportunity to prove this to be true, but from numerous reports I think it is the solution of those dreaded onslaughts, which have so often

brought down severe denunciations upon the bees, and as bitter curses upon their owners. *A. J. Cook in The American Apiculturist.*

THE ORIGIN OF THE CEREALS.

Wheat ranks by origin as a degenerate and degraded hly. Such in brief is the proposition which this paper sets out to prove, and which the whole course of evolutionary botany tends every day more and more fully to confirm. By thus from the very outset placing clearly before our eyes the goal of our argument, we shall be able the better to understand as we go whether each item of the emulative evidence is really tending. We must endeavor to start with the simplest forms of the great group of plants to which the cereals and the other grasses belong, and we must try to see by what steps the primitive type gave birth, first to the brilliantly colored lilies, next to the degraded rushes and sedges, and then to the still more degenerated grasses, from one or the other of whose richer grain man has finally developed his wheat, his rice, his millet, and his barley. We shall thus trace throughout the whole pedigree of wheat from the time when its ancestors first diverged from the common stock of the lilies and the water-plains, to the time when savage man found it growing wild among the untilled plains of prehistoric Asia, and took it under his special protection in the little garden-plots around his wattled hut, whence it has gradually altered under his constant selection into the golden grain that now covers half the lowland tith of Europe and America. There is no page in botanical history more full of genuine romance than this: and there is no page in which the evidence is clearer or more convincing for those who will take the easy trouble to read it aright.—*Popular Science Monthly.*

THE FLOATING GARDENS OF MEXICO AND THE GARDENS OF BRAZIL.

Through all their Arab-like wandering, wherever they abided for a time, the Aztecs were wont to cultivate the soil; and when settled—frequently environed by barbarous enemies, as they were—in the midst of a great lake where fish were remarkably scarce, they devised the ingenious expedient of forming floating gardens and fields and orchards on the surface of the tranquil waters. These they wrought skilfully of the roots of the aquatic plants woven together, wreathed and intertwined with branches and twigs, till they had secured a foundation of sufficient solidity to support the soil, composed of earth substance from the bottom of the lake.

Ordinarily these floating gardens were elevated about a foot above the surface of the water, and were of oblong shape; and in due time, were adorned with vegetation, comprising countless varieties of flowers, vines and shrubs' presenting raft-like fields or gliding gardens of marvelous beauty and luxuriance. These famed chinapas, along the Vega Canal, finally became attached to the mainlands comprising the grounds situated between the two great lakes of Chalco and Tezeneo. Little trenches filled with water seem to separate the gardens, and miniature bridges connect them with the main land. The Indian proprietor dwells in a humble hut, situated

in the midst of his floating fields. From March to June the latter are one mass of floral beauty—a flowry sea, in which the many varieties of the rose prevails, while other flowers add their varied tints and perfumes, prominent among which are variegated garlands of carnations, poppies, sweet peas, jessamine and other gifts of the munificent flora of Mexico.

When the City of Mexico was taken by the Spaniards under Cortes, in 1521, it occupied several islands in Lake Tetzcenco. The water, from various influences, chiefly volcanic, has since receded, and the city, although still retaining its ancient site, is now two miles and a half distant from the lake. At the time of the Spanish conquest, it presented, however, very much the appearance of Venice—"a city in the sea, thronged on her hundred isles"—the margins of whose broad and narrow canal streets were in many places lined with splendid mansions.

According to ancient Spanish history the native Mexican had at that time attained a high degree of perfection in various arts, for which they do not appear to have been in any degree indebted to the civilization of the Old World, and which must have been an outgrowth of indigenous talent. Especially in the cultivation of the soil, by which the fruits and flowers of this tropical region were developed, were the native Mexicans highly skilled.

The fertility of these floating gardens, owing to the abundant advantages afforded for moisture, was very remarkable, and the early chroniclers describe them as literally covered with flowers and fruit. The City of Mexico is still to a great extent, supplied from floating gardens with fruit, vegetables and the choicest floral productions, constituting an industry from which is derived the sole support of the inhabitants of some of the villages situated on the shores of the lake, who are, indeed, descendants of the aboriginal race who fell victims of the treachery of Cortes. Two of these villages, Santa Anita and Ixtaculco, New Mexico, are noted for their beautiful flowers, and, at certain seasons, when their floating gardens are in full bloom, they are favorite resorts for pleasure parties of the citizens.

The region of Entre-Rios, in Brazil, has many noble gardens. The magnificent bay of Ganamara, along the shores of which the public Passeio stretches for a considerable distance, has been celebrated for its beauty ever since the first settlement of the Portuguese in the Brazils. At a time when, unadorned by art, or any handiwork except that of Nature, in a climate sublime and ethereal, this shore was called "The Walk of the Lovely Nights," Villeganon, as early as 1555, wrote enthusiastically of the bay of Ganamara, and declared that nothing but the Bosphorus could be compared to its beauty. He describes, as well, the beauties of the gardens of Rio, which, in their antiquity, were marvels of sublimity. During the government of the fourth viceroy, Luis de Vasconcellos, in 1778, the present public promenade was created. A great part of the ground now occupied by the promenade when thus projected, as well as that now occupied by the public gardens, was a low and unpromising waste.

CONDENSED WISDOM ABOUT OYSTERS.

Half the people that eat raw oysters don't like them. They only do it because it's a nice dish to order and smacks of good living. Now, when a man orders half a dozen of the largest oysters it certainly can't be because he likes the flavor as a big oyster has not the choice flavor that epicures pretend to like. Big oysters ought only to be cooked, and small ones reserved for raws; but if you venture to serve a dozen small oysters on the shell, people think you are cheating them. What do I consider the best oysters? Well, the Shrewsbury. They have a different color, and a sweet, delicate taste that seems to me better than that of any other. But there isn't one man in 500 that can tell the difference between Shrewsbury, Long Island, Mill Ponds, East Rivers, Providence River, etc. They think they can, so it's all right. At a good many eating houses you can get any kind of an oyster, in season or out, but they all come from some scrub bed. The largest are labeled Saddle Rocks, another size and shape Blue Points, and so on. Blue Points are perhaps the most in demand now; they cost from \$4.50 to \$6.50 per barrel. East Rivers are estimated the best by a good many, as they are only placed in the market late. They range in price from \$4 to \$9 a thousand, according to the demand and the supply. The consumers don't feel the rise and fall. It is felt only by the wholesalers. Some of the largest oysters come from Old Point, Fortress Monroe. From there they reach Baltimore, and so travel north. Baltimore is the big oyster depot, and they put up immense quantities in cans. It's a great sight to see 50 or 100 darkies shucking oysters as fast as the smacks unload them. A smart man ought to open from 4,000 to 9,000 a day. I understand a team of four men have shucked 25,000 oysters in a day. That would give them about \$23, Baltimore prices. Oysters are eaten here, of course, all summer, but summer is their breeding time, and they ought to be let alone. They're not up to the mark until the water gets cold.

COLUMBIA SALMON.

Speaking of the salmon fishing interest a Portland (Oregon) correspondent of the *San Francisco Chronicle* says: The fishing season lasts four months. A boat net and signal-light costs from \$400 to \$600. There are thirty-six canning firms on the Columbia river, nearly all of them being at Astoria. There is a general disposition to center the salmon-canning business at that ancient little town, as it seems to be the cheapest place of operations, for if the fisheries were further up the Columbia, tug-boats would have to be employed to bring back the fishing-boats. Yet the lower bay at the mouth of the Columbia is very stormy during the fishing season, during which there is often loss of life and a great deal of danger and hardship. This is one reason the Columbia salmon cost more than the Sacramento salmon. Fishermen who have their own boats and nets are paid sixty cents a salmon weighing eight pounds. Those whose boats are furnished by the company are paid forty-five cents a salmon. One of the firms has raised the price to seventy cents a fish, but the others refuse to see the elevation

Salmon are packed in one-pound cans, and forty-eight cans make a case, the average price of a case being \$5 or \$5.20. The product of the thirty-six canneries on the Columbia river last year was 535,000 cases, worth \$2,782,000. It is estimated that the capital invested in these thirty-six canneries is about \$2,000,000. When it is known that fishing boats cost \$500 to \$600 each, and that some of the fishing firms have 100 boats, and that a total of about 7,000 men are employed, the cost can be readily understood. About one-third of the salmon product is shipped to San Francisco for reshipment to Australia, the Eastern States, and islands in the Pacific ocean. The remainder is shipped direct from Astoria to Liverpool or London. One vessel recently left with 70,000 cases, worth over \$350,000, the most valuable cargo of salmon ever shipped from the Pacific coast.

The continued run of salmon in the Columbia is remarkable, considering the great destruction of fish by traps and the merciless iron wheels that impale them like the Spanish garotte. There is a sentiment in favor of abolishing this wholesale destruction of fish, and it is very likely that a law will be passed prohibiting it. The law against fishing between Saturday night and Monday morning is not rigidly enforced. This law was passed in order to allow the fish to ascend to their spawning grounds. But in this wholesale and untimely destruction the people are destroying the very source of their revenue. It is proposed by the cannery proprietors to establish a hatchery. Some "public spirited" people think the State should establish a hatchery for the benefit of cannery establishments. Yet the canneries have, year after year, packed from 400,000 to 535,000 cases, depending solely on fish that escape to their natural spawning grounds. It can easily be estimated what a future awaits this growing industry when a hatchery has been established able to turn out millions of fish annually, and their wholesale destruction stopped. Perhaps then 2,000,000 cases might be packed, which would be a revenue of \$10,000,000, about one-fourth of which would be net. During the last fifteen years the revenue derived from fishing in the Columbia river was about \$25,000,000. There were 860,000 cases of salmon packed on the Pacific coast last year, the value of which was \$4,300,000. This would leave 300,000 cases for canneries outside of the Columbia river. When salmon fishing began here fifteen years ago the price was about three times what it is now, or \$15 a case. If the wholesale destruction of fish is not stopped, and hatcheries are not soon established, the supply will soon be like the last run of shad, and the price will advance. But there is considerable salmon fishing in Alaska, three canneries being in existence there, and recent reports refer to the establishment of another.

The "scooping" wheels, upon which salmon are caught, resemble the old-fashioned "undershot" wheel. They are built upon embankments or projecting rocks, so that the wheel will be in the water when the stream rises. Of course, they are built in the low-water season. The wheels have plank paddles, so that the water running down stream sets the wheel in motion, and the salmon

coming up stream are caught on the wheel and literally broken. They fall into a "chute," something like a wood-drive, and slide down into boxes. A wheel scoops up 3,000 or 4,000 salmon a night. There is no law to prevent this wholesale slaughter and destruction, but there is a loud cry for it.

PURE OLIVE OIL.

"Nine dealers out of ten don't know what real choice olive oil is," said the buyer of a large importing house, "and it is not very strange, either, since but little of it is sent to our market."

"Can't it be bought from any first-class grocer?" he was asked.

"No, indeed. Olive oil can be bought, but not the finest grades. If you had ever tasted the best you would readily believe what I have just said when you dressed your salad with the other. Oil of the finest quality has a faint, agreeable odor, and a delicious, indescribable taste. When spread over nice, crisp lettuce or used to dress a cucumber, it lends a flavor which requires actual experience to appreciate. Why, it's a pleasure almost to look at its pale, greenish color."

"Why don't we get more of this oil? The best of everything else usually comes here."

"It is easily explained. There is not as much demand in America for choice oil as there is in Europe. Thousands of Americans will not taste oil under any consideration, while in Italy and the south of France the poorest persons would think his meal incomplete without it. The best grades are kept for home consumption, while the rest is exported. Do you know that there are as many qualities of olive oil as you have fingers and toes, to say nothing of the almost hundreds of adulterations and imitations?"

"A high degree of skill is shown in the manufacture of olive oil. The thoroughly ripe olive yields about 70 per cent. of oil. The persons who make the finer kinds gather the fruit by hand as soon as it begins to color. It is spread under sheds, where it is allowed to remain until most of the moisture has evaporated. The ripe olive is of a dark purple color, and yields considerably more oil than that I have just spoken of. So you can see why the two oils should be of different value. The process of manufacturing the oil will give you a good idea of the grades."

"The olives are crushed to a pulp in a mill, and then placed in sacks of loosely woven cloth. These sacks are piled one upon another, and are submitted to pressure. The oil which flows from them is run into a vat containing water, from the surface of which it is afterwards dipped. The first pressing is called virgin oil. A second quality is obtained by mixing the pulp with very hot water and submitting it to additional pressure. Then there is a third pressing, after which the pulp is chemically treated for other grades."

"What kind of oil is used in the ordinary eating house?"

"It is an oil made from cotton seed, and has no more the taste of olive oil than it has of ginger. It is thick and, to me, very unpleasant. It is only in first-class hotels and restaurants that olive oil of any grade at all is served. There is also an oil made from ground-nuts, which does not seem to be very popular. Of the cotton seed oil there is an immense sale."

CONTRACTED FEET AND PROPER SHOEING.

Contracted feet are more commonly the consequence of lameness in horses than the cause. Any diseased condition inside the hoof, giving rise to an unusual degree of heat, leads to a more rapid evaporation from the surface of the horn, to drying and shrinking of the hoof and to absorption of the soft parts within. The shrinkage or narrowing takes place, especially at the heel, where the foot has not a long, but only an elastic cartilaginous internal support, which yields easily to any pressure from without. A second condition, which always coincides with this drying due to disease, is the disease of the heel by the animal standing on its toe or removing the weight from the entire foot. When the foot is planted on the ground and the weight thrown upon it, the soft parts descending within the hoof tend to press it outward, and as a matter of fact the hoof does actually expand at the upper part (next the hair), and thus the natural tendency of the unused elastic horn to contract is to a great extent counteracted. Disease is therefore the most common cause of contraction, and in all cases of contracted feet it is well first to look for some existing disease, such as corns, bruises, pricks, other wounds, graveling, thrush, inflammation from uneven bearing of the shoe, from the nails being drawn up too tight, from navicular disease, from ringbone affecting the second or third phalanx, and so on.

Apart from any disease sufficient to cause lameness, contraction of the feet sometimes goes on to an extreme degree, until indeed one heel may meet the other, and yet lameness is not induced. Yet if contraction takes place with rapidity, as under the influence of a long period of rainless weather following a wet spring, the compression of the soft part by the dry and shrinking horn will cause inflammation and lameness. During the past dry summer this was not at all uncommon, and the thus started bade fair if neglected to go on to serious structural disease and permanent lameness. Contraction caused in this way may be counteracted and corrected by measures calculated to soften and expand the horn, followed by such as will retain its natural moisture, and give proper bearing to the shoe. To soften the contracted foot, keep the unshod animal standing every day for sixteen hours in a stream of water coming up to the hair round the top of the hoof, or in a soft muck or clay puddle closing in around the foot to the same level. In frosty weather a warm poultice placed in a strong bag drawn over the foot is preferable, the more so that it can be kept applied both night and day. At the end of a fortnight the foot will usually be found to have expanded to its natural dimensions.

If there is much lameness it will be desirable to apply a blister on the front and sides of the pastern during the period of poulticing. This may be repeated and the poulticing continued if lameness remained at the end of a fortnight. As a blister the following may be rubbed into the skin on the front and sides of the pastern: Powdered cantharides, one-half drachm; oil of lavender, ten drops; olive oil, one ounce. It may be repeated the second day if heat and tenderness have not been induced

by the first application, also as soon as the effects of the first application have passed off and the resulting scabs have dropped off. When lameness has disappeared and the foot has been sufficiently expanded, it should be dressed carefully, going the same height to the wall at all corresponding points on the inner and outer sides, and paring heel and toe in proper ratio with each other, the sole being left as far as possible to come to the heel with the hoof wall at all points and to furnish with it a surface of bearing for the shoe.

The shoe should be perfectly loose and smooth, and when applied should press evenly at all points. It should be drawn only moderately tight, and on giving its final dressing the use of the file should be as far as possible avoided. The horn is formed of a series of pus tubes with an intertubular cellular structure, and when the rasp or file is used so as to expose the open ends of these tubules the contained moisture exhales, the horn withers and the soft parts may be injuriously pressed upon. For this reason the use of the file on the front of the hoof is to be severely deprecated. It should only be used on the lower edge of the hoof wall where it projects over the shoe, and when the sharp edges might otherwise split up. For a similar reason, the sole should never be pared down into the tough elastic horn, though all scaly masses on the surface may be safely removed. After shaving, the use of a hoof ointment will serve to prevent evaporation and drying, and is absolutely needful after the foot has been softened by poulticing. A mixture of equal parts of wood-tar and sweet-oil will answer admirably. This brushed daily over the entire surface of the horn—wall, sole and frog—will usually preserve a sufficiency of moisture and the natural elasticity and toughness.

OUR WOODPECKERS.

"Hast thou named all the birds without a gun?
Loved the wild rose and left it on its stalk?
O, be my friend, and teach me to be thine!"

When Wilson, the ornithologist, came to this country, the first bird he saw and secured was the redheaded woodpecker. His sensations of delight and admiration were remembered years after, when he gave it a prominent place in his book and described it as the most beautiful bird he ever beheld.

This bird, *Picus erythrocephalus*, is one of our most common woodpeckers, and with such brilliant colors and active habits is also best known. It must be a very unobservant person who doesn't know a "red-head." The glossy black body, with broad band of white across the back, is headed by deepest crimson, the color extending far down the neck. The red-head likes to stay about the orchard in fruit time, and we can imagine his crimson head grows brighter from being so often dyed in the blood of the cherries, and the children know that the best apples on the tree are the ones he has tasted. Wilson says: "He is of a gay and frolicsome disposition, and half a dozen of the fraternity are frequently seen diving and vociferating around the high dead limbs of some large tree, playing with each other, and amusing the passers-by with their gambols." But though he is not above recreation, his general air is business-like, and his business is to catch worms. Not the worm

"i' the bud"—he leaves such light work for the warblers and creepers, while he goes after the worm hidden deep in the wood, where only his strong sharp bill can penetrate. What a fine ear he has! See how he gives tap after tap where he suspects his prey, then turns his head one side and listens for sound of stirring within. When assured of it he falls at it with a will, and his vigorous strokes soon lay open the nest of grubs that are eating out the life of the tree. His rat-tat-tat is heard far through the woods—one of the most musical of sounds to saunterers—heard in the open field it sounds not unlike the chopping of a tree, and we know that

"The woodpecker down in the pasture is drumming

A tune on the old beech tree.

Of the six woodpeckers found here this one is the third in size.

The largest woodpecker is the ivory bill, called in the West "Indian hen." A few stay here in the deep woods throughout the year. The body is mostly black, with bright scarlet on head and throat. The most remarkable thing about this bird is its bill; so long and strong and polished, one is not surprised to hear of the work it does. Next in size is the golden-winged woodpecker or flicker, sometimes called the high-hole. It is one of the earliest birds to come in the spring. Higginson invited us to "come out for the voice of the high-hole is heard in the land." It leaves late, if at all. I have known them to stay all winter. It is magnificent in coloring, the richest of browns and solid gold, with a blood-red crescent on its neck. Unlike others of his tribe this one finds his "grub" on the ground, and only pecks when he is excavating for a nest. Audubon says "their note is a merriment itself, as it imitates a prolonged and jovial laugh."

The yellow-throated woodpecker is sometimes mistaken for the hairy, which they resemble in size. The red on the head is more of a scarlet, while the under parts of the body are a beautiful delicate yellow. They seem to love the juice of pines, as I have known them to riddle bark of trees where there was no suspicion of larvæ, but where the sap flowed freely. The hairy and downy woodpeckers are so much alike that many persons consider them the same, the chief difference being in their size. All our woodpeckers make their nests in a hole which they dig in a tree usually pretty high up. The nest is sometimes eighteen or twenty inches deep, and in it they lay five or six pure white eggs. The young have no red on their head the first season.—*L. N. Houston.*

TREE PLANTING IN MARYLAND.

The Legislature of Maryland, at its last session, appointed an unpaid commission to examine and report to the next General Assembly what legislation is necessary to protect and foster the forest-growth of the State. A resolution adopted by the Legislature in this connection declares that the destruction of the forest trees in a large portion of Maryland is far in excess of the replanting which is being done, and that unless proper and remedial legislation is enacted another half century will doubtless witness the almost entire destruction of the forest growth of the State.

The committee designated by the Legislature to take charge of this important matter comprises Governor William T. Hamilton, ex-Governor John Lee Carrol, ex-Governor Philip F. Thomas, Hon Lloyd Lowndes and Professors P. R. Uhler and Ira Remsen. The committee have never been called together or had a meeting, but Professor Uhler, who is thoroughly conversant with the resources of the State and its needs, is fully competent to furnish at any time all the information the General Assembly may require on which to base proper legislation and in Professor Remsen he would find an equally able scientific coadjutor. The resolution of the Legislature implies that some replanting had been practiced before 1882, but restoration has never been carried on to any considerable extent. The importance of trees to the health, safety and prosperity of any country is well recognized. Heavy forest growths afford protection from "blizzards," and retain the rainfall and melting snows sufficiently to prevent sudden torrents and consequent flooding of large rivers, which are usually attended by destruction of property and even of life. On the other hand, too, they help to make springs which supply the tributaries of the larger streams. Hillsides covered with trees and undergrowth retain the water and ooze it off gradually to the springs, or permit it to trickle through rocky crevices and converge in the streams of lower levels. Where the trees are destroyed and the hillsides are baked by the sun, the rain rushes down by a single impulse to swell the rivers and overspread large areas of cultivated territory; while that which falls on the disintegrated rocks is held as in a sponge, and is parted with chiefly by evaporation into the atmosphere.

The most extensive tree planting which has been practiced in Maryland has been done this spring by Mr. Robert K. Martin who has set out 12,963 forest trees of different varieties on the line of the Gunpowder river, eight miles from the city. These trees have been scattered over 34 acres of land owned by the city at Loch Raven. Mr. Martin, who is the civil engineer of the war department, says he will plant all along the line on the city's property until he gets the Gunpowder river fringed with woods. Next fall he will procure acorns and other seed for extensive planting. The cost he says is trifling and the benefit incalculable. The importance of the work of Mr. Martin may be appreciated when the fact is remembered that the Gunpowder river has lost three-fourths of its volume in the past hundred years by the destruction of the woods which formerly covered its banks and grew thickly on the hill sides and in the ravines through which its tributaries and resources flowed to the main water course.—*Baltimore Sun.*

THE SUMMER OF 1816.

COLUMBIA, PA., May 28, 1883.

I see by last week's *New Era* that there are still people on earth who recollect the cold summer of 1816. Though I did not recollect the actual year, I well remember the cold summer. We had frosts every month in the year. I was then a boy of 14 or 16 years of age. Our first corn planting was all killed by freezing, and we had to replant once and part

twice, and when husking we had more soft or roasting ears than sound corn; the following season there was much complaint among farmers of their corn not sprouting, owing to unripe seed. As our men went into the meadows to cut grass for hay, there was a heavy frost on the grass, and all of the men had on their woollen coats. It took three to four days to dry the grass sufficiently to store in the barn.

Then in harvest I well remember that all the men had on their winter clothing, and a neighbor right across the line fence was piling sheaves on the wagon, wearing a great coat, which our men said looked quite comfortable. Of course, we had no fruit that season, as the frosts destroyed all new growths. Some years previous to the cold summer we had deep snows and heavy drifts. We boys going to school would run on these drifts over fences, and many people dragged heavy logs through the snow to make paths for their children to get to the school houses. During the cold summer there was much talk among the people fearing that our planet had got astray or the sun had lost its power of supplying heat.

But in four or five years there came a "change o'er the spirit of our dreams." The seasons became warm and dry. Springs that never failed before would not give their usual supply, and streams became very small. Flour mills could no more grind grain for distilleries or stock feed, and barely ground a short supply of meal for their customers. They would shut down for some days to collect a supply of water in their dams, and then run the mills for a day or a few hours, till the supply of water was exhausted. I well remember of some distillers and cattle feeders having to get their grain chopped on large streams, at great distances.

It was said that in Cumberland county some farmers had to drive their cattle ten miles to water.

Then prophets rose up in every direction pretending to inform the more ignorant that our climate was undergoing a change, and that in a few years we could grow figs and oranges in the open air. In the fall of 1819 I planted an orchard of sixty apple trees; we had no rain or snow all that winter till May that moistened the dry earth over an inch, and then I hauled water to the trees every week; yet of the sixty trees only three or four lived. The next fall I again planted the orchard, and as the ground was then more moist, every tree grew, and most of them are yet living, though far past their prime. The winters were so mild and warm that I saw a neighbor's wheat field containing more oats than wheat, and that was the only winter that oats was not killed by freezing or that I ever knew of a crop of wheat and oats growing together on the same ground.

But again a change came over the spirit of our dreams—of growing tropical fruit out of doors, as from 1825 the climate changed again, and we got plenty of rain and snow. I well remember that on April 28th, I think it was the spring of 1828, a snow fell 18 inches deep, blocking up the roads so that Supervisors had a big job on hand for a week, I sent my hired man to mill with a two-horse team who was not familiar with the road, and his team stuck fast in a snow drift

through a public road thirty-two feet wide. He came home with the horses, and we had to go and dig out the wagon. It was quite warm in march and the early part of April, and the peaches were already as large as small shot, but not a peach was left on the tree; indeed, all the leaves and young growth of that spring, even in the woods, were frozen black, and all the new growth fell off. Some say the seasons repeat themselves; if so, then we should have a series of dry and mild seasons before many years.—*J. B. Garber in New Era.*

ABOUT ALLIGATORS.

Six thousand baby alligators are sold in Florida every year, and the amount of ivory, number of skins, and quality of oil obtained from the older members of the Suarian family are sufficient to entitle them to a high place among the products of the State.

The hunter sell young "gators" at \$25 per hundred, and the dealers from 75 cents to one dollar each. Live alligators two years old represent to the captor 50 cents each, and to the dealer from two to five dollars, as the season of travel is at its height or far advanced. A 10-foot alligator is worth \$10 and one fourteen feet long \$25 to the hunter, while the dealer charges twice or three times that price. The eggs are worth to the hunter 50 cents per dozen and to the dealer 25 cents a piece.

The dead alligator is quite as valuable as the live one, for a specimen nine feet and reasonably fat will net both branches of the trade as follows:

THE HUNTER.		THE DEALER.	
Oil	\$5 50	Oil	\$7 50
Skin	1 00	Skin	4 00
Head	10 00	Head	25 00
	\$16 50		\$36 50

The value of the head is ascertained by the number and size of the teeth. Dealers mount especially fine specimens of the skull, but the greater number have no other value than that of the ivory they contain.

The wages of the hunter depend, of course, upon his good fortune in finding the game. One of the most expert of these gives as instances of successful hunts the items of three days' work which yielded thirty-nine dollars and seventy-five cents; of six days with a yield of twenty dollars and ten cents, and of eight days' hunting which netted forty dollars and twenty-five cents.

Without speaking of those enemies of the "gator" who hunt him for sport, there are about two hundred men in the State of Florida who make a business and try to make a living by capturing or killing him. Very many have eaten alligator steaks from simple curiosity to learn its flavor; but many more eat it because it is the cheapest, and, oftentimes, the only meat they can afford. The flavor when it is fried or broiled is that of beefsteak plentifully supplied with fish gravy, while the fore-legs roasted taste like a mixture of chicken and fish, and have a delicate fibre.

Very methodical in his habits is the alligator, and very suspicious of anything around his home. When he starts out in search of food it is invariably an hour after tide has begun to ebb, and he returns about four hours after low water. If he has a land journey to perform, he goes and comes by the same route,

never deviating from it until he sees evidence that strangers have trespassed on his domain. He lives on the banks of some stream, for he has decided objections to stagnant water, and to make his home he digs a hole at least twelve inches below the level of the water. This hole is perfectly straight, although on an incline, and from twenty to thirty feet in length, terminating in a chamber sufficiently large to admit of his turning in it. There he or she dwells alone, save when the female is caring for a very young brood, in which case the one room is converted into a nursery. Full-grown alligators not only do not occupy the same hole, but they will not live near each other.

The alligator usually lays her eggs about the first of July, and during the month of June she is busily engaged in preparing the cradle for her young. Selecting a place on the bank of some stream or creek, she begins work by beating hard and level with her tail an earth platform about six feet square. She scrapes together with her fore-feet, oftentimes from a distance of fifty yards from the proposed nest, dried grass, sticks and mud until fifteen or twenty cubic feet of the material is in a place convenient for her purpose. On the day following the completion of these preparations she lays from thirty to fifty eggs on the prepared ground, and piles over them dried grass and mud deftly worked in with sticks until a mound six feet in diameter and three feet high has been raised. The surface of this is quickly hardened by the sun, and in order that it may be as nearly air tight as possible, the female visits each day, covering with mud any crevices that may have appeared, as well as remodeling such portions as do not satisfy her sense of beauty.

The ordinary time of incubation is about two months, and then the newly hatched brood may be heard yelping and snarling for their mother to continue her work by releasing them from their prison nest. On the second or third day after the first noise has been heard, the female bites a hole in the side of the mound, out of which the young ones, barely more than eleven inches long, come tumbling in the most vigorous manner, crawling directly toward the water. Until the young are three years old the mother exercises a parental care over them, always remaining within sound of their voices, not so much to protect them from their natural enemy, man, as for their unnatural enemy their father, who has an especial fondness for his own children in the way of food.

When the hunter finds a nest, he carries the eggs home to hatch them, where he can easily capture the brood if the eggs are fresh or if the young in them are not more than five inches long; at any other stage they will not hatch if removed and are of no value except for the shell. The captured eggs are then packed in straw as nearly as possible in the natural way, and the young may be thus hatched out very successfully. One farmer reared sixteen hundred and another a thousand and last season. The young will eat immediately after coming out of the shell, but they thrive best if given no food for at least three months.

The cry of a full-grown 'gator is not unlike the bellowing of a bull, except that it is of

more volume, since the voice of a male can, on a calm day, be heard a distance of five miles; and they may be said to be sun worshippers, since they seldom "resolve themselves into song," save at the rising of the sun; in fact, the only exception to this morning melody is when a storm is approaching. The average Florida "cracker" needs no other barometer than the alligator in the neighboring creek or swamp.

One ceases to be astonished at the volume of sound which comes from these monsters when he sees a full-grown one put forth all his strength to produce the effect. He stretches his body to its full length, inhaling sufficient air to puff him up nearly twice his natural size; then, holding his breath, as it were for an instant, he raises both head and tail until he informs the segment of a circle. When all is thus complete, the "roar" comes with sufficient force to startle one, even though he be prepared for it.

Since, in order to guard his head, the alligator is obliged to turn his body somewhat and since, when his jaws are once, closed he is unable to open them if only a moderate amount of strength on the part of man be used, the hunter selects this point for attack when it is possible for him to steal upon his game unawares. If the intending captor gets a firm hold upon the jaws of his game in this way, the monster becomes reasonably easy prey; one rope soon secures his jaws, another is tied around his neck and fastened to a tree, while a third secures his tail in the same way, thus stretching the captive in a straight line; his fore paws are tied over his back, a stout pole is lashed from the end of his snout to the tip of his tail, and the 'gator is helpless.

It is seldom, however, that the hunter gets his game at a disadvantage, and to secure him alive he must set about the work much as boys do when they snare rabbits. A tall, stout sapling near the water's edge is the first requisite, and directly in front of that in the water, a narrow lane or pen is made with stakes, the two outer ones being notched, as is the spindle of a box-trap. At the end of this pen, and nearer the shore, a stake is driven into the mud, and on the top of it is fastened a piece of tainted beef. A stout rope at one end of which is a large noose, is fastened to the top of the sapling and to the upper part of the noose is attached a cross-bar, or trigger, which, when the tree is bent, catches in the notches on the outer stakes just below the surface of the water, the noose hanging around the entire opening. To get at the meat the alligator attempts to swim under the bar, but his back displaces the trigger, and he is a captive, with the rope fastened just back of his fore legs.

It is necessary to bind the captive while he is in the water, and then to carry him to the shore in a boat: for, amphibious as he is, he can be drowned if dragged through the water. When once properly secured and on land, the alligator can do nothing in the hope of effecting a release, save to roll over, and this he does by a mighty effort with his shoulders, frequently working himself over a quarter of a mile in distance in a single night.

Those who are familiar with the habits of the alligator, as seen in the Southern States,

believe his partiality for decayed food does not arise from any particular flavor it may possess, but simply because in a putrid state any large amount of flesh is more easily torn apart and masticated than when fresh. Although the possessor of so much ivory in the shape of teeth, and able to use its jaws with so much power, it is an extremely difficult matter for an alligator to dismember a pig, even after the flesh is decayed. While the meat is yet firm and the muscles intact, it is an impossibility for him to do other than swallow it nearly whole, as he sometimes does when he is interrupted shortly after he has killed his prey. That alligators do like fresh food when it is possible for them to eat it is shown by the fact that fresh fish and small turtles are their favorite diet. In the stomach of a 12-foot alligator there have been found six catfish, none of them mutilated, weighing altogether 34 pounds.

If one believes implicitly the positive assertion of the alligator hunters, he must perforce say no man knows the span of life allotted these Saurians. The native Floridian, as well as the hunters, will insist that the largest of the 'gators are more than a hundred years old, pointing to the fact of his slow growth in proof of the assertion. A newly-hatched alligator is eleven inches long; at the age of six years he is very slim and but three feet in length; at ten years of age he has gained considerably in breadth and but twelve inches in length, while during the next two years he has grown hardly more than one inch longer. An alligator fifteen feet in length, caught near the mouth of the St. John's river, was so covered with barnacles and marine growth as to make it almost certain that he must have been in existence seventy-five years.—*James Otis in Our Continent.*

OUR LOCAL ORGANIZATIONS.

THE AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular monthly meeting of the Lancaster County Agricultural Society was held on Monday afternoon, June 4.

The following members were in attendance: Calvin Cooper, Bird-in-Hand; Casper Hiller, Conestoga; John C. Linville, Sadsbury; Henry M. Engle, Marietta; W. H. Brosius, Drumore; Ephraim S. Hoover, Manheim; C. A. Gast, F. R. Diffenderfer, J. M. Johnston, F. S. Pyfer and Peter Hershey, city; S. Hoffman Hershey, Salunga; Levi S. Reist, Manheim; Peter S. Reist, Lititz; C. L. Hunsecker, Manheim; John R. Buckwalter, Salisbury; J. B. McCahren, Salisbury; Daniel Moyer, Bird-in-Hand.

In the absence of the President, Vice President Engle took the chair.

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

Crop Reports.

Casper Hiller said the wheat fields on the whole look very well. Some are very rank where tobacco was grown last year. Grass is excellent. Fruit will be tolerably plenty. Peaches are well set. Cherries are very full. Small fruits of all kinds promise well. Corn is pushing along slowly.

Calvin Cooper made about the same report. Grass was never better set. Wheat looks very well. Corn looks sickly and comes along slowly. Tobacco is ready to plant. Peaches are well set.

Levi S. Reist knows of a number of wheat fields sown on the 26th of September, which will not make half a crop, because of the ravages of the rot.

John C. Linville reported some poor wheat fields

the fly being very bad; grass is the best in years; corn is small; oats is very backward; fruit promises very well.

Peter S. Reist said nearly all crops save apples and wheat will be fully up to 100; grass is extraordinary; core is up and growing; so is oats; small fruits are good.

Hoffman Hershey reported a fine prospect for the coming season. Wheat has no fly in his neighborhood. He found the apple crop would not be heavy; they seem to be falling. Tobacco looks well so far as planted. Small fruits promise well.

Mr. Cooper remarked the curculio had so far done very little harm to the plums and gages, and the trees were very full.

H. M. Engle thought wheat was a little too rank; he feared excessive heat and showers would make it lodge. The clover is as good as ever we had it here. Cut worms are bad in the corn fields. Early potatoe look very fine. The potato beetles are very scarce. In his neighborhood the curculio is doing much damage. The corn crop is unusually large. Pears and apples will not be a full crop.

Casper Hiller read the following on

Paulownia Imperialis.

This magnificent tree is not receiving the attention in this country that it merits. Its large blue, sweet-scented flowers are beautiful. The tree, if severely shortened in when young to keep it from becoming too straggling, makes one of our best trees for ornament. The tree is perfectly hardy. As a quickly available tree, it has no equal. It far outgrows the Catalpa or the Ailanthus. The last named tree is perhaps the next tree in value, but the smell of the bloom is so objectionable that it should not be planted near a dwelling. The Paulownia wood, for durability, is not exceeded by anything, unless, perhaps, the locust. The lumber is said to be first class for cabinet work.

To give an idea of its growth we cite a tree growing in Independence Square, Philadelphia, 35 years old, measuring 8 feet in circumference and about 60 feet high.

A tree 18 years old, that I had occasion to remove about 8 years ago, measured 18 inches in diameter. Some of this wood was left lay around purposely to test its durability. It is to-day as sound as locust wood to be under similar conditions.

This growth exceeds the locust by far. The locust, too, is subject to borers and other insects, while the Paulownia is so far insect proof.

The tree is well adapted for the planting on hill-sides. It should be planted thickly, say from four to six feet apart, to make them grow straight and upright. If the trees, when two or three years planted, are cut off near the ground, there will be no difficulty in growing straight stems, as they then make shoots of 10 to 15 feet long in one season.

After three or four years more, the thinning out will pay for all the labor expended on the planting.

These poles, from ten to twenty feet long, are excellent for fencing or for fuel. If some of our creek hills, that are annually having their soil washed away until they become barren wastes, and are already eye-sores, would be planted with these magnificent Paulownias, they will become a thing of beauty to the country and a joy to their possessors.

Calvin Cooper reported that the growth of the above tree was all Mr. Hiller said, but with him it was winter killed. He had it in the nursery, but the growth was checked by these repeated winter killings.

Mr. Hiller said this tree was a profuse seed bearer and can be readily cultivated. A young tree on his premises has increased at the rate of one inch in diameter per annum. The Catalpas do not make more than one-fourth the growth of the Paulownia.

Has the Self-Binding Reaper Been a Success?

John C. Linville answered this question in the affirmative. There has been no greater progress in agricultural machinery at one step than this machine. It does its work cleaner and better than any other plan. He has used one with uniform success. It takes up lodged grain better than anything yet

devised. This puts the sheaves in excellent shape. There are fewer rakings. It cuts twelve acres per day. Cuts heavy and light grain. He used the Osborne machine, but said there were others that were better. It is not necessary for every farmer to have one. A number of farmers can use the same machine. The Osborne machine does not make the sheaves a uniform size.

New Business.

This Society being entitled to send delegates to the election of Trustees for the State Agricultural College, Mr. Cooper suggested that three members of this society be sent to participate in said election.

A motion to this effect was made and adopted.

The president named Senator Amos Mylin, Representative W. H. Brosius and Calvin Cooper as the delegates.

The following question was submitted by Mr. Cooper: "Have the sessions of the Lancaster County Agricultural and Horticultural Society and the subjects discussed at their meetings been of any benefit to the community, and, if so, why do not those interested in agriculture and horticulture attend its meetings and participate in its deliberations?" Referred to W. H. Brosius.

The rain fall as reported by H. M. Engle was 3 1-6 inches for March, 2 10-16 for April and 4 5-16 for May.

Calvin Cooper moved that the next meeting be held on the first Monday of August as the regular meeting day will occur in the busiest part of haryes time. Agreed to.

Mr. Cooper offered a motion that a premium of one dollar each be offered for the best collection of apples, pears and peaches offered at the August meeting of the society and a premium of fifty cents each for those fruits. Adopted.

Would Southern varieties of apples be advisable to cultivate in this section for winter use? Referred to Casper Hiller.

The Society, on motion, then adjourned.

THE POULTRY ASSOCIATION.

The Lancaster County Poultry Association met on Monday morning, June 4, at half past ten o'clock, the following members being present: J. B. Long, J. B. Lichty, H. A. Schroyer, Chas. Lippold, John E. Schum, F. R. Diffenderfer, C. A. Gast, city; Peter Bruoner, Mount Joy.

In the absence of the president, Mr. J. B. Long was elected president pro tem.

The minutes of the preceding meeting were read and approved.

John P. Witmer, of Paradise; Dr. Carpenter Weidler, of Mechanicsburg; Frank Humphrey ville, of Lancaster, were elected to membership in the society.

Mr. F. R. Diffenderfer was instructed to prepare an essay for the next meeting on the subject of gaps in chickens.

Mr. Long reported that the society was on a fair way for procuring the charter. He also stated that inasmuch as there was a rumor that the Agricultural Society was about disbanding, he was of the opinion that the words "Live Stock Association" should be inserted in the charter.

On motion, it was resolved that the suggestion made by Mr. Long be adopted.

Adjourned.

FULTON FARMERS' CLUB.

The June meeting of the Fulton Farmers' Club met at the residence of Montillon Brown, in Fulton township, on Saturday, the 2nd.

Members present were Josiah Brown, Lindley King, E. H. Haines, Solomon Gregg, Wm. King, Joseph Blackburn, Day Wood, Mrs. Jos. Griest, Mrs. C. C. Canffman and two sons. Visitors: Isaac Bradley, Layman Blackburn, wife and daughter, and S. J. Bennington, agent for Engle & Bro., nurserymen.

After the club was called to order the minutes of last meeting were read and approved.

Asking and Answering Questions.

E. H. Haines asked how the members' corn had come up, and where it was a failure, what is it to be attributed to.

Most of the members' corn had come up pretty well, but some had trouble and attributed it to the imperfect seed. One said he selected his seed in the fall and kept it near the kitchen stove, and never had any trouble to get it to grow.

Solomon Gregg cited a case where a neighbor of his had done similar to this, and there was very little came up, and afterwards got seed from his crib, and this came up very well.

Josiah Brown stated he has for over twenty years selected his seed corn in the fall, keeping it near the kitchen stove, and never has had any trouble, always coming up, no matter what the condition of the ground or the weather.

It was the universal opinion of all present that by a judicious selection of seed in the fall and keeping it in a warm and dry place, there will be no trouble in getting it to grow.

Lindley King asked what is the reason the hogs are eating the bark off of apple trees this season more than is usual? The club was not aware that this was the case. It was thought to be a habit that hogs get into, and the only remedy is to take them away from the trees.

Wm. King said that at a former meeting of the club the question was asked if it was better to cut clover green or let it get pretty ripe, and he now asked the club if they have changed their opinions since then.

All present preferred cutting before it was too ripe and the question was raised what constituted ripeness. When the heads turn a dark color or when the blossom was dying, was thought what would be meant by the ripe state.

Rebecca King asked which is the most nutritious canned or dried fruits.

This question raised quite a discussion as to the changes from a green to a dried state, some members contending that the dried fruit was as nutritious as the canned, that the drying process only took the water out and the fruit still retained all the nutriment. But at the same time all preferred the canned fruit as it was more palatable. Others held the opinion that the drying process, while taking the water out, also takes a certain quantity of nutriment and consequently is inferior to canned fruit.

[This is an important question and the club would be pleased to have a scientific answer to it from any person through the columns of this paper.]

Esther Haines said the worms were very bad on the currant and gooseberry bushes and asked if any one present could give a remedy.

Layman Blackburn uses with good results dry coal or wood ashes dusted on the bushes when they are wet.

Mary Stubbs uses the ashes as above and it is satisfactory.

William King said white hellebore clustered on the bushes when wet was recommended.

Mont. Brown wanted to know what prospect there was for fruit.

E. H. Haines: There is going to be the largest crop of cherries there has been for years, an average crop of apples and some pears.

Solomon Gregg, so far as he has observed, thinks the prospect good.

Josiah Brown reports cherries full, apples and pears poor, and wild goose plums a failure.

S. J. Bennington (fruit tree agent) says his observations are a large crop of cherries, not an average crop of apples, some varieties of plums very full.

Club then adjourned for dinner. After doing justice to the good things set before them, they spent some time looking at the host's stock, farm, etc.

AFTERNOON SESSION.—After resembling for the afternoon session, the minutes of the previous meeting held here were read.

Criticisms on the farm management was then called for. As usual the remarks were all of a favorable character. Mr. Brown's fine flock of sheep and

lambs, a pen of hogs, buildings and fences white-washed, a field of oats (one member pronouncing it the best he had seen this year), were all favorably spoken of. The host had just purchased a full bred Scotch coolie pup which was much admired by the club.

The host read an essay on "Lime as a Fertilizer," telling in a practical way what lime has done for the improvement of this section years ago.

E. H. Haines believed lime had been of great benefit in improving the country years ago, but our land has enough, and it is useless for farmers to apply lime on their farms when they could not see any benefit from it.

Rebecca King, read a very interesting temperance sketch, entitled "Mother, Don't Cry."

E. H. Haines read from the *Practical Farmer* an article on ensilage.

William King read an article from the *American Agriculturist*, describing an insect that works amongst the feathers in beds. They take small pieces of the feathers, cementing them to the bed tick, and giving it an appearance like plush. He exhibited a piece of old bed tick which had this appearance.

Carrie Blackburn recited "Farmer Stebbins at Ocean Grove."

William King read from the *New York Tribune*, "What will we do with our Old Horses?"

Phebe King recited a poem committed to memory when she was a school girl over fifty years ago.

William King recited "The Lost Heir."

Club then adjourned to meet at Solomon Gregg's August 4, 1883.

LINNÆAN SOCIETY.

The Linnæan Society met on Saturday afternoon, May 26, 1883, at 2 o'clock, in museum rooms, Y. M. C. A. building. The president, J. P. Wickersham, in the chair, and eight members in attendance. There were also three Indian girls from Carlisle present as visitors. The minutes of the previous meeting were read in part, and dues collected, after which

Donations to Library

were examined and found to consist of the following: Patent Office Gazette Nos. 19, 20, 21, volume 23; *Science* for March 4, 1883, *The Antiquarian and Orientalist*, volume 5, No. 2; *Scientific and Literary Gossip*, published by S. E. Cassino, Boston; prospectus of Dr. Britton's "Library of Aboriginal Knowledge;" *Lancaster Farmer* for May, 1883, *Answer to Inquiries about Education*, from Interior Department; a German catalogue of Microscopical Preparations, per Dr. Knight; *Cincinnati Weekly News*, May 16, 1883; five circulars, and two envelopes containing twenty-eight miscellaneous scraps.

The donations to the Museum consisted of the following:

A specimen of the pupa of a species of *Palingenia*—commonly called "May-fly," from Walhalla, South Carolina, sent by mail, by Dr. Wm. B. Fahnestock. This subject may be *P. limbata*, as that species occurs in the South; but, from the pupa alone, without previous identifications, it would be unsafe to pronounce upon the species, especially after it had been immersed for some time in alcohol, and afterwards shrunken and dried. *Palingenia bilineata* is common to Lancaster county, but has also a wide geological range being found along the Ohio and Mississippi rivers and their tributaries.

Very few boys who have been reared near ponds or streams are ignorant of these flies, although they may not know their common or scientific names. Indeed I do not think that "May-fly" is appropriate to them, in this latitude, for they usually do not appear until June, and even as late as July. They belong to a family of "Pseudoneuroptera," the typical genus of which is *Ephemera*, indicating something that lives but a single day, and as these insects are short-lived, it would be more proper to name them "Day-flies." Both the larva and the pupa are aquatic, and remain in the water a whole year, annually crawling out in the pupa form, and

adhering to almost any object that is convenient, the fly evolves first as a *sub-imago*, and then the true *imago*. They are then altogether harmless, being destitute of mouthparts or possessing them only faintly rudimental. They are long bodied, with the wings erected—back to back—like those of the common yellow butterfly, and have conspicuously two very long and filaments or setae, and very long anterior legs projecting forward, very small antenna, and finely reticulated wings, the anterior pair being about three times as large as the posterior pair. They have a sluggish flight, and multitudes of them are sometimes found sitting on fences and other objects in the vicinity of water streams. Having no mouth, of course, they can eat nothing, and the whole business of their brief lives is devoted to the perpetuation of their species. The eggs are deposited on the water, sink to the bottom, and are soon hatched, and the larva feeds on slime, mud, algae and perhaps other small aquatic animals.

A specimen of "Animated Oats"—*Avena Sterilis*—cultivated by some gardener as a vegetable curiosity. The curious thing about it is, that when laid on a smooth surface, paper for instance, and a succession of moderate blows are struck on the plane near it, it will move towards the point of concussion, and follow the blows in any direction they are made. The outer surface of the shell of the oats is densely covered with long finely barbed bristles or setae inclined from the base to the apex, and through the elastic and barbed character of these bristles the apparently animated movement supervenes.

Dr. S. S. Rathvon stated that the cocoons of the "Saddleback moth"—*Empretia stimulea*—noticed in the May number of the *Lancaster Farmer*, and which still contained the living larva of that insect on the 3d of May, almost in the form and colors they possessed last summer or autumn, when they spun themselves in, on examining them again on the 20th of May, were found to contain the pupa, so that the pupal transformation must have taken place some time between those two dates. Removal from the open air to the house may have hastened this transformation, but it also may have retarded it. It is difficult to artificially preserve all the conditions necessary to accomplish the final evolution to the moth state; but, from the healthy and plump appearance of the pupa, I entertain the hope that I may succeed, although I have often failed. The pupa is of a clay yellow color, nine sixteenths of an inch in length, and about the same in circumference and otherwise has the blunt form of the "Bombycidae" in general, although not exactly belonging to that family, under its modern eliminations and restrictions.

Prof. J. S. Stahr read a very interesting paper on "Vegetable Monstrosities," illustrated with a specimen of the common Indian turnip. This was the consolidation of six stems into one, while the number of spadices were a good deal more. Miss Lefevre exhibited specimens of the Tamarisk (*Tamarix gallica*), and American Larch (*Larix Americana*).

Dr. Rathvon said that he had paid a bill of \$5.00 to the Academy of Natural Sciences, for their publication, and asked that the same be approved, which, on motion, was done.

Committee on by-laws further continued, after which society adjourned to meet on Saturday, June 30, at 2½ P.M., in Museum.

AGRICULTURE.

The Crop Outlook.

The Agricultural Bureau has made its May crop report, and in the main it confirms what we have been told by private estimates, that the wheat crop of the country will fall short of last year's crop by from 70,000,000 to 100,000,000 bushels. The average is lower in a number of States than it was in April, most notably in Ohio, Michigan, New York, Illinois, Missouri, all important wheat growing localities. Most of the Northern States show an improvement, as do also the Southern States and those on the Pacific. Oregon shows an improvement equivalent to

17 per cent. and California 15. On the whole, the situation seems to have improved over what it was a month ago, when it was put down at 80, whereas it is now given at 83½. In May, last year, it stood at 100, which under the standard set up by the Department means a medium growth, a full stand and a healthy plant. In 1879 and 1880 the average was about 99, while in 1881 it was only 88. While the crop in May last year was only 100 it went up to 104 by the time the harvest came along. The present average of 83½, therefore, need not be accepted as the exact extent of the crop. Under exceptionally favorable weather it may rise considerably higher. At the same time untoward influences may also serve to reduce it still lower than where we now find it.

The foregoing refers to the winter wheat exclusively, which, of course, forms the far larger part of the crop. It is too early to estimate what the area of spring wheat will be, but enough is known that there will be a very material increase in some sections. In Dakota it will amount to as much as 30 per cent. In Washington Territory it will be about 15 per cent. greater. But, after all these increases reported from the spring wheat States are considered, they will not, it is believed, more than make good the losses in the entire wheat averages. In short, as stated above, the data now at hand indicates that our crop will fall short at least 70,000,000 bushels, and may reach 100,000,000. The deficiency will be exclusively in those States which send their grain to the Atlantic seaboard. The Pacific coast will hold her own, but her wheat area is too small to affect the general average much.

This serious falling off in this important crop will affect our wheat export not a little. There will be only about half as much to sell abroad as there was last year. This may be modified somewhat by the surplus we have left over from last year, which is estimated at about 70,000,000 bushels. Still, the disagreeable fact remains that our wheat supply a year hence will be far shorter than it is now. In this locality the prospect is unusually good, as it also is in the neighboring counties of Chester, Berks, Bucks, Lebanon, Montgomery and Lehigh counties. In fact, the weather has favored the crops in this section greatly, and, saving of course the unknown contingencies of the season, the outlook is as good now as it has been at any time in years. Our hay crop never promised better and in these two important items our farmers have every reason to believe they will have an unusually prosperous season. Not, however, until the middle of July comes will the true state of the country's wheat crop be known.

Bone Manure for Pastures.

An English paper, in commenting upon the subject, remarks that the Cheshire dairy farmer, by free use of bone manure laid on the grass lands, makes his farm which at one time, before the application of bone manure, fed only twenty head of cows, now feed forty. In Cheshire two-thirds or more, generally three-fourths, of a dairy farm are kept in perfect pasture, the remainder in tillage. Its dairy farmers are commonly bound to lay the whole of their manure, not on the arable, but on the grass land, purchasing what may be necessary for the arable. The chief improvement besides drainage consists in the application of bone manure. In the milk of each cow in its urine, in its manure, in the bones of each calf reared and sold off, a farm parts with as much earthly phosphates of lime as is contained in half a hundred weight of bone dust. Hence the advantage of returning this mineral manure by boeing grass lands. The quantity of bones now commonly given in Cheshire to an imperial acre of grass land is 1,290 to 1,500 weight. This dressing on pasture land will last seven or eight years, and on mowed land about half that period.

Farm Tools and Implements.

A certain number of tools, and some skill in their use, will often save the farmer much time in sending for a mechanic and some expense in paying him.

Every farmer should be able to make repairs on his wagons, gates and buildings. A room, or a portion of a room, should be devoted to keeping tools; a pin or nail should be inserted for each one to hang on, and the name of each one written or painted under the pin, that it may be promptly returned to its place and any missing one detected. Keep every tool in its place—do not wait for a more convenient season, but return every one to its pin the moment it is done with. If left out of place a moment it will be likely to remain a week and cause a loss of time in looking for it a hundred times greater than in replacing it promptly. Keeping everything in its place is a habit costing nothing when formed. The tools should be a hammer, saw, augurs, brace and bits, gimlets, screw-driver, wrench, two planes, chisels, mallet, files and rasp, draw-knife, saw set, trowel, and a box with compartments for different sized nails, screws, nuts and bolts. Common farm implements and tools, such as hoes, spades, shovels, forks, rakes and scythes, may be in the same room, on the opposite side, and the same precaution taken to keep every one in its place.

Use and Benefit of Plaster.

It appears from an experiment made by the State Agricultural college of Michigan, on their farm with sowing land plaster on grass, that two bushels of plaster produced over two-thirds as much increase as twenty loads of horse manure, worth ten times as much as the plaster cost. From this experiment it must not, however, be inferred that the same results would be forthcoming on all soils from similar application, for all lands are not equally benefited by the application of plaster, though, as a rule, pasture fields can be made to produce luxuriant grasses by its use. So far as we know, where plaster has been tried in Minnesota, on grass lands and meadows, its effect was surprising. The only instance brought to our attention, however, was the application on sandy land. So says the *Farmers' Union*.

Sowing Corn for Fodder.

There is nothing the farmer can get as much stock food from for the amount of labor expended as he can from a patch of sowed corn for fodder. Unless your ground be rich, give it a good coat of manure and plow it under. Let it lay until the surface is thoroughly pulverized; then sow the corn with a drill, about one and a half bushels of shelled corn to the acre if you want it for fodder alone, as by sowing thick the stalks will be smaller, and you will have a larger quantity of blades and tops that the stock will eat up cleaner. By sowing thinner you get larger and heavier stalks, and by sowing a little earlier and letting stand longer you can secure a good supply of nubbing.—*South and West*.

HORTICULTURE.

Budding.

Budding of trees is very simple and much less trouble than grafting, but it can scarcely be described how to do it sufficiently well to enable one to perform it successfully. The season for the purpose is June and July, when the new buds are fully developed.—*Germantown Telegraph*.

Use the Hoe.

An English gardener says he does not agree with those who say that one good weeding is worth two hoeings. He says: Never weed a crop in which a hoe can be used, not so much for the sake of destroying weeds, which must be the case if the hoeing be well done, as for increasing the porosity of the soil, to allow the air and water to penetrate freely through it. Oftentimes there is more benefit derived by crops from keeping them well hoed than there is from the manure applied. Weeds or no weeds, I keep stirring the soil, well knowing from practice the very beneficial effects it has.

Forcing Apple Trees on Off Years.

Asa S. Curtis, of Stratford, has tried an experiment in apple growing, the result of which will be of interest to all those who raise apples for their own use or the market. Having an orchard which produced fruit only on every other year and bearing that the trees could be made to change their bearing season so that every year might be fruitful, he selected a healthy young apple tree eight years ago and for four successive bearing seasons carefully rubbed off every bud as fast as it appeared. For the first three seasons this made no apparent difference, the tree omitting all blossoms the next season, but putting out its blooms again on the regular year. Last year Mr. Curtis repeated the experiment for the fourth time, and this season the tree appears to have given up its old habit and to have concluded to let its owner have his own way, for it is in full bloom at last in the "off season." If part of the trees of an orchard can thus be made to bear one year and the others the next there need be no "off year" at all for the apple crop.—*Hartford Courant*.

Cultivation of Horse Radish.

Any kind of soil will suit horse radish, provided it is cool and moist. A low, moist, sandy soil, well enriched with low-yard manure, is the best. In place of barnyard manure, Peruvian guano, or a mixture of finely ground raw bone-dust and unleached ashes may be used with benefit; 500 to 800 pounds per acre of either the above fertilizers, or 20 tons of manure, will be sufficient. Unleached ashes are excellent, but need help; a strong ammoniacal fertilizer is needed as well as potash. The best mode of cultivation is to plant root cuttings about one-quarter inch in diameter and 3 to 6 inches long, in rows 2 feet apart, and 16 inches apart in the row. The cuttings are made from the smaller roots, and as they are made the tops should be cut square and the bottoms slanting, so that in planting they may not be put bottom upward. They are to be set three inches below the surface. This crop is not grown from seed; by planting slips in May the Fall crop may be harvested in December. About twelve thousand roots are grown per acre, and good roots will weigh three-quarters of a pound, giving ten thousand pounds per acre, when the cultivation is the best possible. The roots are dug as late as possible, trimmed and put away in pits and covered with soil, just as potatoes or turnips are kept over.—*New York Times*.

FLORAL NOTES.

If a plant is vigorous, and well furnished with leaves, and grown in a pot suitable to its size, there is less danger of injury from too much water, than if it is scant of foliage or in a pot much too large for it. In the latter case, if the soil is kept wet, the roots decay and the plants die.

The Aphis, or green fly, is one of the most troublesome enemies of pot-grown plants. It is most easily destroyed by syringing the plants twice a week with a tea made from tobacco stems, moving them up and down until the insects are thoroughly washed off. This will also destroy other insects.

The two most important things to be observed in taking care of plants in the house, are to secure a proper degree of heat and to furnish a sufficient amount of water, and no more. Some plants require more heat than others; and nearly all plants require more heat when growing vigorously, or flowering, when in a state of rest.

To induce a vigorous growth all plants should be grown in good rich soil; composed of decayed sods and well rotted manure, mixed with sufficient sandy road-drift to make it porous, and nearly all should be re-potted as soon as the pot they are growing in is thoroughly filled with roots. In re-potting use pots only one size larger—or about one inch more in diameter—than the plants have been growing in.

PANSIES are quite hardy, and will stand any amount of cold, if protected from the bleak winds. A cold frame is the most suitable place to winter

them. If sash is used for covering, which should only be done in cold weather, they must be aired freely whenever the weather permits. As soon as the frost is out of the ground, they can be planted out doors, where they will soon commence to unfold their beautiful flowers. Pansies thrive best while the weather is not too warm; dry excessive heat is their greatest enemy.

The calla lily requires plenty of water during the flowering season. It is one of the best house plants grown, being sure to bloom. In the summer season I set them out under a shady tree and let them rest until fall, when I shake off all the dirt and give new soil. Give your calla hot water as a stimulant, commencing with it as hot as you can bear your hand in; then, as the calla becomes used to it, you can give it boiling hot. Give the calla plenty of pot room and plenty of water, and you will have no trouble with it.

WHEN a plant is watered, it should be thoroughly done, water enough being supplied to moisten all the soil in the pot; and then it should be allowed to stand until it needs watering again, no matter how long that may be. Plants are usually kept too wet, particularly in winter; no doubt one-half of the mortality among house plants occurs from this cause, and, on the other hand, many persons water their plants "just a little" every day, which keeps the surface of the soil moist, while at the bottom of the pot where the most of roots are, it may be as dry as dust, and the plant is starved and sickly in consequence.

DOMESTIC ECONOMY.

A Good Breakfast Dish.

A good breakfast dish can be prepared from the remains of yesterday's dinner, providing that consisted in part of roast mutton. Chop it fine, and put it in a saucepan with a cup of gravy or of soup stock, season with pepper and salt, and scatter over it, stirring all the time, a tablespoonful of flour; let the meat heat gradually, and, when "boiling hot," set the pan on the back part of the stove, and poach some eggs to serve with the meat. When the eggs are done, put the meat on the platter, and lay the eggs around the edge. With fried potatoes, muffins, and good coffee a wholesome breakfast may be provided at small expense.

Care for the Sick.

Everybody who cares for the sick knows how difficult it is to remove or to put on the knit wrapper; it seems as if the invalid needs to assume attitudes that would be almost impossible to one in robust health; a half hour's work with needle and thread will suffice to change a pair of these garments, and make them more comfortable. Cut them open the entire length, then put on a facing on one side and a plait on the other; at proper intervals sew on some small porcelain buttons, and make the button-holes, and you will be surprised when this is accomplished that you never thought of doing so before.

Tidies That Will Wash.

No one but the very rich or the inexperienced housewife enjoys using tidies that will not wash, and there are few women who have not suffered pangs of grief in finding some delicate but useless article of this description hanging by one pin in undistinguishable ruin from the back of a chair after the exit of a "gentleman friend." The tidies made of macrame and of the lighter fish cord, embellished with bright ribbons, are really pretty, and can be used with unconcern. Those crocheted of the fish cord are very easy to make. After making a chain of proper length for the width of the tidy, make alternate rows of thick stitches and of chains, so that spaces will be left in which to turn ribbons; the ribbons should be of the exact width of the spaces; black velvet ribbon is also pretty to run in. When it forms a block on the right side work a star in yellow and scarlet silk.—N. Y. Post.

A Mode of Hanging Paper.

A mode of hanging paper on damp walls has been patented in Germany, and is believed to possess some special merits of adaptation. Lining paper, coated on one side with a solution of shellac in spirit, of somewhat greater consistency than ordinary French polish, is hung with the side thus treated toward the damp wall. The paper hanging is then performed in the usual manner with paste. Any other description of resin, that if of equal solution in spirit, may be used in place of the shellac. According to the representations made of this process, a layer of paper thus saturated with resin if found equally effectual in preventing the penetration of damp, and the practical value of the method would seem to be unquestionable.

Pillows for Lounges.

Large square pillows for lounges and wicker-work chairs are ingeniously made of patchwork pieces, which should be of velvet, satin and silk, handsomely embroidered and neatly joined together. The ruffle is usually of lace. The corners are adorned with tassels of crimped floss. Another pretty style of chair cushion is composed of plush and embroidered bands of very bright satin. The edge is finished with a cable cord, which is knotted at the corners. Very handsome covers for chiffoniers are made of linen with lace stripes at equal distance, upon which are embroidered small flowers. The border is knotted fringe with plush band heading,

Washed and Unwashed Butter.

The difference between washed and unwashed butter is analogous to the difference between clarified and unclarified sugar. The former consists of pure saccharine matter, while the latter, though less sweet, has a flavor in addition to that of pure sugar. When unwashed there is always a little buttermilk adhering to the butter that gives it a peculiar flavor in addition to that of the pure butter, which many people like when it is new. Washing removes all this matter and leaves only the taste of the butter pure and simple. Those who prefer the taste of the butter to that of the former ingredients mixed with it like the washed butter best. The flavor of butter consists of fatty matters which do not combine with water at all, and therefore cannot be washed away by it. The effect of washing upon the keeping qualities of the butter depends upon the purity of the water used. If the water contains no foreign matter that will affect the butter it keeps the better for having the buttermilk washed out instead of worked out. Evidently the grain of the butter will be more perfectly preserved if the buttermilk be removed by careful washing. The grain is such an important factor in the make-up of fine butter that it is necessary we should be very particular not to injure it in any way if we would excel in the art of butter making.—*American Dairyman.*

HOUSEHOLD RECIPES.

LEMON CUSTARD.—Custard is simply milk thickened with eggs. When a custard is required rub lumps of sugar over the rind of lemons to get the "zest." This is a more delicate way than using the juice of the lemon, which is apt to curdle the custard. From the lemon rind you get the oil, which makes a better combination. Take half a pint of milk, boil it in a small saucepan, and pour it into a jug. Put a large saucepan on the fire half full of boiling water. Break two eggs into a bowl and beat up yolks and whites together, adding the hot milk (which has been sweetened) a teaspoonful at a time, and beating so thoroughly that all the glair of the egg is broken up. When all the milk is added set the bowl in the saucepan of boiling water and stir until the custard thickens. Pour into cups and set aside to cool. English cooks stir the custard until it is nearly cold. Very delicate custard can be made with rice, flour or corn starch, the recipe for which comes with the package.

AN EXCELLENT SOUP.—An excellent soup can be made by taking one cup of corn and boiling the corn in one quart of milk and water in equal proportions; season with salt, pepper and butter. After it has boiled for about ten minutes stir it in three well-beaten eggs. Serve hot, with a little rolled cracker, added just before sending to the table.

RAISIN PIE, which is preferred by many people to grape pie, is made of one cup of crackers, rolled very fine, one cup of cold water, the juice and rind of one lemon, one cup of raisins stoned and chopped very fine, and one heaping teaspoonful of sugar. Beat these thoroughly together, and add one egg the last thing. Bake with a thin upper and under crusts; rub the top crust with the white of an egg or with a little milk with sugar dissolved in it; bake in a moderate oven, but brown the pie by setting it on the shelf in the oven.—*Boston Post.*

BROWN bread made by following these directions is sure to be good: Sift, until thoroughly mixed together, half a pint of flour, one pint of corn-meal, half pint of rye flour, one teaspoonful of salt, two teaspoonfuls of baking powder, one tablespoonful of brown sugar. Peel, wash and boil two medium-sized potatoes; rub them through a sieve, and beat them well with half a pint of water. Make a batter of this, and the meal, etc. Butter a deep basin, or small pan, and pour the batter in; then set the pan in a kettle of boiling water; let it cook in this way for an hour. Cover the pan, of course, and put it in a hot oven for half an hour.

OLD FASHIONED Indian Pudding:—Two quarts of skimmed milk, two thirds cup of molasses, and salt to taste. Scald half the milk, add the meal by degrees, stirring briskly, scald a few moments, and add to the cold milk, molasses, etc. Bake slowly three or four hours. Eat with cream sauce. If you haven't the cream milk is a very good substitute.

YEAST.—Take a dozen good potatoes, boil and mash fine; add one cup of white sugar and one quart of boiling water. After standing ten minutes add a quart of cold water and half a pint of yeast, and bottle off. A half pint of this will make one large loaf of bread.

MACARONI.—Simmer one-half pound of macaroni in plenty of water till tender, but not broken; strain off the water. Take the yolks of five and the whites of two eggs, one-half pint of cream, white meat and ham chopped fine, three spoonfuls of grated cheese. Season with salt and pepper; heat all together, stirring constantly. Mix with the macaroni, put into a buttered mold and steam one hour.

SPANISH SHORT CAKE.—Spanish short cake is excellent for tea. Take three eggs, half a cup of butter, one cup of sugar, two thirds of a cup of sweet milk, a little cinnamon, two cups of flour, one teaspoonful of baking powder; stir the flour in, do not knead it; the eggs, butter and sugar should be beaten together until very light. Bake in a shallow tin; when it is done spread a thin frosting over the top; make this of the white of one egg, a little pulverized sugar, and a teaspoonful of cinnamon; set it in the oven to brown.

DELICIOUS PUDDING.—A delicious pudding is made thus: Sift two tablespoonfuls of flour, and mix with the beaten yolks of six eggs, add gradually one pint of sweet cream, a quarter of a pound of citron cut in very thin slices, and two tablespoonfuls of sugar; mix thoroughly, pour into a buttered tin, and bake twenty-five minutes. Serve with vanilla sauce.

EASILY PREPARED DESSERT.—An easily prepared dessert is made of tapioca. It hardly seems appropriate to call so dainty a dish a pudding. Soak a cupful of tapioca for an hour in cold water, then boil, adding warm water enough to allow it to expand; when tender, sweeten it, and take it from the fire; add an orange cut in small bits for flavoring. Serve with cream.

FISH CAKES.—Take any cod-fish that has been cooked, remove all skin, bones and fat, and make fine. Mix with it mashed potatoes rubbed to a cream with a little butter, the same quantity as you

have of fish can be used. Make it out into little cakes with the hands, and fry in a little butter or fresh suet.

ROSETTES.—To three eggs, the yolks beaten very light, add one quart of milk, a piece of butter the size of an egg cut in little pieces into the milk and eggs, three coffee cups of flour, a little salt, three teaspoonsfuls of baking powder, and lastly the whites of the eggs beaten very light and stirred quickly into the mixture. Bake in a quick oven.

CRON STARCH PUDDING.—Boil one quart of sweet milk. Stir into it four heaping tablespoonfuls of sugar, and four tablespoonfuls of corn starch, dissolved in a little cold water or milk, and add to the well beaten yolks of four eggs. Have the whites beaten to a stiff froth, with a teacup of pulverized sugar, and one teaspoonful of essence of vanilla. Spread it on the top of the pudding, set in a quick oven, and brown; take out, sprinkle with grated coconut, and set the dish away in a cool place. Serve cold after three or four hours. The sweet liquor that settles to the bottom in cooling server as a sauce.

BROWN STEW.—Take three pounds of good round of beef, cut in small squares, brown them in a stewpan in two tablespoonfuls of flour, sifting it gradually in stirring till the flour is brown; cut a carrot small, peel half a dozen small onions, and put with the beef; season with a half dozen cloves, as many of allspice, a half saltspoonful of black pepper a pinch of cayenne, a tablespoonful of mixed herbs, thyme, sage, marjoram; cover with boiling water and let it simmer steadily for three hours; just before serving, a gill of tomato catsup can be added, or, if preferred, a glass of sherry.

POTATO PASTRY.—Chop cold beef fine. Season with pepper and drawn butter, adding parsley and pickled onions chopped fine. Pour this mixture into a greased bake dish; cover with sliced hard boiled eggs. Work a large cup of mashed potatoes soft with a cup of milk and two tablespoonfuls of butter. Add prepared flour until you can just roll it out, the softer the better. Roll into a thick sheet. Spread upon the surface of your mince, printing the edges, and bake in a moderate oven to a fine brown. This is an excellent dish for supper or Sunday night tea.

LIVER HASH.—This hash is delicate and appetizing, and nice as a change from the liver and bacon known to all cooks. Boil the liver until thoroughly tender—there must not be even a suspicion of hardness about it. Then mince it finely with a chopping knife. Heat the mince very hot in a sauce of roux of butter and browned flour. The seasoning is pepper, salt, a little dash of lemon, or little piquant sauce, such as mushroom catsup.

A GOOD PLAIN CAKE.—Take six ounces of ground rice, the same of flour, the yolks and whites of nine eggs beaten separately, one pound of loaf sugar well pounded. Whisk the sugar and eggs for nearly an hour, then add the rice and flour. Butter well some white paper and put round it and over the bottom of the tin it is to be baked in, and bake it in a slow oven. Run a knife into it; if it comes out clean it is baked through.

ENTOMOLOGICAL.

Parasites of the Colorado Beetle.

During the past season this neighborhood was blessed with the presence of a large number of insects which, if given anything like a fair chance promise to exterminate the potato beetle. I first noticed the insect three years ago, but during the growing of the last potato crop it was so plentiful that three or four might have been found on every hill. It makes its appearance about the time the larvæ begin to hatch, and if these are not found in sufficient numbers to satisfy the demands of appetite, it devours the eggs, taking a whole batch at one meal. It will attack the larvæ at any stage of its growth; though it seems to prefer those from one-third to one-half grown. It is my opinion that

if Paris green and London purple had never been used for the destruction of the Colorado beetle its parasite enemies would long since have exterminated it, or at least would have checked its increase so that it would now be rare and comparatively harmless. Its foes feeding on the poisoned larvæ are themselves also destroyed.

To show that my crops, without the use of poison, compare favorably with any grown in the country, I need only state that I have grown an average of five acres of potatoes per annum, and in all that time I have never used an ounce of poison to get rid of the beetle, preferring to destroy them by hand-picking. In no season since its appearance here, have the Colorado pest and its eggs been so numerous as the last. I will give the time consumed in gathering the larvæ (I pay no attention whatever to the beetle) from two and a half acres of potatoes, and I am sure the vines are more free from insects and their ravages than any patch of like size in Lycoming county, on which poison has been used: On Saturday, June 23d, it took one hand three hours to go over two and a half acres and collect the larvæ by carefully bending the hills infested with them over a wide-topped tin bucket and giving a sudden shake which, when one has had a little practice, results in causing all to fall to the bottom of the bucket. On Wednesday, June 27th, it took five hours to do the same work, the young having been hatched on a greater number of hills. On Saturday July 1st, it took six hours. After that the parasites above referred to kept them sufficiently in check to prevent any damage to the crop. Could Paris green have been applied in less time than was consumed in collecting bugs?

A few years ago I raised at the rate of 476 bushels per acre of Early Vermonts, having at that time taken the \$100 premium offered by B. K. Bliss for the largest amount of Vermonts raised on one fourth of an acre, competition open to the world. At the same time I raised 109 bushels of Brownell's Beauty on a quarter of an acre, for which I received his \$50 premium. I grow my potatoes in hills $3\frac{1}{4} \times 3\frac{1}{4}$ feet; cultivated both ways; hill them up pretty high; cultivate the ground after every rain that forms a crust up to the 1st of July for the early ones, and later in proportion, for those that are later.—*Rural New Yorker.*

Ants.

A correspondent of the *New York Times* says: "There is one way and only one, of ridding the house, closets, cake pails, sugar barrels, etc., of red ants or black, big or little. When you find them on your premises get ready tea kettles of boiling water—plenty of it. Go out of doors, look carefully all over the paths and walks, if in the country; if in the city, look over the flagging in the areas, both front and back. Scald every little hole you see with a mould of little pellets around it; it is the home of the ant. On a sunny day those pellets are brought out of the nests to dry. When the weather is damp, or soon will be, you will see nothing but little holes in the ground. The ants are all 'at home.' Scald them. If your cellar is not cemented, hunt the pests there; very likely you will find lots of them. When the work here recommended has been done, clean out your closets, sugar pails, everything in the closets; rub fine salt on the shelves, lay clean yellow paper on them, and put back the dishes. In the cracks of the floor and around the surface of said closets should be placed ground red pepper. When they again make a raid, as they may in a few months, give them a second scalding."

It is a good plan to tie about tomato and cabbage plants pieces of cardboard to prevent the cut worm from severing the stem near the soil. It is easily done and is a better protection than mounds of earth which, it has been said, cut worms cannot climb up. This idea is a mistake. We last season placed twenty-five cut worms in a hole about eight inches deep, the sides of which were nearly perpendicular. We watched them at intervals during two hours and found that, though many attempts to escape were ineffectual, some were successful.—*Rural New Yorker.*

LITERARY AND PERSONAL.

THE AMERICAN APICULTURIST.—A journal devoted to scientific bee keeping. Vol. 1, No. 1, for May, 1883. Published monthly by S. M. Locke, editor and proprietor, Salem, Mass., at \$1.00 a year in advance.

This is a fairly printed octavo of 24 pages—and 10 additional pages pages of advertisements—in tinted covers, and is replete with practical essays, notes and other contributions, from able writers on apiculture all over the country. A list of 80 dealers in bees and bee-supplies is published in this number, embracing nearly every large city and State in the union. If we were a bee-keeper, we certainly should feel this journal a very essential aid to our labors. We quote a very interesting paper from its columns, on "Bees and Horticulture," by A. J. Cook, to which we call the attention of our readers, and especially those who are much exercised about the destructiveness of bees.

PAMPHLETS RECEIVED.—Report of the Committee of the General Assembly appointed at the request of the Board of Trustees, to investigate the affairs of the Pennsylvania State College, under a joint resolution approved April 28, 1881.

PENNSYLVANIA STATE COLLEGE AGRICULTURAL BULLETINS, No. 4.—Report of condition of winter grain, the progress of cotton planting, and estimates of cereals of 1882, with freight rates of transportation companies. May, 1883.

THE WATCHMAN.—"Watch ye, stand fast in the faith."—Lancaster, June, 1883.

THE WESTERN LAND GUIDE.—Detroit, Michigan, May, 1883. Edited and published by Wilcox & Howell, at \$1.00 a year in advance. A quarto of 16 pages, devoted to the interests of those who desire to possess landed homes, and especially of those who have them to sell.

SCIENCE, for June, 1883, contains: Too much red tape; the alphabet and spelling reform; a study of the human temporal bone; glacial deposits on the low and hilly river country; the Naples zoological station; the spectrum of an argand burner; the New York agricultural experiment station; classification of islands, &c., besides a weekly summary of the progress of science, in mathematics, physics, engineering, chemistry, geology, geography, botany, zoology, anthepology, Egyptology and physiological psychology, &c., &c. Published by Moses King, weekly, at \$5.00 a year, Cambridge, Mass., U. S. A. The cheapest scientific journal extant.

FOREST MAGAZINE "for the country," June, 1883. Edited by Francis George Heath, author of "Autumn Leaves," "Our Woodland Trees," "The Fern World," etc., etc. Published by William Rider & Son, No. 14 Bartholomew Close, E. C., London, England. Monthly. Price, one shilling. 78 pages royal octavo.

The journal before us is No. 2 of a new and improved series of the *Journal of Forestry*, by the same publishers. Prominently among the improvements may be noticed the superior quality of the material and the typography, general "make up," and the increased number of pages, amounting to nearly or quite 1,000 during the year; but most especially, perhaps, in the number and quality of its contributions, correspondence and editorials. The subject of forestry must ultimately become an important one in this country; but most likely we shall go on in our present destructive course, until we entail upon our posterity a train of evils, from which it may require them many generations to recover, if ever. It seems the very pink of reckless selfishness to assume and assert "Let posterity work out its own salvation; let us eat, drink and be merry, for to-morrow we die." Ay, there's the rub; we live as though that were the end, and have practically little faith in anything outside of self. The whole magazine is very readable, very entertaining and very instructing.

THE FARM AND GARDEN. An imperial quarto of 16 pages in tinted covers, and first-class typography, and literary contents. Liberally and finely illustrated with appropriate designs. Published by Child Bros. & Co., 125 South 4th street, Philadelphia, Pa., at 50 cents a year.

This is an excellent paper; and, like the *Farm Journal* published in the same city (and of the same size) has its advertisements interspersed through its reading matter from the first to the very last page. This plan may secure a reading for the "ads" which they would otherwise, perhaps, not get, but then it would also imply that its main object is an advertising medium; and, that everything else is secondary to that primary object. We are criticising that feature, although we don't at all like it; but then, the interests of its publishers and patrons are not to be subordinate to any one man's, or any score of men's likes and dislikes. It doubtless has its pecuniary advantages, and therefore "Great is Diana of the Ephesians!"

A KNABE IN THE WHITE HOUSL.

There was seen yesterday at Messrs. Knabe & Co.'s factory a magnificent concert grand, just finished by them for the presidential mansion. President Arthur, who is a thorough connoisseur of music, in selecting a piano for the White House decided in favor of the Knabe Piano as his preference, and ordered accordingly the instrument referred to. It is a concert grand of beautiful finish in a richly carved rosewood case, and of superb tone and action—an instrument worthy in every respect of the place it is to occupy. It was shipped to its destination yesterday.—*Baltimore American.*

COMPLIMENTARY NOTICE.

We desire to call attention to the advertisement in another column of D. M. FERRY & Co., Detroit, Mich., the great seedsmen, whose mammoth establishment is one of the sights of the chief city of Michigan. They do the largest business in their trade in the United States, reaching across the Atlantic and Pacific oceans. The house is entirely reliable, and if you wish to get exactly what you order, you cannot do better than send to them for your seeds, and you may depend upon it you will get the best that the market can supply. Their seeds have become known over the entire civilized world for purity and fertility, and have gained for them an enviable reputation. Their Annual Seed Catalogue just issued for 1883, replete with information and beautifully illustrated, will be sent free on application.

COLMAN'S RURAL WORLD.

This sterling Agricultural paper entered its thirty-sixth year on the first of January, and appears in a new dress, and gives evidence of increased prosperity. To the Farmer, Stock Breeder, Fruit Grower and Cultivator of Sorghum for Syrup and Sugar, it is almost indispensable. It should be read by every one owning a farm. It is published weekly, in the best style, at only \$1.00 per annum, by NORMAN J. COLEMAN, St. Louis, Mo.

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BULL LEADERS, BULL RINGS,
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Nov-1y

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A MONTHLY JOURNAL,

Devoted to Agriculture, Horticulture, Domestic Economy and Miscellany.

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Dr. S. S. Rathvon, who has so ably managed the editorial department in the past, will continue in the position of editor. His contributions 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. He is determined to make "The Farmer" a necessity to all households.

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Dr. S. S. RATHVON, Editor.

LANCASTER, PA. JULY, 1883.

JOHN A. HIESTAND, Publisher

Entered at the Post Office at Lancaster as Second Class Matter.

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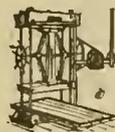
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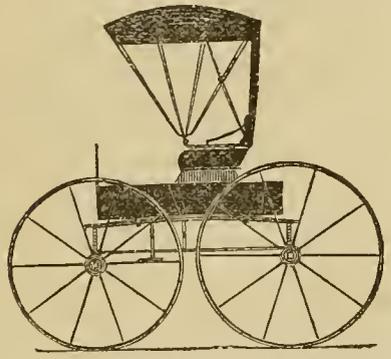
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Trains LEAVE the Depot in this city, as follows:

WE TWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express ¹	2:40 a. m.	4:05 a. m.
Way Passenger ²	5:00 a. m.	7:50 a. m.
Niagara Express.....	..... a. m.	11:20 a. m.
Hanover Accommodation..	11:05 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy.....	10:20 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:25 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:40 p. m.
Fast Line ³	2:30 p. m.	8:25 p. m.
Frederick Accommodation.	2:55 p. m.	Col. 2:45 p. m.
Harrisburg Accommodation.	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express.....	7:30 p. m.	8:40 p. m.
Pittsburg Express.....	8:50 p. m.	10:10 p. m.
Cincinnati Express.....	11:50 p. m.	12:45 a. m.

EASTWARD.	Lancaster.	Philadelphia
Cincinnati Express.....	2:55 a. m.	3:00 a. m.
Fast Line ³	5:08 a. m.	7:40 a. m.
Harrisburg Express.....	8:05 a. m.	10:00 a. m.
Columbia Accommodation..	9:10 p. m.	12:00 p. m.
Pacific Express ¹	9:40 p. m.	3:40 p. m.
Sunday Mail.....	2:00 p. m.	5:00 p. m.
Johnstown Express.....	3:05 p. m.	5:30 p. m.
Day Express ²	5:35 p. m.	7:20 p. m.
Harrisburg Accommodation.	6:25 p. m.	9:30 p. m.

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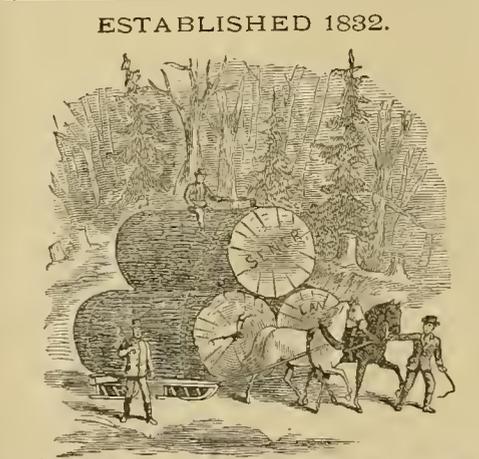
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., JULY, 1883.

Vol. XV. No. 7.

EDITORIAL.

THE HORN-WORM MOTH.

A voice from the Gap has been published, in which it is proposed to establish a general systematic destruction of this insect (which is so detrimental to the interests of the tobacco growers) by a widely extended unity of action, in which the moth itself is to be the objective point, instead of a delayed warfare, and fighting it in the form of a worm. There seems to be some wisdom in the inception of this idea, if it is intelligently and energetically carried into effect: because, the moth is the origin of the damage, and not the damager itself. In other words, the moth is the *symptom*, and not the disease itself, and if the symptom is properly treated, the disease may be measurably, if not entirely, prevented. A female moth during the entire tobacco season will deposit from three to five hundred eggs, each one of which is likely to become a destructive Horn-Worm: and, if she can be captured, or killed, before she has deposited any of her eggs, it becomes very apparent how much damage has been prevented. But the male is also an object of solicitude in the economy of this insect; for, it is he that fertilizes the eggs of the female; and, unfertilized eggs will never produce Horn-Worms.

These large gray moths, variously called "Horn-Worm Moths," "Tobacco-Moths," "Sphinx-Moths," "Humming-Bird-Moths" and "Hawk-Moths," have most voracious appetites for almost any liquid sweetness; and, being provided with a long spiral sucking tube, they are able to extract the nectar from the largest and deepest flowers; but they seem to have the strongest partiality for the trumpet-shaped flowers of the *Datura stramonium*, commonly called—"Thorn-Apple," "James-town-Weed," or "Jimson-Weed." We mention this plant specially because it is common, abundant, hardy, of easy cultivation, blooms profusely, and is of easy access to those who may have the matter of destroying or capturing these insects in hand. Why they are partial to the nectar of this plant may be because it belongs to the same family that the tobacco plant does. It is a *Solanaceous* plant, and has a family alliance, not only with the tobacco plant, but also with the potato, the tomato, the egg-plant, the ground-cherry, the night-shade, the horse-nettle, the hen-bane, the cayenne-pepper, and a number of other plants of a similar character.

The "Death's-Head Sphinx" of Europe (*Acherontia atropas*) as its specific name implies, feeds on the "deadly night-shade," (*Atropa belladonna*), but is also destructive to potato-tops in its horn-worm state. The moths of this family *all* partake largely of nature's sweets, not only from the flowers of the "jimison-weed," but also from various species of trumpet flowers, including lillies, honey-suckles, morning-glories, and convolvuli in general. Wherever these various

flowers bloom, is the place to stand and wait for the moth, and not in the tobacco field. They are powerfully swift-winged insects, and must be taken unawares, when they are making their evening banquet; for, they usually conceal themselves during the middle of the day. They are twilight flyers, and during that portion of the day is the time to conduct an active warfare against them. A deadly poison introduced into the flower-cups of the plants they visit has been the extinguisher of many thousands of them. Artificial flowers, made to imitate those the insects visit, and similarly poisoned, are said to be equally effective. But whether poison is used or not, where the flowers bloom is the most successful place to encounter this moth. If only four out of every five eggs, through various contingencies, become abortive, it will still leave 100 horn-worms to each female moth. A graded scale of prices—a certain price per *capita*—might be adopted both for the capture of moths and worms. This would be more effective than hiring persons by the day.

If it is worth a penny or a half-penny to kill a worm, it is worth ten times that amount to kill a gravid female moth. Males might be reckoned at half the price of a female. Still, with all this, other measures should not be omitted. The next best thing to the destruction of the moth, is the destruction of the eggs before they are hatched. No worms should be left in the field after the crop is harvested, for these will make moths for next year. The whole tobacco region of the county, or the State, should go into the measure with determined energy, for the longer the matter is delayed, it only adds to the difficulty of the problem, therefore "be up and doing."

MORE ENGLISH SPARROW LORE.

The farmers of Berks county, Penna., say, according to a telegram from Reading, "that since the onslaught upon the English sparrows, which is permitted by recent legislative enactment, there has been a remarkable increase in the damage to crops by the Hessian fly and wheat worm."

The foregoing scrap, clipped from the "variety" column of the *Public Ledger*, we think a slander upon the truthfulness and the intelligence of the "farmers of Berks county." When, where, and how long has "the onslaught upon the English sparrows" been in existence? Who ever saw or heard tell of an English sparrow destroying such a tiny and tasteless insect as a Hessian fly? Hessian flies congregate in wheat fields—or rather they are bred there; but English sparrows roost and loaf about cities, towns and villages. Doubtless many thousands of Hessian flies are destroyed by swallows, chimney birds, martins, red-starts, fly-catchers, night-hawks, etc., etc., but *few, very few*, indeed, if any, are captured by sparrows. Besides, the law affecting sparrows is too recent to produce any perceptible effect upon the number of Hessian flies; moreover, the damage by Hessian flies

was already done when the law went into effect. No, there is no farmer, not even in Berks county, who will for one moment make or defend such an assertion—they are wiser than that. As to that indefinite creation denominated "the wheat worm," we don't know which one among the many it is; and how should a sparrow know? Whatever "wheat-worm" may be meant, we think almost any one might go bail that the English sparrow will molest them as little as any other bird that flies. It may be an easy matter to send such telegrams, and easier still to print them, but the writers should give their names, or their authorities, and not attempt to palm such stuff on the "farmers of Berks county," even if the report had originally come from a single isolated old fogey. At the present writing many of the elm trees of Lancaster city are infested by millions of "Elm-leaf Beetles." The leaves are literally skeletonized by them, and the twigs, branches, limbs and trunks, from the apex to the base, are covered with the larva, the pupa, and the mature beetles, and although Lancaster city is full of English sparrows, not one of them approaches those trees in quest of the worms. Even the gutters and the pavements are populous with these insects; where, as a general thing, they are unmolested by either the sparrows or the people. You will find multitudes of sparrows in the streets (the "onslaught" has not yet commenced in Lancaster city) fighting over half a grain of oats scratched out of a horse-dropping, but the Elm Beetles they "let severely alone."

AMERICAN POMOLOGICAL SOCIETY— ORGANIZED IN 1848.

Marshall P. Wilder, Boston, Mass., President; P. Barry, Rochester, N. Y., Vice President; Prof. W. J. Beal, Lansing, Michigan, Secretary; Benjamin G. Smith, Cambridge, Mass., Treasurer. The nineteenth session of this distinguished national association will be held at Horticultural Hall, Philadelphia, Pa., commencing on *Wednesday, September 10th*, 1883, at 10 o'clock, A. M., and continuing for three days.

All Horticultural, Pomological, Agricultural and other kindred associations in the United States and British Provinces are invited to send delegations as large as may be convenient, and all persons interested in the cultivation of fruits are invited to be present and take seats in the convention.

This promises to be one of the most interesting conventions ever held by this society. Sixteen of the most distinguished essayists of the country, will read papers or deliver addresses on Pomology, Botany, Fruit Growing, Entomology and other subjects relating to these, and there will also be a general exhibition of fruits. Also, in connection with the above-named society, and at the same time and place, will be held the Fifty-fourth Annual Exhibition of the Pennsylvania Horticultural Society. Wm. L. Schaffer,

Philadelphia, President, Caleb Cope, S. W. Noble, J. E. Mitchell and James Ritchie, Vice Presidents, Thomas Meehan, Corresponding Secretary, A. W. Harrison Recording Secretary, and Treasurer.

Packages of fruit intended for the National Association, should be addressed to Thomas A. Andrews, Horticultural Hall, Broad street, Philadelphia. Freight and Express charges should be paid. Arrangements have been made with hotels and some of the Railroads terminating in Philadelphia for a reduction of fare, but in most cases it will be best for delegations to arrange rates with the roads in their localities.

Hon. J. E. Mitchell 310 York Avenue Philadelphia, is the Chairman of the local committee on Reception.

This event will present a rare opportunity to those interested in Horticulture to gratify their most ardent wishes, and the spectacle will be one worthy of their most immediate attention.

In the absence of a County Fair our local fruitists will be more than compensated by visiting and participating in the above.

EXCERPTS.

A LOAMY soil, with a loose gravelly sub-soil through which the surplus water easily drains away, may be deeply plowed with good effect, or at any rate without the injurious results which follow the practice of the deep plowing on stiff clayey soil.

LARGE numbers of fowls may be kept with profit, if not over fifty be kept in one colony.

THE total number of herring shipped from Eastport, Me., this season is 17,240,000, a decrease of 13,420,000, from 1881-2 and of just one-half from 1880-1.

A HASTY cup of chocolate: Scrape a small cake of chocolate into a cup, mix with the same as much sugar as may be agreeable, fill with boiling water and stir the mixture.—*The Advance*.

It costs a good deal to keep hens. They take food by the peck.—*Boston Advertiser*. They thus prove profitable harvests though, by insuring full crops.—*Pittsburgh Commercial Gazette*.

A CORRESPONDENT writes that a sure way to kill burdocks is to cut the top to the ground, and then with a sharp knife scoop out a hole and put in a teaspoonful of kerosene. There will be no further trouble from that plant.—*N. Y. Examiner*.

GRAHAM biscuits are very nice if eaten while fresh and warm. To one pint of milk allow half a cup of melted butter, half a cup of sugar and two eggs, add enough flour to make stiff batter; do not attempt to knead them, but drop from a spoon into hot muffintins.—*N. Y. Post*.

SLUGS, as the green, slimy caterpillars are called, which appear upon the leaves of pear and cherry trees, are best treated by dusting of dry-slaked lime. This may be applied by shaking it from a bag of open fabric, fastened to the end of a pole.—*Chicago Journal*.

AMMONIA water or a damp cloth dipped in whitening, cleans paint nicely. Sapolio is also good. Cold tea is the best thing to clean varnished wood with, the tea and tea leaves saved from the table for several days and

steeped will usually be sufficient. It removes spots and gives a fresher, newer appearance than when soap and water are used.—*N. Y. Times*.

CONTRIBUTIONS.

BENEFITS AND EXPENSES OF PUBLIC ROADS.

Comparatively few people realize the cost and the inconveniences of many of our public roads. In the first place, when these roads have been located by juries or reviewers appointed by the court, (formerly six, but at present only three constitute the lawful number of reviewers) they, nine times out of ten, through courtesy to the petitioners, follow lines between parties so as to do the least damage, and also to please them, which run the roads crooked and inconvenient for travel, sometimes running east, west, north or south between two farms until they become perfect zigzags, merely to please or gratify the selfish whims of their neighbors, often on account of *two* who might be termed "troublesome neighbors:" making many roads not only expensive, but often hard to travel, and also hard to haul heavy or even common loads on.

Does it ever occur to those who locate roads, or to the people through whose premises roads are located, how expensive to the farmer a small hill is made, to draft a reasonable load? For instance, two horses can easily pull one hundred rails, or say two tons of anything else, on good level roads, but on account of one or two hills, either short or long, he must either choose between half a load (one ton) or attach two extra horses to draw his loads up said hills.

If a farmer desires to haul a full load of rails, or 2 tons of grain or any other produce, he is compelled to keep two extra horses merely to overcome the grade in these several hills, involving an expense which might have been avoided in a more judicious location of the country road. But this is not all, the subject also involves a waste of time, for, perhaps he is compelled to make two trips to do a work which otherwise might have been accomplished in one.

There are also other important matters connected with the location of roads, of which I shall have something to say hereafter; such for instance, as macadamizing, drainage, repairs, dangers, etc. The hills on some of our township roads are so steep that it not only is almost impossible to ascend them with anything like a reasonable load, but the descent is absolutely dangerous, the animals attached to them being barely able to keep out of the way of the vehicle behind them. P. S. R.

THE GENERAL OUTLOOK.

The hay crop was a full one, and it was generally well cured and without injury from rains. The wheat will be a three-quarter crop, and the oats will be a better crop than we have had for many years—it will come again to perfection, like in the olden time. Corn is promising well, so far, and so also is, generally speaking, tobacco. We had rains just as we needed them. We had about two rains a week for some time, which was more than common in this locality; and, notwithstand-

ing the general good which may result from it, it also done considerable damage to corn and tobacco. It washed down hill-side fields, making trenches that will require some labor to level up again. Potatoes will come in as an extra crop. Strawberries were a perfect crop both in quantity and quality, and raspberries and blackberries much the same. Cherries did well. Pears are doing ordinarily well. Grapes seem to be doing very well, and are promising a full crop, and also foreshadow perfection.

Plums, as usual, are nearly all destroyed by the *Curculio*. Apples bloomed profusely, and had there been a dry time at the period of fertilization, there would have been a good promise for a crop; but the rains washed out and drowned the blossoms at the most critical period, and we, alas, are again disappointed. Of course, there will be *some* apples in special localities, but as a whole the apple crop is nearly a failure. Some varieties will do passably well, whilst others are *non est*. There will be a few pound-apples this season, but Smith's cider will do better—"aber such nicht wider."

If my 130 trees had been all of the later kind—the kind that bear every year, and only alternate more or less heavy—my prospects would have been better. Two years ago they did well, but last year the limbs broke down with fruit. This year they hang pretty full, and seem to be perfect. If my trees were all of that kind, I would have realized \$200 or \$300 every year for the last three years. They are just now in vigorous bearing condition. True, many of the apples are stung by insects, but some will be left me.

Harvesting goes somewhat slow, on account of the heavy rains. This is one of the most remarkable harvests we have had for many years. Some fields will yield *forty* bushels to the acre, whilst at the same time adjoining fields will not yield more than from *five* to *ten* bushels to the acre.

I never saw the Hessian fly do so much injury as it did during the last days of September, 1882. I know of two fields sowed on the 27th of September. Both had been in wheat the previous year; the wheat came up very beautifully; the ground was in good order. It came up in four or five days after sowing. The flies commenced on it immediately, and it could be seen last fall already that the crop would be a failure.

In 1876 the wheat sowed in our neighborhood before the 8th of September, was all destroyed by the Hessian fly. It was rainy from the 8th to the 12th. That which was sowed afterwards made a good crop. We have eventually to come back again to the old time, and not sow until about the first of October. It was conclusively proven this year that that which was sowed as late as the 10th of October made good crops.—*L. S. R., Oregon, July, 1883*.

"The proof of the pudding is in chewing the bag." If late sowing demonstrates that the Hessian fly can therefore be headed off, it seems to be a simple thing to head them off. But, says another, late sowing in the fall makes backward growth in the following spring, and then the *grain* is liable to fall a prey to the "wheat midge," which is just as bad as the Hessian

sian fly, so that the farmer's wheat prospects are always between "the upper and the nether mill-stones." Risk late sowing at any rate; the *midge* does not necessarily *always* follow the *fly*.—ED.

SELECTIONS.

WATER.

Water forms three-fourths of the surface of the earth, and even a larger proportion of our own bodies. Hence it is hardly possible to exaggerate the importance of having an ample supply of this element in its purity. The purest water in the world is said to be that of the river Loke, in Sweden, which contains only one-twentieth of a grain of impurities in a gallon. It flows over a bed of hornblende rock, which is only slightly, if at all, dissolved by it. The rain which falls near the end of a long storm is generally quite pure; the atmosphere has been cleared from dust and vapors by the first falling rain and that which comes last has nothing to absorb. Water which is collected from roofs in the city is never pure, being contaminated by various gases, sulphur compounds and other deleterious substances. It should never be drunk unless first carefully filtered.

The character of spring water depends entirely on the character of the soil through which it has passed before it issues as a spring. In localities where the primary rocks abound, the spring water is nearly pure; in limestone countries it is impregnated with carbonate of lime or magnesia. This, when present, in large quantity, causes dyspepsia, goitre and cretinism, affecting not only human beings but domestic animals. Five or six grains of lime or magnesia in a gallon render water unfit for cooking leguminous vegetables; hence the use of soda to soften it. But the same quantity of these mineral substances makes the best water for tea and coffee, as the five or six grains of carbonate of lime prevent the water from dissolving the astringent matter contained in the tea, yet permit the extraction of all the desirable properties it holds.

Organic matter of vegetable origin is not especially dangerous, but that of animal origin, even in very minute quantities, is highly dangerous. It may communicate no unpleasant smell or taste to the water, but on the contrary may give it an unusually fine flavor, thus betraying its victims "by a kiss." The first symptoms of poison from the use of such water are slight nausea and mild diarrhoea; afterward typhoid fever sets in, and the struggle for life grows intense. It is estimated that water may contain one grain to the gallon of organic animal matter without being fatally poisonous; even thirty-five grains of mineral and organic vegetable matter in a gallon will not always render it unfit to drink. The Croton water in New York city contains $5\frac{1}{2}$ grains of impurities to the gallon, the Geunessie River water supplied to the city of Rochester contains $13\frac{1}{2}$, the Hudson River water in the city of Albany contains $6\frac{1}{2}$. The water of the Mississippi contains forty grains of mud per gallon, and is certainly unwholesome water to drink. Peat matters held in solution by water in pounds and swamps are harmless,

even though they may color the water, but the clearest and most sparkling water from wells in the vicinity of cess-pools or graveyards is to be regarded with the utmost suspicion.

Oxygen is the great purifier. The world is purified every day by fire, for the union of oxygen with any substance is combustion. As the rain falls through the air it dissolves the oxygen, nitrogen, carbonic acid and ammonia of the atmosphere, but more oxygen than nitrogen, so that the air dissolved in water is much richer in oxygen than ordinary atmospheric air. This excess of oxygen supplies fishes with the vital element, and also furnishes material for the combustion of impurities in the water, literally burning up. "Sewage which would poison an ordinary well becomes harmless in the running stream, and while the well is always open to suspicion, the river, though it drains populous districts, will nevertheless supply wholesome water." The conditions of this purification are that the sewage must be mixed with twenty times its volume of running water and flow ten or twelve miles, at which distance from the source of impurity it becomes burned clean of all injurious matter. The water of running brooks that have received sewage is to be avoided unless the volume of water is large enough to permit complete combustion of all organic matters contained in it. The water of ponds, lakes and rivers is generally purer than spring or well water, because they receive their supplies from *over* the soil rather than *through* it.

The simplest method of purifying water is by filtration. Charcoal will remove organic matter from absorption. Water casks charred on the inside to the depth of an eighth of an inch are sometimes used. A bushel or two of fresh charcoal tied in a bag and thrown into a foul well or cistern will cleanse its contents. Permanganate of Potassa is very effective in destroying organic matter in water. A small particle of the crystallized salt added to a glass of water will supply oxygen enough to burn up its impurities and render it innocuous. Travelers in malarious countries are careful to drink only water that has been boiled, and those who find, in moving about from place to place that the water disagrees with them, will be spared much suffering if they will drink it hot instead of cold. One soon becomes accustomed to the taste of hot water without any admixture of anything else, and acquires a fondness for it.

Little fishes when just hatched from the egg and placed under the lens of a microscope seem perfectly transparent. All their tissues are revealed to the eye, the contractions of the heart may be seen and the movement of the corpuscles in the arteries flowing to and from the heart. These look as drops of water moving along the surface of water.

Doubtless to eyes of a different organization than ours we too are transparent, and seem to be, as we are, three-fourths and more water, with a symmetrical aggregation of cells distributed through it. Could we look upon ourselves thus we should need no suggestions as to the necessity of being sure that this preponderating element should be supplied us in the utmost attainable purity.—*N. Y. Tribune.*

Send in your subscriptions to THE FARMER for 1883.

SUPERIOR CORN CULTURE.

During the past few years the price of corn has rapidly advanced. The increase in price has been owing partly to the growing demand for the grain. This increased demand has not been for supply food for man. The amount of corn consumed per individual in the country was probably never so small as at present. The price of corn-meal approaches nearer to that of fine wheaten flour than ever before. The economical argument in favor of eating it, therefore, is not as strong as it was. Our foreign-born population has increased very rapidly, and most foreigners are unacquainted with the use of corn as food. They do not take kindly to it when they come to this country. Corn-meal was used for bread almost entirely by the negroes in the south during slavery times, but at present wheat flour has generally taken its place. The Indians as they become civilized learn to substitute wheat for corn as an article of food. The skill of millers has apparently been confined to the grinding of wheat. We have much better flour than we had a few years ago, but by common consent the corn-meal is not as good. The demand for corn for other purposes, however, has largely increased. The manufacture of glucose has called for a vast amount. This is a new industry, but, like that of the manufacture of alcohol, it has required a vast amount of corn. The demand for corn for export increases every year. Large quantities of corn are now used for feeding dairy cows and fattening stock kept in parts of the country where it is difficult to raise grain. The quality of beef now required by the market makes it necessary to feed steers more corn than was fed a few years ago.

The yield of corn has decreased in many parts of the country where the soil and climate are the best suited to its growth. This is partly owing to the fact that the best ground was selected for producing corn when the farms were first improved, and partly to the circumstance that the soil has been impoverished by successive croppings. Many western farmers were at first reluctant to believe that successive crops of corn would essentially impoverish the soil. They were finally convinced, however, that such was the case. They resorted to the use of manure on land intended for the production of corn with considerable reluctance. Many preferred to raise smaller crops than to be at the trouble of hauling out and applying manure. The growth of clover for a fertilizer has not been general in the west. When it has been raised for that purpose it has in most cases been turned under preparatory to the production of wheat. For several years wheat has been the fashionable crop in most parts of the country. It has been the favorite crop with farmers, largely for the reason that it could be sown, cut, bound and thrashed entirely by machinery. Machines have been largely employed for planting and cultivating corn, but as none have been introduced for harvesting and preparing it for market most farmers preferred a crop that could be raised and put into a condition to sell without resorting to the use of hand labor. Possibly the employment of machines for planting and cultivating corn has tended to decrease the yield of corn per acre, though it has largely increased the area

planted. The more machines were improved the more the use of hand tools was discarded. The time is not far in the past when no one expected to raise a crop of corn without using the hoe to plant and cultivate it. Now the hand-hoe is never seen in most corn-fields in the Western States.

The ease with which corn was raised when the soil possessed all its virgin richness caused farmers to fall into negligent habits concerning every stage of its cultivation. They were at little trouble to select and cure seed. They rarely went to the expense of purchasing an extra article for planting. They took their seed corn from the same bin where they obtained the food for their pigs and chickens. On this account the quality of their corn deteriorated. The application of manure did not commence till the soil showed signs of exhaustion. Then it was not applied to the soil in the best way to secure the best results, but in the manner that was easiest. Manuring in the hill or drill, as is practiced in the east, was thought to be attended with too much work. Little or no attention was paid to giving a top-dressing to hills or drills of corn. Very few ever used ashes, land plaster, or any commercial fertilizers on corn ground. The consequence has been that farmers in the east have finally surpassed those in most parts of the west in the production of large yields of corn. The report of the National Department of Agriculture published last fall showed the heaviest yield of corn in the New England States and almost the lightest in some of the western ones where the soil is prairie and the climate very favorable to the production of the crop. It seems evident that western farmers must adopt the measures that eastern farmers are forced to adopt to raise large crops of corn. They need not lay aside the use of the riding cultivator, but they must take up the use of the hand-hoe. It is rare to read an account of how a premium corn crop was produced without noticing that the hand-hoe was used before, in connection with, and after the horse cultivator. The former works the ground in the hill itself while the latter works that between them.

Although the yield of corn in many States where the natural conditions are favorable to its growth is only thirty bushels to the acre, still a hundred bushels are sometimes produced. To produce the latter amount no more land is required and no more plowing and harrowing performed. Extra care, however, was taken in every operation from the time the seed ears were selected the fall previous to planting the crop was put into the crib. The seed was carefully tested before the season of planting and the kernels counted and dropped on finely prepared soil by hand. In many cases a shovelful of well-rotted stable manure or compost was placed in the hill before planting the seed. A careful person went between the rows at the time the sprouts were making their appearance and removed any small stones, lumps of earth or other substances that might obstruct the growth of the tender plants. As soon as the plants were a few inches high a handful of wood ashes, land plaster, or some other fertilizer was thrown between them. The hand-hoe was used about the hills in advance of the cultivator. While the plants were quite small

a careful watch was kept for cut-worms, which were killed before they had done much damage. If too many stalks were found in a hill a part were removed. If all were destroyed from any cause new seed was planted. The hoe, cultivator and plow were used as often as occasion required till the stalks of corn were sufficiently high to completely shade the ground and prevent the growth of weeds. When the stalks were sufficiently large to throw out ears suckers were carefully removed and cured for fodder. The smutty ears were cut off and destroyed. A good deal of labor was spent, but the large yield compensated for all the care bestowed.—*Chicago Times.*

THINGS PUT INTO TOBACCO.

"There is no doubt," said a large city manufacturer, "that tobacco is fixed up in many ways, in order to prepare it for its various markets. A poor tobacco may gain a higher marketable value by treatment, although it is not possible to make a good article out of a bad one. The genuine lover of tobacco will distinguish between a natural and an artificial flavor, unless the latter is carefully employed.

"The points to be attended to in cigar making are appearance, flavor, color, texture, easy draught, and evenness in burning. Much depends upon the appearance; that is, the wrapper. In New Jersey, for instance, a light-colored wrapper must always be used. In Pennsylvania and farther south it is impossible to sell anything but Colorados. The New England wrapper will alone suit them. Colorados are, however, not liked in the West, even in Colorado itself. In almost every Western State, except perhaps Ohio, dealers must have a dark, smooth, and somewhat oily wrapper. They won't touch a light cigar. The heavy, dark wrappers are grown mostly in Pennsylvania. They do not compare with Eastern wrappers, but Western dealers must have them in all except the higher grades of goods.

"While the appearance of a cigar is due chiefly to its wrapper, its flavor depends upon the filling. The best cigars have Connecticut wrappers and Havana filling. This wrapper, even now so highly prized, is, however, slowly deteriorating. It has no longer the smooth, clear surface and silky quality of a few years ago. It is dry, more friable, and has a rougher appearance than formerly—that is, unless it is grown on a fresh soil. Our domestic tobacco lands are losing some of their most excellent qualities. We still get splendid tobacco from the South, which is largely used in the various forms of filling, smoking and chewing, but I now refer to the important point of wrapping. We cannot do as much as we would wish toward improving the appearance of wrappers—they will not stand strong treatment. Certain processes are used, however, with fair results.

"The chemists have an important share in our work, as they do nowadays with the manipulation of almost every article of human consumption. I know fifteen of them employed in the factories of this city. It is an open secret that their duties consist largely in insuring the evenness of goods, flavoring them, and improving their apparent quality. In the flavoring of wrappers they can do but little though they often color or spot them.

It is in the flavoring of fillings and in developing and heightening the narcotic powers of the weed, and thus making it marketable at higher prices that their services are in demand. I do not think that opium or its salts are now used by manufacturing tobacconists, though there is an absurd popular belief to that effect. Nor do I know of any leaf that is used to any extent as a substitute for tobacco. The ancient cabbage leaf assumption is a popular delusion. In England, however, five or six years ago, prepared cherry leaves were largely used as an adulteration; but, in order to obtain a narcotic effect, the manufacturers used opium, and the Government broke up the business by stringent laws against such adulterations. I know of no other instance of the sort in cigar manufacture, though I have detected adulterations in smoking tobaccos.

"I cannot name all the substances used in flavoring tobacco. Every manufacturer has a formula suited to his particular trade. There are some flavors which are in regular use. Among these vanilla is by far the most extensively employed. This is used only in the fillings, in the form of an alcoholic tincture or extract, and is introduced through a process of absorption. Few cigars are wholly free from vanilla, but its effects are comparatively harmless when not too freely used. The tonka bean and balsam of fir are also much employed in the same way, and for the same purpose. Cedar oil is a fine flavor, but is seldom used except in a fine quality of cigar. A really fine cigar can hardly be said to improve under any manipulation beyond the necessary curing.

"The tobacco flavor may be very well imitated, with a little assistance, of course, from the original article. The best thing now known for that purpose is valerian. It is very largely used, but as it is excepted by most people as an excellent nerve, I should not consider its effects injurious. Vanilla and valerian are doubtless the most valuable chemicals now in vogue among the tobacconists. By their use the dullest and weakest stems may be flavored up into a fair article of tobacco. They are largely used in those smoking grades which are sometimes heavily adulterated with coarsely ground barks. Cigarette tobacco is the most highly flavored of all not excepting even chewing tobacco, which is well known to be pretty heavily repaired, as we say. Not only valerian and vanilla, but cascarilla bark enters into cigarette tobaccos. They are generally made of very ordinary tobacco, except when prepared by large manufacturers who have a reputation to sustain. To make a cigar burn well ammonia is no doubt the best thing now known, though with the poorer qualities the old plan of soaking the tobacco in a stiff solution of saltpetre is still adhered to. The latter practice must be injurious, and should be wholly discarded.

"This matter of burning is an important one. A manufacturer in trying his leaf, will have a sample cigar made of it, and, getting a fair light, will lay it horizontally upon a table. Then, taking out his watch, he will note the time it continues to burn. Manufacturers will sometimes buy a tobacco which is good in all respects but that of burning well. He gets it, of course, at a lower figure on that

account, and then turns it over to his chemist. Those scientific fellows usually bring it up to the standard. The value of a chemist depends not alone upon his ability to improve a poor article, but to equalize and blend the flavors of different lots, and then he must be able to so manipulate the goods as to suit particular markets. It is a curious fact that cigars made for New Jersey buyers differs as greatly in color, appearance, and flavor, from the New York standard, as those made especially for the Western trade. In our large cities, however, the taste in cigars varies but little. In Cincinnati, as in New York or Boston, the great demand is for a fair or really good cigar. The number sold in New York is enormous; but many more cigars are retailed here at ten cents than at five. In towns and villages the opposite is the case. Extra fine cigars are also largely called for here. For the best cigars we use smooth, silky Havana top leaf and stemless fillings of the fine Partaga quality.

"The best tobacco in the world is, without a doubt, that grown in the Via Hunda, near Havana. Most of the best tobacco is grown in valleys. It is as true of the best Massachusetts or Connecticut, as of the Havana article. Salt air has an excellent influence upon tobacco when growing, and light, sandy or loamy soils are best for it. The first quality tobacco is that possessing the finest fibre and the least quantity of nicotine. In these points the Havana leaf stands preeminent.

"It is true that manufacturers often give an intoxicating quality to cigars. This is accomplished by dipping the fillings into a solution of sulphuric ether and bromide of potassium. A formula similar to that of Hoffman's Anodyne is also used. Tobacco thus prepared is no doubt injurious in the long run.

The peculiar effects of a certain class of cigars are unquestionably due to their being fixed up with so-called nervines, narcotics and stimulants.

"It would not do to state the particular formula we use, though I may say that the flavor now most largely employed is a combination of vanilla, valerian and New England rum. The poisons made use of are to be found chiefly in the essential oils. It would be useless to deny that they are largely used, the quantity in a single cigar is very small and of very little importance. If cigar smoking is injurious at all, I should say that it owed its evil effect rather to its inherent nicotine than to its adulterations, except where the latter are of an outrageous character."

THE CROP PROSPECTS.

The July report of the Department of Agriculture indicates very general improvement in the condition of cotton. Rains were general up to the 15th or 20th of June, and local showers have been frequent since. There has been an excess of moisture, interfering with cultivation and promoting the growth of grass. Clean fields are found only in favored districts and on lands of prompt and pushing cultivators. Since June 20th, growth has been rapid. In grassy districts the plants are still small but healthy, and making great progress with recent cultivation.

The only complaint of drought comes from Central and Southwestern Texas, from the

Colorado to the Guadalupe. A few counties in South Carolina and Georgia report a present need of rain. The recent distribution of moisture has been quite unequal. Adams county, Mississippi, has had showers daily for five weeks, and Pike county for six or eight weeks. The general average of condition has advanced from 86 to 90. Last July there was an improvement of three points—from 89 to 92. Returns of July since 1770 have indicated higher condition than in June, except in 1871, 1873 and 1879. The spring weather was too variable in temperature and moisture, as it usually has been in former years, for the highest condition of the plant. The only retrograde is reported for Arkansas, where a loss of three points is made from excessive rain, cool nights and injuries from chinch bugs, red ants and rust.

A gain of ten points has been made in the northern zone, North Carolina and Tennessee, seven in Georgia, six in South Carolina, four in Texas, three in Mississippi, two in Virginia and one in Florida. Alabama and Louisiana stand as in June.

The July State averages as follows: Virginia, 83; North Carolina, 91; South Carolina, 91; Georgia, 93; Florida, 95; Alabama, 87; Mississippi, 89; Louisiana, 91; Texas, 93; Arkansas, 84; Tennessee, 88.

Worms have wrought little injury as yet. The caterpillar has appeared at a few points from South Carolina to Texas. In Butler, Alabama, the second brood of worms appeared June 20. The boll worm is at work in Denton county, Texas. Picking will commence in Southwestern Texas about the 20th of July.

There has been some improvement in winter wheat in Connecticut, New York, Virginia, South Carolina, Texas, Ohio, Michigan, Indiana, Illinois, Missouri, Kansas and Carolina, which advances the general average of condition from 75 to 79. The spring wheat average has advanced from 98 to 100. The indications for July point to a winter wheat crop of fully 300,000,000 bushels and a product of about 125,000,000 bushels of spring wheat.

The area of the corn crop has been increased about two and a-half million acres, making the aggregate sixty-eight million acres. There has been some extension of area in nearly every State. The proportion of increase is large in the Northwest and in the Southwest. On the coast from Virginia to the Mississippi the advance has been small. In some places the reduction of price, from enlargement of supply last year, had a discouraging effect.

There has been too much rain in the great Western maize districts and failure of stands from planting poor seed, making the crop late and growth small, but improvement has of late been rapid. Taking all the States together, the average for corn is 88, against 85 last July, 90 in 1881 and 100 in 1880.

The average of the principal States are as follows: New York, 84; Pennsylvania, 89; Ohio, 83; Michigan, 73; Indiana, 90; Illinois, 82; Iowa, 80; Missouri, 82; Kansas, 98; Nebraska, 87; Dakota, 78. In the South averages range from 90 in Tennessee to 103 in Louisiana.

The prospect for oats is nearly as good as in July of last year, the average being 90 against 103.

The condition of barley is represented by 97. Last July, 90. The average in New York is 103; in Pennsylvania, 91; Wisconsin, 102; California, 90.

There has been an increase of about five per cent. in the area planted in Northern potatoes. They are reported in high condition, averaging 101.

The area of tobacco appears to have been diminished 7 per cent.; condition, 95.

The London agent of the Agricultural Department, telegraphed on Tuesday; "Weather first ten days of July hot and forcing. Wheat estimates increasing generally throughout Europe."

Reports from a great number of points in the West and Northwest state that a general change for the better in all the crop prospects has taken place during the past two weeks, owing to the cessation of rains and the advent of hot weather. The spring wheat and oat crops are unusually promising, and are both now nearly assured. It is believed that the corn crop is rapidly coming up to its condition in 1882.

EASY SOUPS.

Why is it that so many people think that it is a hard matter to have soup for dinner, and why is it that those who have the most available material for this purpose often use it the least? Now, if you are rich enough to have an experienced cook, she will either know how to make a certain number of good soups or she will scorn any simple methods you may suggest to her; but, if you are not rich—have perhaps only one girl, who is only a good plain cook—there is every hope for you to begin most dinners with a tasty and nourishing soup. It has been said that a plateful of soup makes a warm place in the stomach for the dinner proper, and that digestion is much aided thereby. This may be so or not; but it is only claimed now that it is *good* to have soup for dinner, and that it is *easy* to have it, too. For example, you need not go to your butcher's and spend fifty or sixty cents for a beef-bone or a knuckle of veal. Don't you have roast beef once a week—say a rib roast; two or three ribs? When you had your one, two or three meals from this, take the bones remaining—crack them if you can, leave them as they are if you can't—and put them over the fire with say two quarts of boiling water. Now you need not take a big iron pot for this. It is heavy to lift and your material does not require it. Some particular housekeepers will exclaim with horror when I say use a large tin saucepan or skillet. Cover this, and just let those bones cook all day, replenishing with hot water as it boils away. "You cannot have your soup till to-morrow." You ought not to have it till to-morrow. The last thing at night pour off the liquor and throw away the bones. If you wish, strain the soup, which is now what is called stock; but it will not be very bad if you don't for most of what is undesirable will either sink to the bottom or form a cake of fat on top.

Now, from these few bones please make the following: A rice puree, a vegetable soup, a tomato soup, a potato soup—almost anything except a clear soup. It all depends upon what you put into it. Have in the house always a bottle of colery salt, some bay leaves

and whole cloves. Five cents' worth of bay leaves, to be bought at a druggist's, will last a dozen years. Into, perhaps, a quart or more of soup-stock, having removed the cake of fat from the top, put, one hour before dinner, half an onion sliced and three tablespoonfuls of well-washed rice. Let this boil gently. A few minutes before dinner add a salt-spoonful of celery-salt, pepper and salt to taste. Chop a little fresh parsley fine and put into the tureen. It will not flavor much, but will look pretty. A little here means a teaspoonful when chopped. The rice meantime has boiled itself into a thickish substance, forming what is called a puree. The color of your puree will be whitish, and its taste will be good. Try it. For a vegetable soup, chop fine one medium-sized carrot, half a turnip, one large onion; add a small bay leaf and one clove, and boil with as little water as possible for one hour. If you have any cooked or uncooked tomatoes, add a few spoonfuls. Let the soup stock come to a boil, skim and put in the vegetables. Thicken slightly with two tablespoonfuls of corn starch or flour and your soup is done. For a tomato soup, take the quart of stock and let half a can of tomatoes boil together for three-quarters of an hour. Strain, add a teaspoonful of sugar, salt and pepper, one cup of milk, and, if the stock is not very rich, a small bit of butter. Thicken with about two tablespoonfuls of flour, rubbed to a smooth paste with a little cold water or milk.

For potato soup, or puree rather, boil five medium sized potatoes and onions together until the new potatoes are ready to fall to pieces. Drain well, sprinkle with salt. Have the stock hot, skimmed. Then rub the potatoes through a collander into the hot stock, and to make it smoother stir in one or two tablespoonfuls of flour, blended smoothly in a little cold water as in the tomato soup. Add pepper and a teaspoonful of chopped parsley.

I have spoken so far only of beef bones. A leg of mutton will furnish just as much material in the way of bones as the beef. Then there are the beef-steak and veal entlet bones, small ones to be sure, but just put them on the fire in a small skillet, and they will be the nucleus of another soup, or give enough more for another plateful. The quantity given here is intended for a family of four. With a larger family, of course there will be more bones, therefore more soup possible. Neither is it claimed that one can make a dinner of these soups. They are simply a relish—a preliminary to the dinner, and it is hoped have been presented in such a way as to seem easy to make.—*E. M. N., in the Continent.*

MORE ABOUT THE SPARROWS.

The sparrows seem to have a good many friends after all. The papers are full of communications on their excellent work in clearing away the insect pests and destroying those so hurtful to farmers and gardeners. The Philadelphia *Telegraph* has espoused the cause of the detested stranger and urges his case as earnestly as the *Times* calls for his destruction. But we fear the *Telegraph* is not quite so good a naturalist as this controversy seems to demand. In alluding to the pear buds, which sparrows admittedly cut off and

frequently destroy on the trees, it says: "It is not the bud he is after, but the infinitesimal parasite that comes with it, covering the pear bud, for instance, this year like a thick green scum. To get a good 'bite' of larvæ, the bird sometimes takes the bud, too, but not always." Now this is an excuse that will hardly find approval among ornithologists. Birds, we think we may safely say, do not do business on that wholesale plan. The finches, of which family the sparrows are such conspicuous members, don't capture their prey in that way. Nature has endowed them with very excellent eyesight, and like all the rest of the finch tribe, with bills capable of picking up, one at a time, even the "infinitesimal parasite" on the pear buds, if they had the disposition to do so. They take their food bit by bit, and not by great mouthfuls, as the *Telegraph* says and evidently believes.

The simple fact in this controversy is that the amateurs who are so largely discussing the sparrow question on the sparrow side omit one very important feature out of their case, and one, too, that is virtually decisive of the whole case. Ornithologists have divided birds into orders, arranged according to their habits and other peculiarities. Some feed on animal food exclusively, others on fruits, and others again on seeds of various kinds. A few feed on all these, but the sparrow is not one of them. His bill fixes his place and tells correctly the kind of food he feeds on. His place is not and never was among the insectivorous birds. He is as firmly established among the seed-eaters as the eagles and owls are among the meat eaters. As well might these people try to persuade us that a falcon will eat corn and oats as that a sparrow's principal food is insects. It is contrary to their nature. It is not their fault, perhaps, but just now it happens to be their misfortune. We do not deny that they occasionally swallow an insect, but this arises either from a mistake or through greed. Hunger may perhaps, on rare occasions, force him to adopt this unnatural diet, but we may safely assume it is much against his will and that he returns to his natural food at the earliest opportunity. The truth is, the poor sparrows are not at all responsible for the fact that they don't feed upon insects. It is one of the conditions of their creation and they can't shake it off. They are no worse than many other birds we have, but at the same time it won't do for their friends for them "to assume a virtue when they have it not." As we said before, an occasional insect may accidentally find its way into the stomach of a sparrow, but at the same time a pair of common house wrens, whose business is insect catching and eating, will destroy more of these pests than all of the sparrows in Fairmount Park. If we are to have pleas for sparrows, let us at least put them on scientific grounds and not such as the sparrow's own nature repudiates.—*New Era.*

HOW TO SLEEP.

Health and comfort depend very much on attention to matters that to some seem very trivial. We have sometimes heard persons complain that they did not sleep well; that they were troubled with horrible dreams, and awoke in the morning weary and nervous. Inquiries as to diet, exercise and other essen-

tials of health have often failed to reveal anything that could account for these unfavorable conditions.

It is not well in these cases to limit our investigations to the routine of a day; but we should inquire at what hour the patient goes to bed, what he thinks about usually, and most particularly what position he places himself in to invite sleep? If he lies on the back with his hand over his head, there will be a half-conscious compression of the chest, with difficult breathing, to relieve which he opens his mouth. The air coming in direct contact with the throat, causes dryness, and then snoring will begin. In the meantime the pressure of the viscera on the large artery whose course is along the inner portion of the backbone, impedes the circulation of the blood, producing discomfort which manifests itself in horrid dreams. Thus the whole night is passed in a disturbed sleep, and perhaps many nights pass without one of refreshing sleep. The most unwise course under such circumstances would be to resort to the use of opium or any other drug. The ranks of the victims of this unfortunate habit are recruited mainly from such cases as we have described. It is wonderful what control an individual can get over himself if he tries. There is no reason why a person cannot lie upon his side instead of the back, and keep his hands and arms down; and then he will not open his mouth; then his throat will not become dry, neither will he snore or have bad dreams. But often he can't help thinking about his business, and his thoughts will run on for hours. This is also a habit that may be broken up. Have the will to put aside your thoughts, and in time you will have the power to do so.

We do not say that there are not other causes that habitually interfere with sound sleep, but we believe there is a remedy for each difficulty which may be found by seeking for it.—*Hall's Journal of Health.*

SMALL GARDENS.

An article in your paper, clipped from the West Chester *Local*, induces me, for the benefit of others, to make a more explicit statement.

The garden in question is not more than 150 by 200 feet, from the superficial surface of which must be deducted the space occupied by fruit trees and a width of six feet all around for the growth of raspberries and currants.

Within the small space left I not only raised about two hundred quarts of strawberries, but also peas, beans, red beets, cabbage and tomatoes in abundance, together with a crop of potatoes which will yield me sixteen bushels at the very least.

I paid nothing for hired help, but cultivated the ground myself for relaxation from my literary labors, which you know are considerable. I was at no outlay for manure, but used compost, made up of fine grass cut by the lawn mower, saw dust, slops, decayed vegetables, coal ashes, etc., such as will accumulate about a place.

I put on the coal ashes in large quantities, though told that it would be injurious. I thought otherwise, and correctly so, because I knew the ashes would keep the ground from "baking," a fault which needed remedy.

"Ah," exclaims some one. "But you didn't keep any chickens." Yes, I did. I "carried" thirty hens over the planting season and have now, by actual count, eighty thirty little fellows in glorious possession of "all out doors." I fed them well, "yarded" them very little, covered the newly-planted beds with brush, and sustained no damage by their depredations.

I incidentally mentioned the fact of the sale of the strawberries to the reporter of the *Local*, because impressed with the fact that many others, and especially those whose incomes are limited, might make their gardens quite profitable by devoting spare moments to their cultivation.—*Frank H. Stauffer, in New Era.*

AN UNDISPUTED FACT.

It is no use disguising the fact. Farm work is not popular with either the young men or the young women in farmers' families. Many a farmer who is getting old sees with a sort of vague dread of an approaching calamity the silver threads streaking his loved and faithful companion's hair, as the aged pair sit alone in the long evenings, thinking sadly of their son who is in the city, and of their daughter who is also far away. They realize, too, that new tastes and new desires and hopes have estranged their children from the farm and the homestead, the memories of which cling and twine around their own hearts and bind their affections to the place, on every foot of which there is some work or improvement done by their own hands—some tree planted, some spot beautified, some waste reclaimed, some building arranged—and now all must go, by and by, into the hands of strangers who will tear down what has been built up with so much pains and has been tended with so much loving care. In thousands of farm-houses such cases as this may be met with, and they are very sad to one who knows how it is himself.

To know that one has some companions in his misery is supposed to be a consolation. If this is so, we in America may look across the Atlantic and take comfort to see the same thing going on in France, where the French farmers are mourning because their boys are abandoning their homes and becoming cooks and valets and shop men, and the girls become nurses or waitresses and stand behind the shop counters, as they do here. And German and Italian immigrants work on the farms and in the vineyards, and when the old farmers die these new-comers buy the land which the young men and women think to be below their notice.—*N. Y. Times.*

A FEW FACTS ABOUT BEES.

Successful bee management must of necessity be based on correct knowledge of the instincts and habits of bees. Without going into the minute details which a thorough naturalist would be curious to master, there are certain facts capable of being put into small compass, with which it is absolutely necessary every bee-keeper should be familiar. These we propose to state in this article.

Bees are of three kinds. Every complete hive or colony contains one queen, a number of drones (the fewer the better), and a multitude of workers (the more the merrier). The queen is the only perfect female and lays all

the eggs from which all the other bees are produced. The eggs are of two different kinds. The one hatches into drones or male bees, while the other produces workers. These, however, are simply undeveloped females, and every worker-egg is capable, under special treatment, of developing into a perfect female or queen. The special treatment consists in building what is called a queen cell, a roomy, pendant receptacle, somewhat resembling a peanut, housing the egg or young larva therein, and feeding it with a peculiar substance, known among bee-keepers as "royal jelly." This food has the effect of fully developing the young female, so that she comes upon the stage of life, fully qualified to increase and multiply. Instinct impels bees to rear queens when the colony becomes very populous and swarming time is at hand, also at any time when the colony is deprived of its queen. Only one queen (with few exceptions) is required or allowed in a hive at one time. Sometimes a queen will wander into the wrong hive; at other times bad weather prevents swarming, though the preparations have been made for it, and in such cases queen slaughter is very apt to take place, unless, as often happens, the workers protect the young queens until the weather is more favorable and circumstances are more propitious for swarming. Within a few days after being hatched, the young queen issues from the hive on what is prettily called her "bridal tour"—courtship, marriage and impregnation being all accomplished on the wing, during a brief flight. Only for this purpose does the queen ever leave the hive, except when a swarm issues. One impregnation lasts for a lifetime. Before it occurs, strange to say, the queen has the power to lay drone eggs; afterward she is capable of laying both drone and worker eggs. It sometimes happens that a queen fails to meet a drone at the proper period for fertilization. She then becomes a drone-layer, and with such a queen a colony is doomed to extinction. This and other facts in the natural history of the bee show the utility of the movable frame hive, which admits of examination, and permits the bee-keeper to remove a drone-laying queen and give the wasting colony a fertile queen or brood out of which to rear one. The queen bee is endowed with wonderful prolificacy, and when honey-forage is plentiful, instinct impels her to put forth all her energies in the direction of fecundity. It has been ascertained by careful experiments that a fertile queen is capable of laying upward of two thousand eggs in a day. Her prolificacy is regulated by the supply of honey, and, hence, it is the policy of all good bee-keepers to feed in early spring, so the colony will be ready with a strong force of young bees to take advantage of the honey season, when it comes.

The average lifetime of a queen is about three years; but they do not lay so well the third year. If they are not prolific the third year, we remove them and replace them with a young, prolific successor. Worker bees are short-lived, not averaging more than six weeks in the busy season. Drones are also short-lived. They are reared in the spring, when the colony becomes strong and the time approaches for swarming; and when the honey season is over the worker bees drive them out of the hive or sting them to death.—*C. F. Dodd, in N. Y. Independent.*

THOUSAND-DOLLAR COMPOST HEAPS.

Please give me a little space to again urge upon the *Tribune's* thousands of farmer readers the great value of the compost heap. I do not urge it as a theory, but as the result of many years of actual experience. I have tried, in a moderate way, one and another of the commercial fertilizers, and while I have no complaint to make as to their value, it seems to me that our farmers as a rule can do better. I commenced hauling for my compost heaps last spring, throwing into them all the coarse refuse, whether it was coarse manure, street sweepings, fish refuse, pig manure, weeds from the garden, potato tops, pea vines—in fact, anything and everything that I supposed would be of value. At times, when they seemed to be getting too hot, I had water thrown upon them in sufficient quantities to cool but not to drain from them. During the fall they were worked over. They have been heating a very little all winter, about sufficient to keep them from freezing. We are now working the largest one over again, after which it will be ready for use. I am aware that it may be urged against this that it will cost time and labor, and some money; yes, my farmer friends, it does; and so do all of the good things that I know of in this world. I can not tell what the two heaps have cost me, as they have been gathered at such times as we could spare men and teams from other work. I am now paying twenty-five cents per cord for working over, and I will have, after this is done, not less than one hundred and seventy-five and perhaps, two hundred cords, and in splendid condition for immediate use. As near as I can judge, the cost will be from \$300 to \$400. How about their value for the coming season's crops?

I shall also have an immense amount of good stable and barnyard manures, much more in bulk than these heaps, and I believe that no man values them higher than myself, but when and where I want my land to give me the largest possible crops, and those of the greatest value, there goes my compost manure. Why? Simply because many years' experience tells me that crops will start up more vigorously, and grow up more rapidly with this manure than with an equal amount of the best stable manure. It is reasonable that this should be the case, as it is more nearly ready for plant food than any coarse or unprepared manure could be. I cannot give your readers the actual value of these heaps, but if any man should come to-day and say: "I will deposit \$1000 to your credit in the bank if you will allow me to haul away your compost heaps." I should answer: "My friend, I have lately been purchasing some property, and my bank account is unusually low, but I do not need money bad enough to make such a sacrifice as that would be to obtain it." I have never used these manures upon any crops where they did not tell the same story. I will not pretend that the mingling of the different materials makes each and every one of them more valuable than they otherwise would be.

It is possible that if each was taken in its crude state and plowed under, its value to the land might be as great as when in its present condition. But I should be years instead of a few weeks or months in getting my returns.

Merchants think "small profits and quick returns" best in the long run. With me this plan of fertilizing has never failed to give quick returns and large profits, or at least large crops.—*J. M. Smith, in New York Tribune.*

DRINKS.

What and When Fluid Nutriment Should be Taken.

Nourishing Fluids.

Regarding the drinks which contain more nourishment than water, much might be said. A few statements will suffice to bring out the most important points regarding their character and uses. This class of drinks is employed when the largest amount of nourishment is required with the least efforts on the part of the digestive organs. Nourishing fluids which undergo very little change in the stomach, but are simply absorbed and go at once to supply the materials for the repair of tissue, are types of this class. Under this head there is such a variety used that it appears necessary to specialise a little more. To make this clear three sub-divisions may be made: First, those which are absorbed without change by digestion, such as water, saline and saccharine solutions, and some of the animal extracts; second, such as require very elaborate digestion, which takes place slowly, milk for example, and, third, those which undergo changes by digestion, but do so very rapidly and with very little effort on the part of the digestive organs, whey—serum of milk—buttermilk, clear soups, and some of the gruels. The first of this division should be used when a patient has thirst without hunger and is unable to digest the more highly nutritious drinks. In fevers attended with great disorder of the digestive organs, life may be sustained for a long time and the comfort of the patient greatly increased by using this kind of drink, while very great harm might be done by giving some of the more nutritious drinks which require digestion. The third class should be used in the same conditions mentioned above as soon as the digestive organs will tolerate them. The second class answers well when the patient has the ability to digest food, but has no appetite, no ability to masticate and insalivate solid food. Such conditions often are seen in disease. Take typhoid fever, for example. The patients will refuse solid food altogether. They cannot masticate or swallow it, and still they will take milk and other nutritious drinks, and digest them. The adaptation of the various kinds to the wants of the sick demands the skill of the physician, and should not be trusted to the nurse or ordinary attendant. At one time it may be necessary to give carbonaceous nourishment to sustain the nervous system in order to carry the patient through some exhausting stage of an acute disease, while at another the gradual supply of tissue may be the object desired. The engineer uses the most combustible material when he wishes to get up steam rapidly to carry his locomotive up hill, while a slow, steady fire is all that is required to drive the engine upon level ground. So it is in giving drinks to the sick. We should know exactly whether it is necessary to sustain the vital or nerve forces dur-

ing the work immediately on hand, or to supply tissue to-day for the work of to-morrow, and then adapt the nourishment accordingly.

Stimulating Drinks.

This brings us to the second class stimulants, the action of which is to increase vital action and prevent the waste of tissue. There has been much learned discussion among the doctors of medicine regarding the questions whether stimulants produce vital energy or force or simply bring into action that which exists in a latent state, and whether alcohol (the essential element of most stimulants) supplies new material for the tissues or only retards the waste of tissue. These questions lie upon the outer boundary line of our present field of inquiry, and fortunately, their solution is not absolutely necessary to the object in view. It is well known that stimulants help to sustain the organization under extraordinary taxation, either from labor or disease, and that the feeble in health and those who are sick are sometimes enabled to accomplish more than they otherwise could by the aid of stimulating drinks. Those who are in health and live under favorable conditions of life do not require stimulants; on the contrary, they are directly injured by their use; but under the circumstances named above stimulants are the most valuable and potential agents at the command of the physician. They are, however, the most liable of all drinks to be abused, and therefore they ought to be used with care, and with a clear understanding of their effects. A few hints regarding these points will serve as an outline guide to the use of stimulants. They should never be used in health except as a luxury; they should only be given to accomplish that which cannot be attained by food and rest; they should be regulated in quantity when given to bring the strength and activity up to or toward the standard of health; care should be taken not to produce over-excitement by stimulants—that is, intoxication even in a slight degree, because a corresponding degree of depression follows excitement of intoxication. They should be given in doses sufficient to produce the effect desired, and repeated at such intervals as may be necessary to maintain the effect. Stimulants are rapidly absorbed, and produce almost immediate effect. This should be carefully watched in order to avoid a too sudden excitation. Wines which contain a small percentage of alcohol, as most good wines do, may be most beneficially used. There is less danger of producing sudden intoxication, and that irritation and congestion of the stomach which is caused by strong liquors. If whisky, brandy, or any of that class is used it should be well diluted. Clear liquor taken when the stomach is empty produces great derangement of the liver, and if the practice is continued long produces fatal organic diseases of that organ. A man's days are numbered when he is seen taking his whisky habitually before breakfast. While it is a bad habit to drink strong liquors immediately after meals, it is far less dangerous than doing so before eating. Any fluid which contains more than 15 per cent. of alcohol is said to arrest digestion if taken with food. This is true, I believe, although most people who drink doubt it. They know

that they eat and drink and digest, and hence they do not see how the drink taken can arrest digestion. The fact is that digestion is stopped until the alcohol is absorbed, and then digestion goes on. This gives the stomach extra duty and prolongs the time of its labors. Mixing liquors with mineral water, which has become fashionable of late years, is a great advance in the right direction. The mixture is not only more agreeable to most people, but it counteracts the tendency of strong drinks to injure the stomach and liver. It also secures a slower absorption and produces a more prolonged and milder stimulation.

Perhaps the most difficult question of all that pertains to this subject is what kind of stimulant to use. Those who drink for pleasure select that which is most agreeable to the taste, without regard to the ultimate effects upon the system; but in using stimulants for the purpose of strengthening the weak or in aiding the cure of disease, the selection should be based upon different principles. It is impossible to tell beforehand what will agree with a given case. The only way is to try and see what produces the desired effect. Some delicate people, whose appetites are poor, will be benefited by using beer at their meals, while in others it will cause audacity and indigestion. Some find that certain wines answer well, while others take whisky or brandy agreeably. A momentary excitement is caused by a very small quantity of any stimulant in semi-delicate or sick people, and in others languor and weariness follow. Both effects are injurious, and the stimulant should be withheld or given in smaller quantity. If digestion is labored and the appetite impaired after using a stimulant it should be given up. On the other hand, if a feeling of strength without excitement follows, and the appetite is improved, or not impaired, then it is evident that the stimulant is useful. When stimulation is indicated, and the first that is tried does not agree, it is well to try a variety, perhaps some one will be found to give the desired effects. In short, select a stimulant for each case in place of seeking a stimulant which will suit all cases. In giving stimulants to the sick there is one great mistake frequently made, and that is giving too much at first. The dose should be so small as not to produce any marked effect, and then it should be gradually increased until the desired effect is produced, and then that quantity continued. Care should be taken never to give more than enough. This has been the most difficult point to settle for both patients and physicians. There is one rule which can be followed on this point, and that is to give only as much as can be appropriated by the system. Whenever more alcohol is taken than can be used up in the system the excess is thrown off by the mucus membrane of the lungs, and the breath has the smell of liquor. No matter how much liquor is taken, if it is not eliminated by the lungs the quantity is not too great and no matter how little is taken if it is thrown off in that way the quantity is too much.

Mineral Water Drinks.

The third class medicinal drinks embraces so much and is so closely connected with medicines generally that a volume might be

written on the subject. Mineral waters now hold an important position among remedies that it is necessary for every one to know something of their use. Medical men are supposed to understand their use and to be able to prescribe them with the same intelligence which they show in the use of other drugs. But the people use mineral waters nowadays freely and without the advice of physicians, and therefore, they ought to know more about them than they generally do. Perhaps there is no valuable class of agents more abused than mineral waters in the way they are employed by all sorts and conditions of men. The fault is not altogether of the people. They have no means of knowing how to use these waters. Advertisements proclaiming the virtues of certain waters are to be found in abundance everywhere, but without any specific directions how to use them. In fact, mineral waters, which are far more valuable than most of the nostrums in circulation, and not so well protected from misuse. Every box and bottle of patent medicine is labeled how and when it should be taken and in what doses, but most of the mineral waters have only the name of the water on the bottle with a long list of the diseases which it is said to cure. Now, all this should be changed. Mineral waters should be taken with the same care and with as clear a knowledge of their effects as any other medicines. Medical men especially in Europe, have given much attention to the medical effects of different waters, and their interest in them has increased of late years. The subject of the therapeutic action of all the waters has not yet been exhausted by any means. In fact, there is still much that is hazy in the words of the doctors generally regarding this whole matter. I might state this a little stronger by saying that there are still a great many medical men who are lamentably ignorant of all that pertains to mineral waters. The medical literature on this subject in great part remains to be written. Facts are being obtained by observation all the time, and even now more is known about how to use and the effects to be obtained from mineral waters than is practically applied. It has been pretty definitely made out that certain waters accomplish certain objects. The strong saline waters are cathartic. Others act upon the kidneys. Those containing iron and phosphates are tonic. The lithia and sulphur waters are alterative and are valuable in rheumatic affections, and so on. It would be confusing and tedious to name all the waters and their effects.

Mineral Waters as Eliminatives.

A more convenient way to comprehend and remember them is to classify them according to their effects; as follows: First, eliminatives; second, tonics, and third, alteratives. The first includes the largest number and expresses the most important effect produced by mineral waters. Elimination, by which is meant the throwing off of the worn-out materials in the system, is one of the most important processes of all the functions of the body, and one which is particularly liable to be deranged. The breaking down of old tissues and their expulsion from the body is highly necessary to the health and activity of every one. No matter how simple and perfect the supply and appropriation of food may be, if

elimination is retarded ill-health and sluggishness is sure to follow. Those of sedentary habits, who are said to live well, *i. e.*, those who eat much and take little physical exercise, are particularly prone to bad elimination. They become like a house which is not cared for. Rubbish accumulates in the corners, dust settles in all the furniture, the doors creak on their hinges, and the avenues of escape are blocked up. They need cleaning out. Busy men in easy circumstances, lawyers and clergymen, are often the victims of faulty elimination, and should spend part of their time in drinking mineral waters. A blacksmith who works hard and perspires freely is less likely to suffer from slow elimination. He has little need to go to Saratoga to drink the eliminating waters. "The curse of the poor is their poverty," is a saying often heard, and it is a truism to some extent. It is equally true that the poverty of the poor is often their greatest blessing. The strong arm, the clear head, sweet sleeps, and good digestion of the working man often comes from the poverty which compels him to work. The well-to-do man often suffers from indisposition, headache, want of appetite and despondency simply because he is loaded down with worn-out tissues which should be swept away. He tries a little wine, which acts like a whip on an over-fat horse. It starts him up for a moment, but only increases the troubles by further retarding the breaking down and cleaning out of the dirt and cobwebs with which his tissues are handicapped. Such a man would derive great benefit from a course of mineral waters of the first-class, *viz.*: the eliminatives. They would be to him the same as a thunder shower to New York or Brooklyn in summer—cooling and cleansing. Catarrhal states of the mucus membrane of the alimentary canal, so common everywhere lead to torpor of the liver and constipation, and all the aches and pains attendant thereon. The subject of these disorders, which have been brought on by years of unwholesome living, may take an occasional dose of medicine without relief. They become chronic grumblers, and fancy that they belong to the class of incurables, while the fact is they only require to drink cathartic waters three or four weeks to be fully restored to health and strength. Others there are who have no such derangement of the digestive organs, but suffer from inactivity or functional derangement of the kidneys. They may be said to have renal constipation. They feel weak because oppressed by the load of excrementitious matter which the kidneys fail to throw off. They eat freely to gain the desired strength, but that only increasing the distress. That is like heaping coals upon a fire without raking out the ashes. That which they vainly try to do for themselves can easily be accomplished by the free use of diuretic waters. By the judicious use of these waters Bright's disease can often be prevented. When that dread disease is once fully established it is folly to talk about curing it. But the functional disorders of the kidneys alluded to above tend to organic disease, and they should be promptly relieved.—*N. Y. Times.*

Subscribe for the LANCASTER FARMER, the best and cheapest agricultural paper in the State. Every farmer should take it.

OSTRICH FARMING IN THE STATES.

My recent report on ostrich farming in the United States seems to have elicited considerable interest, and I am in receipt of many letters making further inquiries on the subject, and not having time to answer them separately, I have thought that the various questions asked might better be met by a supplemental report, which you will find inclosed.

I give the points in order in which they occur to me:

1. I do not think it would be possible to send ostrich eggs to the United States and have them arrive there in good condition. The long voyage and motion of the ship, to say nothing of the passage they would have to make across the heats of the equatorial regions, would so addle them that they would be unfit for incubation upon their arrival. This is not merely my own opinion, but also that of the *ostrich farmers* located here.

2. The only safe way is to procure the birds; and Messrs. Hill, Protheroe & Co., who have been so successful in transplanting the African ostrich into this country, inform me that, so convinced are they that the United States offer all the facilities necessary to a successful prosecution of the business, they propose very soon to take a lot of the birds there and thus give our countrymen an opportunity of testing the new industry. They are now making arrangements to this end. The cargo will consist principally of four-year old birds, as they stand a sea voyage the best, and they can be sold, by comparison, much cheaper than older birds, and besides, they assure me that from their experience of the losses and expenses of bringing birds from the Cape of Good Hope, it does not pay nearly so well to import the feathered birds as to rear them from the breeders in the country itself.

On the subject of this industry and its naturalization in the United States I submit the following letter, which I have received from them:

Buenos Ayres, April 13, 1882.

DEAR SIR:—We beg to state that we have made replies to the letters you handed us from various parties in the United States, asking further information than that contained in your own able report to the department of state, on the subject of ostrich farming.

This enterprise continues to flourish in this country, so far as the well-being of the birds is concerned, and the quality of the feathers produced on the rich pasture of the pampas is much superior to the average at the Cape.

Our breeding birds have already commenced and some chickens have been hatched out, and we shortly expect a further number.

Should you send any further report to your government we should like to point out the special advantages which we consider the United States offer to this industry; that there is in the the country itself a vast market for all the feathers which can possibly be produced there for years to come; and doubtless there is an import duty which will protect the home grower, and enable him to obtain a higher price than foreign growers can in other markets. This fact influences, of course, the value of the chickens reared in the States, the highest prices, of course that can be asked for them is just what it costs to import. Now as the expenses of shipping are very heavy, and the loss at sea is sure to be large and may be terrific, without the possibility of insurance it will scarcely pay to introduce any but four year old birds and breeders, with a view of raising the feather birds in the States. Consequently all fear of cheap importation being done away with, a very handsome figure can

be asked for the chickens, and the owners of breeding birds will reap a golden harvest.

The industry, indeed, will pay as well in the United States, or even better than it ever did at the Cape in the days of fabulous profits, when the demand for chickens was far greater than the supply, and when birds, three months old, readily brought £20 each; and this in a country which suffers from periodical drought and has many other draw-backs, all tending to make ostrich farming less valuable, because less productive than it will be in the United States.

That the business will assume larger proportions in your own country we are quite convinced; and, as is usual in such cases, the first in the field will be the first to take advantage of the demand for young ostriches, which is sure to spring up.

We are, yours very truly,

HILL, PROTHERO & CO.

E. S. BAKER, Esq., United States Consul.

3. In regard to the yield of feathers, I am advised that the product from one bird annually is worth about \$60, wholesale, in London. If however, the pasturage is good, which it seldom is at the Cape of Good Hope, the yield is worth much more. Mr. Hill informs me that he has known one plucking sell \$150, and two pluckings can be taken in a year, but that is an exceptional case. A return of \$50 per year is the very lowest that will be obtained under any circumstances. He has every reason, however, to believe that \$120 worth of feathers from each bird will be given annually in the United States. An ostrich of two years of age which costs, say \$375, will therefore give about 26 per cent. gross profit. From this a small percentage must be deducted for accidents, and, say, \$60 per bird for expenses, annually. Still this leaves about 15 per cent. clear; and when it is considered that any farmer of stock can generally place fifty birds and upwards upon his land, without making much difference to the pasturage, and that no herding is required where the fencing is good, and that but little trouble is involved, even at the prices quoted it is more than fair remuneration.

4. As to prices of birds delivered in the United States, Messrs. Hill, Protheroe & Co., inform me that they will probably be able to furnish breeders at \$1,750 per pair; for four-year old birds, which may shortly be expected to breed, the price will be \$1,200 per pair; and for two-year-old birds, \$750 per pair.

5. In the case of four-year-old birds and breeders, it will be born in mind that the return of profit is twofold; first, the feathers, which perhaps may not do more than pay the working expenses, as the birds when breeding require separate inclosures and to be fed on grain; second, the profit derived from the sale of the young chicks.

By the process of incubation, it may certainly be expected that sixty chicks will be annually reared from a pair of breeders. The value is, of course, influenced to some extent by the activity of the demand; but intrinsically it depends upon two things, viz; the return of feathers they give and the risk of death before they become productive. As regards the former point, a chicken gives its first plucking (always London wholesale prices), worth \$5 to \$6 per bird, at the end of nine months; and every six to seven months

thereafter the really good feathers are produced, worth from \$25 to \$120 per plucking, according to the age of the bird. Every man can therefore judge for himself what a clutch would be worth to him, were risks and mortality out of the question.

6. In regard to mortality, almost everything depends upon the state of the pasturage and the rainfall. Generally, if a constant supply of lucerne (alfalfa) or clover or other green grass can be obtained, then ostrich farmers calculate on 10 per cent. as the rate of mortality, but should green stuff not be attainable when the chicks are from a few days up to three months old, the number of deaths may be excessive. I am told that at the Cape of Good Hope the chicks are sometimes almost worthless from the absence of herbage. In the Argentine republic, and I presume in the United States, this great drawback will not be felt. After three months the special danger is passed, and at the Cape chickens of this age for years have been worth from \$50 to \$60 each. After this time the mortality will probably not exceed 10 per cent.

Mr. Hill is of the opinion that for a long time to come birds three months old would be worth in the United States \$120 each; for the expenses alone of importing ostriches will probably be almost this sum, to say nothing of the first cost and the risk of the voyage. Even at the price named the return would be satisfactory, and to the owners of breeding birds quite fabulous.

7. Regarding the management of the birds, as I have said before, all that is needed is an inclosed paddock, or grass fields, with sufficient pasturage to sustain them. They should be collected and counted about once a week. Every month they should be brought into a small inclosure, when each bird should be examined, and the ripe feathers plucked. The process of displuming them is simple enough. They are put in a "corral" or small pen, so confined that they cannot exercise their propensity for kicking, and while two men hold the bird, a third proceeds to pluck the feathers. A still safer and more satisfactory way is to put the bird in a box or stall made for the purpose. When the birds are breeding, each pair should have a small inclosure to themselves—say twenty yards square—and a little grain daily. They procure an egg every two days. In violent storms shelter is always better for the flock, but this is not really necessary.

There will be needed a small room for the incubating machine, and oil enough for the lamp which heats the water; also shelter for the chicks up to the age of two or three months. This is about all; and, as in other employments, success will be attained by care and attention.

8. The best book upon ostrich farming is that of Mr. Douglass, of Cape Town. It is published by Cassell, Peter Sulpin & Co., London, New York. It will be observed in this book that the author advises two or three years' experience on an ostrich farm before starting the business. In regard to this, Mr. Hill says that Mr. Douglass addressed himself to young Englishmen, who have been brought up to nothing, and know nothing, or very little of farming pursuits. He insists that any intelligent man, in the least accustomed

to take care of stock, can learn the habits of these birds in a month, as also how to treat the few diseases to which they are subject; and if he buys healthy birds he will be successful from the first, provided the farm is a suitable one.

I have obtained the above points either directly from those who are practically acquainted with the business of ostrich farming or from observations of my own while visiting a farm in this vicinity, and I think they will be found reliable.

In regard to the special advantages which the United States offer for the prosecution of the industry I do not think there can be any doubt.

Ostriches are doubtless capable of standing the climate of almost any of the States, but productive ostrich farming, whether for the feathers or for raising the chicks for sale, ought not to be attempted except in the milder portions of the country, as the Southern, Southwestern and Pacific States.

The birds are naturally timid, but are readily domesticated, especially when they are produced by incubation; and they become on the farm as tame as chickens, ducks or geese.

The males, however, are not quite so tractable, and during the breeding season they sometimes become aggressive; and then they have to be watched or they may do mischief. Their kick is severe and sometimes fatal, though by facing them with no manifestation of fear, and using a stick three or four feet long with a fork at the end into which the neck of the bird is inserted, their attacks can generally be avoided.

Messrs. Hill, Protheroe & Co., informed me that immediately upon the shipment of a cargo of birds to the States the fact will be publicly announced, as also their port of embarkation.

SMALL FRUITS ON THE FARM.

The first thing is the selection of the ground. If possible, a plat that slopes in the East or South is preferable, and if it is protected on the North and West so much the better. We do not like a steep hillside, especially for small fruits, but, if possible, want it sloping sufficiently to drain well. If this cannot be secured to obtain the best results, artificial drainage will have to be resorted to.

While a poor soil will raise some fruit—and by using manure around the plants much economy in fertilizers can be used—still, if possible, it will always pay to select a naturally rich soil. Or if this can not be done, an application of well-rotted manure should be given. It is better of course that much of the preparation should be done in the fall, but at this time we can only do the best we can at the time. The ground should be well plowed and harrowed thoroughly, to get it in as good condition as possible. As in all other farm operations it pays to make the work of preparation as thorough as possible.

We believe that in small fruit culture it is far better to have the manure thoroughly incorporated with the soil. The roots of all plants (where they are to remain any length of time in the same place) are certain to penetrate through the soil in every direction, and when (as if often done) the manure is applied

*The duty in the United States on ostrich feathers is as follows: When crude, or not dressed, colored or manufactured, 25 per cent. ad valorem, colored or manufactured, 50 per cent. ad valorem.

simply around the roots when the plants are first set out, it will stimulate a heavy growth at first or when the manure is first reached by the roots; but as the majority of the roots (especially the small rootlets or feelers) get beyond the manure and come in contact with the purer soil outside of the area covered by the manure, then there is a stoppage in growth and a consequent damage to the plants. And again, when manure is simply applied immediately around the roots in too large a quantity (and this is nearly always the case when applied in this way), it causes too strong a growth of wood at the expense of fruit and hardiness. An application of wood ashes is very beneficial, and should be applied if possible. We prefer to apply all the ashes we can save to our fruits, both large and small, in preference to using them in any other way, and if due care is taken with what is made in an ordinary family, a sufficient quantity can be secured to give all the fruit generally raised on the farm a dressing.

Understand at the outset that I am simply writing for the benefit of the farmer who, we think, ought to raise small fruits of all kinds for the use of his family, and not for those who make the raising of small fruits for market a specialty. I claim that each farmer can raise all kinds of small fruits far cheaper than he can buy. In fact, I have always held that the farmer ought, by all means, to raise all that is consumed in the way of edibles, and he can do so far cheaper than he can possibly buy them.—*N. J. S., in Prairie Farmer.*

INTRODUCING NEW VARIETIES.

The seedsmen and nurserymen are annually introducing to notice new varieties of fruits and vegetables, but such work should not be left entirely in their hands, as it is the duty of farmers, gardeners and fruit-growers to experiment in such matters in order to increase the hardiness and yield of all plants that are cultivated for profit. Perhaps the reason why the introduction of new varieties is not interesting to farmers is because they consider the matter as something difficult, which, no doubt, is true, but it is as easy to them as it is to seedsmen. If we consider wheat, for instance: the work of improvement consists of nothing more than the selection of the plumpest grains from the largest heads and best stalks, which plan, if continued for a few years, results in a variety better adapted to the locality in which it is grown, and which will yield more and produce a better quality of grain. Vegetables of all kinds may not only be improved by this method (selecting the best) but even the growth, shape and other characteristics may be changed.

The greater number of our varieties of fruit comes from seedings. The apple is one of the best and hardiest fruits we have, the numerous varieties all coming from the one source—the crab apple—and though each variety is distinct in habit of growth, shape, size and period of ripening, yet if we plant the seeds of the best of them we may not get anything resembling that from which the seed was taken. The young trees may also produce crab apples, or there may be among them something superior to heretofore known. Often over one thousand trees have been used in a single experiment, and, among vegetables,

a certain seedsman could only find one good potato from 8,000 plants; but that particular kind amply rewarded him for all the time and labor that had been employed in the task of selection.

Farmers are not inclined to try experiments with fruit trees, as time and patience are required, while nurserymen are particular to take advantage of all opportunities; but farmers can at least, with vegetables, select the most perfect seeds from the best plants. So far as the small fruits are concerned, they have better opportunities, for it is not required to wait a long time for results. The strawberry can be grown from seed, but the majority of the best kinds are due to chance seedlings, which, growing in some unobserved locality, are accidentally discovered to be of superior quality, and receive the proper care and attention necessary to propagation. As a single strawberry will produce a large number of plants from seed there can be no possible limit to the improvement of that berry, the only requisite being to trim off the seeds from the berry, dry them on paper, or mix with sand, and sow in a place. As soon as the young plants are large enough set them out and make careful observation of the growth and productiveness of the vine, period of ripening, size, color, firmness, flavor and quality of the berries. Each plant may be different from the others. All may be worthless but one, and that one may cause a revolution in strawberries.

As with strawberries so with raspberries, blackberries, grapes, or even huckleberries. There is a wide field open for the introduction of a new blackberry equal to the Wilson, for it is fast deteriorating, and a fortune awaits the one who can improve on it, while a grape equal to the Concord, and one that will not rot, is sure to find favor. All plants that reproduce themselves from the roots, or by cutting or tipping, send forth plants that fruit precisely the same as the parents, but when produced from seed no reliability can be placed on the result, as the seed either reverts to the original stock or becomes the foundation of a superior variety.

AMUSEMENTS OF THE WORKING CLASSES.

The amusements of the working classes are often of a low and even vulgar kind; and one of the greatest improvements in their life would be the adoption of some more refined enjoyments in place of the vulgar shows, the trifling sports, and the insipid reading in which they now indulge. It is true that, in this respect, the whole American people need refining and elevating, and not the working classes alone, for many of our richest men show little more ability to amuse themselves in a refined and sensible way than the working-men do. But the rich man can, in a pecuniary sense, better afford to throw away money on unrefined amusements and vulgar display than workingmen can, for their means are sufficient to admit of some waste; whereas the workingmen, if they are to get the greatest possible happiness out of the means they have, must studiously avoid all expenditure for things of no value, or they will have nothing to spend for those finer pleasures which are so much better and more enduring.

There has been of late years, we are glad to say, a considerable advance in this respect among the workingmen, as seen especially in their increased attention to music, art, and to the cultivation of flowers; but a vast deal more remains to be done to raise the amusements and recreations of the laboring class to the standard required by a cultivated taste.

But the most important source of happiness of a cheap yet elevated kind is to be found in reading, affording as it does both amusement and instruction; and whoever can lead workingmen to a better practice in this regard will render them an inestimable service. A taste for reading, indeed, is even now rapidly spreading among the better portion of the working class; but the reading is often so low in quality, so little able to amuse or to instruct, that the benefit obtained from it is but trifling in comparison with what it ought to be. Workingmen read the newspapers, and thus become familiar, to a certain extent, with the course of affairs throughout the world; but the quality of the newspapers they often read shows at once the poorness of their literary taste and the meagerness of their information. Besides the newspapers, their principal reading is fiction, and this rarely of the best; while of the vast stores of information, historical, biographical, scientific, and other kinds, which English literature contains, their knowledge is in general of the most meager sort. Yet the majority of working people have abundant time and energy for the prosecution of such reading, and only need to form a taste for it in order to obtain a pleasure of the noblest kind.—*The Century, for July.*

STATE HORTICULTURAL ASSOCIATION OF PENNSYLVANIA.

Officers and Committees for 1883.

President, George D. Stizel, Reading, Pa.; Vice Presidents, H. M. Engle, Marietta; Josiah Hoopes, West Chester; W. S. Bissell, Pittsburgh. Recording Secretary, E. B. Engle, Chambersburg. Corresponding Secretary, W. P. Brinton, Christiana. Treasurer, George B. Thomas, West Chester. Librarian, Gabriel Heister, Harrisburg.

Standing Committees.

GENERAL FRUIT COMMITTEE.—It is hoped that the members of this committee, especially, will make close observations on fruit crops and prospects during the season, so as to be able to report to the Chairman, when requested. Total or partial failures of fruits, diseases, insects, &c., should be specially noticed and reported. E. Staterthwaite, Jenkintown, Montgomery county, Chairman; A. R. Sprout, Picture Rocks, Lycouning county; Jos. Lewis, Jr., Newtown, Square, Delaware county; Dr. Jas. Calder, Harrisburg, Dauphin county; Dr. B. L. Ryder, Chambersburg, Franklin county; W. M. Pannebaker, Lewis town, Millin county; J. V. Garreston, Flora Dale, Adams county; W. L. Schaeffer, Philadelphia; E. P. Swift, Mt. Oliver, Allegheny county; H. S. Rupp, Shiremanstown, Cumberland county; J. S. Keller, Orwigsburg, Schuylkill county; W. Voris, Pottsgrove, Northumberland county; Bassler Boyer, Lebanon, Lebanon county; J. W. Pyle, Willow Dale, Chester county; A. S. Shimer, Redington, Northampton county; Calvin Cooper, Bird in Hand, Lancaster county; Peter Lint, York, York county; A. S. Sheller, Lewisburg, Union county; Cyrus T. Fox, Reading, Berks county; H. Leh, Allentown, Lehigh county; J. K. Sharpless, Catawissa, Columbia county; M. B. Eshleman, Newport, Perry county; J. E. Jamison, Coedamus, Juniata county.

COMMITTEE ON NOMENCLATURE.—H. A. Chase,

West Penn Square, Philadelphia, Chairman; S. W. Noble, Jenkintown, Montgomery county; H. A. Longsdorf, Mechanicsburg, Cumberland county; J. Hibberd Bartram, Milltown, Chester county; J. T. Smith, M'Allisterville, Juniata county.

COMMITTEE ON ENTOMOLOGY.—S. S. Rathvon, Lancaster, Lancaster county, Chairman; Ezra High, Reading, Berks county; Herman Streeker, Reading, Berks county.

COMMITTEE ON ORCHARDING.—Thos. M. Harvey, West Grove, Chester county, Chairman; John G. Engle, Marietta, Lancaster county; Jacob Heyser, Chambersburg, Franklin county; J. L. Sherfy, Gettysburg, Adams county; Col. G. F. M'Farland, M'Allisterville, Juniata county.

COMMITTEE ON FLORICULTURE AND ARBORICULTURE.—Charles H. Miller, 5774 Germantown Ave., Philadelphia, Chairman; P. C. Hiller, Conestoga, Lancaster county; John C. Hepler, Reading, Berks county; George Achelis, West Chester, Chester county; George Balderston, Colora, Cecil co., Md.

COMMITTEE ON ARRANGEMENT AND RECEPTION.—T. A. Woods, Harrisburg, Dauphin county, Chairman; H. S. Rupp, Shiremanstown, Cumberland county; E. B. Engle, Chambersburg, Franklin county.

Special Committees.

COMMITTEE ON RULES.—E. P. Swift, Mt. Oliver, Allegheny county, Chairman; Bassler Boyer, Lebanon, Lebanon county; W. M. Pannebaker, Lewisport, Mifflin county.

COMMITTEE TO ARRANGE FOR AN EXHIBITION OF FRUITS, &c., in connection with the Annual Fair of the Pennsylvania State Agricultural Society.—Geo. D. Stitzel, Geo. B. Thomas, E. B. Engle, Executive Committee. In addition to all the members of the General Fruit Committee, as named above.

REPRESENTATIVES TO AMERICAN POMOLOGICAL SOCIETY.—Biennial meeting at Horticultural Hall, Philadelphia, September 11th to 14th, 1882.—George D. Stitzel, Reading, Chairman; H. A. Longsdorf, Mechanicsburg; E. P. Swift, Mt. Oliver; B. L. Ryder, Chambersburg; F. F. Meceron, Catawissa.

COMMITTEE ON INSECTIVOROUS BIRDS.—John Rutter, West Chester, Chairman; Geo. D. Stitzel, Reading; H. M. Engle, Marietta.

Due notice will be given to all members in case it is decided to make an exhibit of Fruits at the State Fair to be held by the Pennsylvania Agricultural Society. By united effort on the part of members of this Association, a very creditable display can be made. We are also invited to exhibit at the Annual Exhibition of the Pennsylvania Horticultural Society, which will be held in Horticultural Hall, Philadelphia, September 11th—14th, 1883, in connection with the Biennial session of the American Pomological Society. Liberal premiums are offered, as will be seen by the programmes and premium list for 1883.

GEO. D. STITZEL, Pres't, Reading, Pa.

E. B. ENGLE, Sec'y, Chambersburg, Pa.

OUR LOCAL ORGANIZATIONS.

THE POULTRY ASSOCIATION.

The regular meeting of the Lancaster Poultry and Live Stock Association was held on Monday morning, July 2.

In the absence of the President Mr. Sehum was called to the chair.

The minutes of the previous meeting were read and approved.

Mr. Lichty reported that sixty three shares of stock had been paid for, amounting to \$315, which sum had been expended in the payment of bills. Five shares of stock had been subscribed for but not paid, and the association still owes \$19 for premiums.

Mr. Lichty also reported that the charter had been granted by the Court and was now being recorded.

Martin Rudy was elected a member of the association.

Gapes in Chickens.

Mr. F. R. Diffenderfer had prepared and asked the secretary to read the following interesting article on the above subject:

About a year ago I gave this society my experience in dealing with gapes in chickens. That communication called out a letter from a gentleman residing in the country, whose poultry yard had, like my own, for years been infested with these pests. He gave in detail a plan he pursued in the spring of 1882 to avoid this trouble, and which was attended with complete success. It was to keep the chicks from the ground until they were two months old. He made a pen in his yard with a board floor, and here he kept them for eight weeks, when he turned them out, not one having been affected with gapes.

I had a brood of five chicks hatched out on the 7th of last March. These I put on the second floor of my stable, which is about twenty feet square. After keeping them there for about two weeks I was tempted to give them the benefit of a sunshiny day and brought them down into the yard. Here I left them for several days, when one promptly took the gapes. I returned them to the stable again, where they remained about four weeks longer, when I gave them the liberty of the yard. The other four of the brood all escaped the gapes.

On the 7th of March two clutches were hatched. They were at once put on the upper floor of the stable, where I gave them the utmost care. Their quarters were kept clean, they had a dust bath, their drinking water was changed several times a day, and green food was given them at least once in every twenty-four hours. The room was light, but the window was on the north side, so there was no sunlight. Several other broods were added to these from time to time. The mothers were confined in coops, but the young ones had the run of the room. For a time they seemed to thrive well. But about the fifth week I noticed they began growing weak in their legs; they were unsteady in their gait, especially when they ran or tried to jump. This evil grew worse from day to day. They took their food as heartily as ever, but they grew very slowly and became more and more tottering. I persevered until the first broods were seven weeks old and the second lot six weeks and four days. Then, seeing that they were smaller than they should have been, were growing very little and were so enfeebled that a longer continuance of the experiment would either kill or permanently injure them all, I brought them down and put them into a grass-covered yard about twenty by forty feet in size.

I never saw a worse lot of chickens in my life. There were twenty-one of the oldest lot and six of the younger ones. Not one was firm on its legs. The tottering gait was noticeable in every one. With plenty of sunshine, exercise, green food and careful attention I hoped to get them through all right. But I was mistaken. Just twelve days after they were brought down and when they were two days less than nine weeks old, two of them developed gapes; on the following day four more got them, and from that day until the present time they have been having these worms. Never before had I such a bad lot to deal with. Not only was it necessary to remove the parasites once but twice, and in several instances three times from the same chick. Not one bird escaped. Some were so large that they did not show the most violent symptoms, but merely coughed and sneezed and snorted. I experimented on some of these and removed parasites even though they did not gape. In fact, my poultry yard resembled a nursery in which a few dozen babes had the whooping cough.

Although two weeks have elapsed since they were infested, all have not yet recovered. They are nearly all over the gaping period of the disease, but most of them still cough. As they are now nearly three months old, the worms are unable to choke or kill them, and I regard them as out of danger from this cause. I operated on one of the largest recently that gaped and coughed most, but could find no worms with a probe five inches long. Evidently the parasites are down the windpipe a greater distance than that. One of the chicks died of disease, but none from gapes. It is only a few weeks since, I might say, that these chicks have really got over their feebleness and become strong. They gave almost undiminished evidence of their weakness for three weeks after they were taken out doors. Several are not yet over it. Since the experiment I have been taking the young chicks out of doors at once, and of course they have all been getting the gapes. Only one chick died for me from this disease, and the fault was my own, a want of caution in operating on it.

From the foregoing it will be seen my experiments were a complete failure. It is true, the gapes kept away so long as the chicks remained on the board floor of the stable, but all took them afterwards. Besides, the young birds were enfeebled very seriously by the method employed. I am sure they would to-day be one-third larger than they are had I never pursued the plan I did. I am persuaded therefore, that to make the plan pursued successful, the experiment must be carried on out of doors. If there is a board floor, with plenty of sunshine and out-of-

door air, the young birds may escape the gapes, even on tainted premises, as in the case of any correspondent, but when carried on the upper floor of a stable, without sunshine and pure air, not only will the stamini of the chicks be impaired, but they will get the gapes after their removal out of doors.

On motion a resolution of thanks was extended to Mr. Diffenderfer for his able essay.

On motion it was resolved to hold the next show of the society from the 17th to the 23d of January next.

Adjourned.

LINNÆAN SOCIETY.

The Linnæan Society met on Saturday afternoon, June 30, at 2½ p. m., in their museum, Y. M. C. A. Building. The president, J. P. Wickersham, in the chair and seven members in attendance. Dues collected and minutes of previous meeting read and approved. The donations to the museum were then examined and found to be as follows:

A magnificent specimen of *Phrynosoma cornuta*, commonly called the "Horned Toad," or "Horned Frog." This fine specimen was sent from Arizona by Mr. Colin Cameron to Mr. J. R. Windolph of the Elizabeth Farms, and by him donated to the Linnæan Society. This animal is becoming somewhat familiar to the people of Lancaster city and county, as at least a dozen specimens have been sent or brought here during the last five years. Familiar as it has become it seems, people cannot help calling it a *toad* or *frog*, when, in fact, it is no nearer to any of these reptiles than it is to a rattlesnake—not as near. In the first place it is a SAURIAN—scaly reptile, whilst toads and frogs are *Batrachians* which are destitute of scales. Repulsive as these animals may appear to some people, yet, so far as my experience goes, they are entirely harmless. It is difficult, if not impossible, to domesticate them. I have had half a dozen living specimens in my possession at different times yet, I never succeeded in getting them to eat any kind of food. On one occasion I examined the *feces* of a recent specimen from Texas, and found it contained undigested fragments of "grasshoppers," but it never would appropriate those insects either dead or alive, whilst I had them in confinement. They are sleepy and sluggish while confined, but it is said, that in their native locality they move rapidly on the ground, but never climb.

The *Saurians* are divided into the following families, namely: *Crocodylidae*, *Lacertidae*, or "Lizards," *Iguonidae*—to which our subject belongs—*Grecolidae*, *Chameleonidae*, *Scincoidae* and *Chalidae* or "glass snakes."

The largest and most perfect specimen of *Gordius* or "hair worm" I have ever seen, it being eight and a half inches long, and was taken as it was making its escape from the body of a *Stereocarius* beetle. I regret that I am unable to give the name of the gentleman who gave me this animal, that he might personally receive the thanks of the society, because his observation is a corroboration of the history of its development. I do not know the species of the beetle, but I judged from his description and his observation of its habits, that it was *Copris carolina*—our common "Dor-Beetle." There are yet people in the community who believe these attenuated animals were once horsehairs, and that by long submergence in water, they finally changed into living "hair worms," or "hair snakes." The study of these animals is surrounded with difficulties, but this much we know that they pass a certain period of their development within the body of some other animal. On one occasion I obtained three specimens (each about five inches in length), from the bodies of as many grasshoppers (*caloptinus ferrugineus*). The "Hoppers" were nearly dead and the *Gordians* were protruding about half their length. How do they get into the bodies of animals? The theory is that the females deposit their eggs in the water or in moist places in the soil, and being very minute, some of them find their way into the stomachs of animals, are there partially or wholly developed, and escape therefrom, to complete the circle of development. On one occasion I also drew a hairworm, four inches long, out of the body of a specimen of black "ground

beetle" (*Harpalus Caliginosus*). We have in our collection a female *Gordius* captured in a small "puddle" of water that has a tangled string of minute eggs attached to her body.

Forty years ago I tried to animate a horse hair by soaking it more than six months in water, but I did not succeed. The person who gave me this specimen was perfectly unsophisticated, and frankly stated that he drew it from the body of a "big black bug," such as are usually found in the *feces* of cattle, and if not the species named above, probably a specimen of *Cunthovolvans*, or common "Tumble-dung." I confess that little more is known specifically about these Gordians now than was known a hundred years ago, but it is some satisfaction to be able to corroborate observations made then.

A fossil, supposed to be the stem of a plant, found in soft sandstone, in Perry or Union counties, Pa., by Mr. P. Hipple, of Marietta, and donated through Mr. J. M. Larzelere.

Specimen of indurated scale from S. S. Rathvon. Also specimens of cocoon or scale insect from the same. This variety was discovered and named by Dr. Rathvon in 1854.

Bottle of salt from the spring at Baden, near Vienna, collected in 1848, and donated by Charles A. Heinitsh.

Specimen of boxwood from S. M. Seuer.

Prof. J. S. Stahr deposited a nicely mounted specimen of a new species of plant, which was found by him in Lancaster county. This is the "*Galiusoga parviflora*" (Ruiz and Pavow), and is entirely new to our county.

S. M. Seuer deposited a new species of rare coleopterous insect which he discovered in this county, on June 21, 1883, in the swamps near Dillerville, feeding on the brush willow. This is the "*Saperda Concolor*," and is new for our county, it never having been found before. Dr. Rathvon and Mr. Auxer, our local entomologists, have never taken the insect in this locality. It is a variety found in the Western States.

Twenty-five Southern "Fire-flies" (*Pyraetomena centrata*) from Mr. J. J. Sprenger, of Atlanta, Georgia. A letter from Mr. S. accompanied these insects stating that when mailed they were all alive, and very luminous; but when they were received they were all quite dead, save one, which died soon after emitting a faint scintillation of light.

These insects belong to the Coleopterous family *Lampyridæ*,* a number of which are luminous, and species of them occur in perhaps every State in the Union, and also in Europe. The emissions of light seem to be phosphorescent, and their source is located in the two or three last ventral abdominal segments of the body, controlled by the volition of the insect; but exactly *how* controlled, has not yet been made satisfactorily manifest. Our most abundant species in Pennsylvania, and especially in Lancaster county, is *Photinus scintillans*; but we also have a species (*Photuris pennsylvanicus*) much larger than those sent by Mr. S., and also more luminous than our common species, but it only occurs in limited numbers, and its stay with us is sometimes prolonged until the month of August, or first of September. These little insects are exceedingly interesting, and are as much the harbingers of summer as the swallows are the harbingers of spring. Long before the superstitious terror of insects, infused into the youthful mind by false teaching, has become obliterated, the exceptional excursions of these little insects are hailed with glee, and they are about the earliest and pleasantest remembrances of childhood, connected with the insect world. These insects are not vegetable feeders, hence, in their transmission it is useless to furnish them with vegetable food. They are carnivorous in their gastronomical habits, and if the adult partakes of any food at all, it would be animal.

An allied family (*Telephoridæ*) commonly called "Soldier-beetles" or "Snail-killers," are particularly partial to the common "garden snail" (*Helix*). On one occasion, Mr. George Heusel, formerly of this

*The "Glow-worm" family.

city, called my attention to about fifty Telephorans that had attacked a large snail, and they never relinquished it until the whole was devoured—or at least, all that was accessible, for the snail was partially protected by its shell.

S. P. Eby, Esq., donated an advanced specimen of *Cicada Septendecim*, or "seventeen-year locust." This may possibly be a retarded specimen of Mr. Hensel's local artificial brood, which was due in the summer of 1882. Our regular seventeen-year brood is not due until the summer of 1885. But the regular "locust year," so far as I can recollect, has always been, both preceded and succeeded, for two or three years, by the advent of a few isolated "stragglers"—a sort of van and rear guard to this grand army. This, however, is not normal; it is contingent upon circumstances.

Donations to the Library.

Annual report of the Chief Signal Officer to the Secretary of War, for the year 1880; a royal octavo of 1,120 pages, containing 119 charts, 10 maps and 28 full or folded pages of astronomical illustrations and sundry other figures, besides hundreds of statistical tables. From the War Department, United States photographs of the plant Venus, December 6, 1882, as seen at the United States astronomical station, at Santiago, Chili.

Observations on the transit of Venus, December 6, 1882, and a view of the station, Santiago, Chili, City of Santiago, Chili, showing the snow capped Andes in the distance, Santa Lucia Hill in the city, etc. Donated by Mr. Miles Roek per W. L. Gill, Official Gazette of the United States Patent Office, vol. 23, No. 23, June 5, 1883.

Circular of Information of Bureau Education, No. 1, 1883. Department of Interior Science for April 27, 1883.

Lancaster Farmer for June, 1883.

American Register for May 9, 1883, published in Paris, France.

Six book catalogues, sixteen circulars and prospectuses, etc.

Two envelopes of eleven seraps.

Prof. J. S. Stahr then read a paper describing the new variety of plant discovered by him in our county, and S. M. Seuer also read a few notes on the new species of insect found by him in our county.

Committee on Constitution and By-Laws handed in their report in which they recommend some changes in the different sections and articles. The report was received and laid on the table for three months, which is required by the charter, before being acted upon. The committee were then discharged. A gentleman having some Indian curiosities on special deposit requested permission to remove them, which permission was on motion allowed.

Society then adjourned to meet on Saturday, September 29, 1883, at 2½ p. m. (a recess of three months being taken, on motion, on account of the warm season.)

INTERNAL REVENUE.

The collections of internal revenue taxes in the Ninth Collection District of Pennsylvania, composed of the counties of Lancaster, York, Cumberland and Perry, for the fiscal year ending June 30th, 1883, are furnished by Collector A. J. Kauffman, as follows:

On 230,133,725 cigars	\$1,157,166 08
On 114,570 gallons of spirits	163,113 00
On 22,112 4-5 barrels of beer	20,731 84
On 30,900½ pounds of smoking tobacco	4,214 11
On special taxes (licenses)	40,103 84
On 11,561 pounds of snuff	1,665 52
On banks, capital and deposits (other than National)	11,982 90
On penalties and other sources	1,762 52

Total.....\$1,340,739 84

Stamps were sold for 20,666,525 cigars, and for 11,186 gallons of distilled spirits in excess of the previous fiscal year.

Had there been no change in the Internal Revenue taxes, the collections for the last fiscal year would have been about \$240,000 more than that of the year ending June 30th, 1882, when the total collections amounted to \$1,450,720.00.

AGRICULTURE.

Successful Farming.

In farming, as in most other forms of business, the victory is certainly to the strong and persevering. The amateur, who goes in largely for the picturesque, and as a kind of easy speculation, too often makes shipwreck of all his hopes because he has not the backbone to hold out. To make a farm pay anything on the investment, somebody must work, and work intelligently and to the purpose. It must be work rightly applied. All sorts of crops suitable to the section and market must be grown; teams, flocks, and herds must be kept, and everything done on this hand and on that to wring the dimes of profit from the stubborn soil, from meadow, from forest, and from stream. Work must be thorough, timely, and ceaseless. The farmer must put his whole soul, mind and body into his work; he must be thoroughly in earnest; determined to succeed. No half-way measures will do if you are going to make the farm pay. One cannot work a little while and then run off to find something easier or more interesting to do. In a word, to succeed in doing much with the soil, one must have a passionate love for his farm and his work.

Look to those countries where small farms and spade husbandry so largely prevail. What do we see? The peasant proprietor or tenant gives up his time, his thoughts, and all his energy to his work. To the tillage of a few beloved acres he devotes his days, and in a great measure his nights also, and he is assisted, and ably assisted, by the united labors of wife and sons and daughters; but behold the result. They get a larger yield of potatoes or wheat than ever falls to the lot of the the amateur or half-way farmer. Every foot of his little farm tells of labor rightly applied; of labor that pays. By their perfect and ceaseless thrift, those Belgian, or Swiss, or French, or Chinese farmers feed more mouths to the acre than any other people.

The inexperienced amateur must stand aside a little longer. If he has money he can quickly lose it in costly experiments on the farm. It is the man born a farmer and reared on the farm that is going to succeed best at this business. He must have been familiar from early life with the petty details. Schools of agriculture may teach the science, but they cannot impart the art of agriculture. The farmer is constantly meeting with difficulties and pull-backs. An experienced man can readily correct the evil; he applies the proper remedy at once, and the loss is but trifling. The amateur, by not knowing what to do would suffer a great loss.

Farming is a princely occupation. It brings money, comfort, ease and independence; but they come not to the uninitiated. It requires a training for the work that does not turn back from rugged labor. If one has no experience, or cannot secure the services of a trained and honest manager, we would advise them not to invest much in a farm.

The Crop Situation.

Since our last paper was published, heavy rains have frequently fallen. There has been enough, in all conscience, to satisfy the worst grumbler at nature's immutable, though sometimes inscrutable ways—enough to satiate a duck. Of course, some complain that there has been too much. There is always too little or too much with some folks. "Whatever is right," says Festus. To clean, well-plowed, and harrowed, and hoed crops there has been just about enough rain for the present. And hence they are growing finely, and look just as healthy and nice as they possibly can.

We never saw finer prospects for corn. It is from five to ten feet high, according to the time planted. Many fields are "sliking and tasselling," and, in a few days, will have roasting ears sufficiently matured to eat. The early planted is virtually made. We see and know of nothing which can or will likely happen, which will prevent the gathering of enough to supply the country. Of course, one or

two more good rains the last week in June and early in July will greatly increase the yield. As to the acreage, thanks to the common sense of Texas farmers, it is a full average. We are all perfectly happy when there is plenty of corn around. Texas has not bought any in four years. Texas is therefore, prosperous, and Texas will continue to prosper until she finds her corn-crib empty. A crib of corn is worth more than its size in bales of cotton. Religion cannot be found in a farm-house without corn. You can generally trace a man's church troubles to his failure to plant a good, healthy crop of it. He will raise too much cotton, sell and finding himself without enough money to go around, he will get drunk, go to swearing, fighting his neighbors and wife, and receive a summons to appear before the church deacons and elders.

Wheat and oats have generally been harvested. The only objection to our wheat crop is, there is not enough of it. That planted turned out all right. That we did not plant we are getting in stores at the rate of two dollars per flour sack. But the situation is encouraging. In another year or two our farmers will learn to supply Texas with all it consumes. The crops last year and this conclusively prove North Texas to be a splendid wheat-growing region.

We will have to "take in a good deal of soil" on the fruit crop. The heavy winds of April and May were very destructive upon it, knocking it upon the ground. It escaped the frost to be ruined by wind. What there is left is fine. We have little for export.

Our gardens are still yielding enough general vegetables for all hands, the cook and her very numerous family.—*Dallas, Texas, Planter and Farmer.*

HORTICULTURE.

Asparagus.

Don't fail to plant a bed of the above. Delicious, healthful and succulent in the spring; no kitchen garden is complete without a good sized bed.

To prepare a bed, dip the soil deep and incorporate in it a heavy coat of rotten manure of well decomposed compost. Plant the roots in rows $1\frac{1}{2}$ feet apart and one foot between the roots, about three or four inches deep. Cover the bed in the autumn with manure and fork it in the spring. Salt or fish brine can be used to advantage.

Coucouer's Colossal is highly recommended for its immense size, and being remarkably tender and high flavored, is one of the best kinds. It can be cut off one year sooner than other varieties.

Grape Culture.

The grape crop of the United States, although not spoken of as a leading staple of agriculture, is really becoming so to an extent that appears to be, as yet, little understood or appreciated by the miscellaneous public. Its real importance, however, was recently shown by a remark made by a leading and influential European connoisseur in wines, who had been traveling through the grape-growing districts of the United States, to the effect that he was satisfied that our American wines ought not to be rated as inferior to the corresponding classes of foreign wines, and that he believed that in the course of time their excellence would be fully recognized and established all over the world. Aside, however, from this judgment, the culture of the grape as fruit for edible purposes has made immense progress in the New England and Middle States and in the West, and although as yet we cannot say that these grapes are equal to the fine imported articles from southern Europe, they are certainly very much improved in quality and abundance as compared with the grape used for the same purpose in the same regions fifteen or twenty years ago. The manufacture of wine from American grapes has improved so much in the hands of the German, French, Spanish and Italian capitalists who have established themselves in this business in America, that since the grape disease began to prevail in southern Europe large quantities of American wine are used by foreign manufactures.—*Germantown Telegraph.*

Hot Water For Sickly Plants.

A correspondent calls our attention to the following from the *Garden*, and inquires whether there is anything in it: "The *Florist* asks, Has any one tried hot water as a restorative for sickly plants, and then proceeds to say that Mr. Willermes some time since related that plants in pots may be restored to health by means of hot water. Ill health he maintains, ensues from acid substances in the soil, which, being absorbed by the roots, act as poison. The small roots wither and cease to act, and the upper and younger shoots consequently turn yellow or become spotted, indicative of their morbid state. In such cases the usual remedy is to transplant into fresh soil, in clean pots, with good drainage, and this often with the best results. But his experience of several years has proved the unfailing efficacy of the simpler treatment, which consists in watering abundantly with hot water at a temperature of about 145° Fahrreheit, having previously stirred the soil of the pots so far as may be done without injury to the roots. Water is then given until it runs freely from the pots. In his experiments the water at first came out clear, afterward it was sensibly tinged with brown and gave an appreciable acid reaction. After this thorough washing the pots were kept warm, and the plants very soon made new roots, immediately followed by vigorous growth." To our mind there is a great deal in it. We know to a certainty that sickly peach trees are often restored to vigorous health by the old-fashioned German farmers of Pennsylvania by pouring boiling water on the ground about the peach tree. It cools, of course, somewhat before reaching many of the roots. Here, however, it is believed to be beneficial by destroying parasitic insects and parasitic fungi, rather than chemically, as suggested by the extract; but let the reasoning be what it may, we are willing to endorse it as a good practice.—*Gardeners' Monthly.*

About Trees.

When a tree is taken up to replant, it should always be marked so as to replant as it first grew—the north side to the north. When planted in sandy or light soil, a clay basin bottom should always be put in first to hold the water, and then loam mixed with clay should be used for filling, to cover the roots. "Three-fifths of the nourishment of a tree comes from the air," says a theorizer, which is a humbug. Girdle the tree and see how long it will live. "How that rain made the grass grow," is a very common expression. But such is not the fact. It forms a liquid solution of the fertilizing properties contained in the earth fertilizer, and the little tender fibrous roots take it up, and then up springs the beautiful tender grass. Exhaust the soil of its entire fertilizing properties, and you would get no more grass. The tree draws its nourishment from its fibrous roots in the same way, and not from the air; and if you wish to keep your trees vigorous and healthy, remove the soil occasionally six or eight inches deep around the tree, and replace it with rich, fresh dark loam. A tree requires a shower-bath from rain or other wise, occasionally, as much as a man, to open its pores; and, like a man, when it has received the bath it gives off the pent-up heat in the body, and therefore the charming odors and fragrance inhaled is accounted for upon entering a forest immediately after a rain shower.

Lima Beans as a Field Crop.

The Lima, the most popular bean among amateurs and market gardeners, is slow in finding its way into the gardens of farmers. The dry beans sell for several dollars a bushel, and the market has never been adequately supplied. Lima beans are easily raised and yield as bountifully as most other pole beans, and they continue to blossom and bear until killed by the frost. We know of no reason why they cannot be made a specialty, like hops or tobacco, and grown on a large scale. They would require better soil and treatment than the common field bean, but as the price is three times greater, these could well be afforded. A rich, gravelly or sandy loam suits them best, and the phosphatic

manures are well adapted to them. On this kind of soil we have not found them to run too much to vines, even with heavy dressings of compost prepared from muck and stable manure. The vine is a strong grower and requires abundant nourishment. The pods are formed quite thickly from the top to the bottom of the poles. They want the full benefit of the sun, and the rows running north and south should be four feet apart and the hills four feet apart in the row. In planting we prefer to put the eye downward and not more than one inch deep. The first of June is early enough for this latitude. The bean needs frequent cultivation until the vines shade the ground. This crop is well suited for farmers remote from cities and markets. The market gardener will not grow lima beans to sell dry, because they are worth more in the green state and he can sell all he can raise. But the farmer, however remote from the city, can market his whole crop in the winter and be well paid for his labor.—*Country Gentleman.*

Value of Garden Vegetables.

Nearly every farmer values the more common vegetables, as sweet corn, potatoes, squashes and cabbages; but some of the finer, more delicious ones seems not to be so generally appreciated, such as celery, cauliflower, parsnip, salsify, (vegetable oysters,) and tomatoes.

Celery is a most healthful plant; it is anti-fever; known as an excellent nervine, a quietor of disturbed nerves, and promoter of sound sleep; when eaten freely it preserves a good stomach and sweet breath. Most farmers do not raise and use as much of it as is for their advantage to do.

Cauliflower, when stewed in pure water, and when about done having a little milk or cream stirred in, properly seasoned to the taste, is far more delicious than any cabbage, and to the most accustomed to it, becomes regarded as one of the greatest luxuries of the garden.

Salsify is exceedingly delicious when properly cooked and prepared; we have eaten it when preferred to any oysters. Cut up thin, in little wafers; boil in pure water; add a little milk, pepper and salt; eat it warm; it contains a little mucilage that is delicious, and affords much nutriment and aids digestion.

Tomatoes are better known and more generally used, in various ways on the table, in sauces, stews, catsups, etc.; but for our own eating we prefer them raw, with a little sugar and vinegar, to any other way.

The Hubbard squash is a great favorite with us. Many years ago, when it was first introduced, a friend bought six seeds for \$1, and gave away all but two, which he planted in most favorable soil and position. They both came up well, but insects took one of them; the other grew well, and was carefully cared for as a treasure; it threw out two thrifty vines, each of which made nearly two rods of length; from these were produced over forty good, handsome squashes, varying in size from a quart pitcher to a two gallon jug. He sold some of these at fifty cents and some at twenty-five cents, reserving a large share for home use; and they proved to be the most sweet and delicious squashes ever eaten in that section; and the product of that one seed, thus distributed, seeded the whole of several counties.—*Boston American Florist and Farmer.*

DOMESTIC ECONOMY.

Cleaning Carpets.

In all our own experiments we have found nothing so safe and serviceable as bran slightly moistened—only very slightly—just sufficient to hold the particles together. In this case it is not necessary to stop and clean the broom every few minutes. Sweeping the carpet after the bran has been sprinkled over it not only cleans the carpet and gathers all the dirt into the bran, but keeps the broom clean at the same time. If too much dampened, aside from injuring the carpet, it makes the work harder, because the bran becomes very heavy if very damp. The bran

should be sifted evenly over the floor and then the room swept as usual. The bran scours and cleanses the whole fabric, very little dust is made while sweeping with it, and scarcely any settles on furniture, pictures, etc., after the work is accomplished, because every particle of dirt, thread, bits of paper or lint is gathered up into the mass of bran that is being moved over the floor, and so thoroughly incorporated with it that it will not be easily separated. Carpets swept in this way retain very little dust, as will be plainly demonstrated whenever they are taken up to be shaken.—*Domestic Monthly.*

Take Care of Your Tools.

In a majority of cases it is the full intention of the farmer to put away any tool or machine being used as soon as he is done with it; but when the work is finished, whatever is being used is left until a more convenient time to put it away. Time passes and still it is not done, and finally it is neglected altogether or left so long that much injury is done. Many farmers when asked to subscribe for a good agricultural paper will plead poverty, when, at the same time, plows, harrows, cultivators and other tools are left in the field, or piled in the fence corner or other out-of-the-way place, there to remain till wanted next year. The loss by such practices amounts to enough in one year, in many cases, to pay for one copy each of half the agricultural papers published in the country. It is not an uncommon sight to see in many parts of our country, and especially in the West, wagons, sleighs, mowers and reapers, and much more valuable machinery, left to take their chances with other less valuable farm implements. Fall and winter, with all their cares and rush of work, will shortly be here, finding many farmers unprepared for its appearance. Everything used about the farm should be critically examined, and wherever a nut is off, a bolt lost, or any deficiency whatever, it should be repaired at once, and then everything carefully stored away in some good dry place. It costs very little to prepare a place where everything used about the farm can be stored without danger of rust and decay. If a permanent building cannot be made make a temporary one, and use it until something better can be provided. It will pay. System and care will soon enable any one to acquire the habit of putting everything in its place when not in use. As soon as any implement, tool or machine is done with even if it has to be used again in a few days, take it right to the place prepared for it, and there let it remain, out of the sun and rain, until needed again.—*Indiana Farmer.*

Uses for Stale Bread.

There are so many ways to utilize stale bread that it seems a wonder so much is wasted in many households. We see it thrown in garbage pails, or left to mold by many an economical servant, who would gladly use it if she only "knew what to do with it."

It makes delicious griddle cakes when soaked soft in cold water. Three small slices, with water enough to cover them, should be sufficient, when the milk and flour are added, to make nearly two quarts of batter. Some cooks prefer to put in one egg, while others like them fully as well without. When the bread is soaked soft, make it fine with a spoon, add the milk and sufficient flour to stiffen enough so the cakes can be easily turned. If sour milk is used add to the batter one even teaspoon of soda. This is a good plan to follow in all uses of sour milk, as it seldom contains enough acid to entirely counteract the soda. Of course, when only a small quantity of sour milk is used, twice as much cream tartar as soda should be taken, for when the milk is entirely sweet the proportions are three even teaspoons of cream tartar to one of soda.

Of course all our readers are familiar with the ordinary bread puddings, a recipe for one variety has been given in the *Cabinet* of September, 1882; but all may not know that pieces of bread which are not too hard can be made into a resemblance to turkey dressing. Cut your bread into dice, and if you have a quantity of gravy from which fat can be taken, left from any kind of roast (though a piece of butter

will do as well), thoroughly grease the bottom of a spider; put in the bread, with some little chunks of butter and plenty of seasoning, then pour enough boiling water on it to moisten it; cover tightly, and in a moment it will steam through and you can stir it and either brown a little or have it moist like dressing. It should be eaten with gravy over it, and is a good substitute for potatoes.

The little dry hard pieces and crusts which always accumulate can be put on a pie tin in an oven that is just hot enough to dry and make them a light brown, then roll them fine and put away to use in making coquettes, frying fish, etc. We have recently learned that these slightly browned crumbs make excellent griddle cakes, with the addition of one egg and a handful of flour, and milk to make a batter; but as we have never tasted them, we can only recommend it as worthy of trial.—*Floral Cabinet.*

A New Test for Waste Pipes.

A Boston paper relates a discovery which may prove to be a better test for leaky waste pipes than heretofore used. The invention is accorded to a woman. Noticing an offensive odor in her parlor, she suspected a defect in the waste pipes, and sent to the agent to request that a plumber might be sent to examine them. The agent was incredulous, and refused. She tried the peppermint test. To make her proofs more convincing, the woman, after borrowing two cats from her friends, purchased some oil of valerian, and stationing the animals in the parlor, went up stairs and poured the valerian into the basin in the same way that the peppermint had been previously applied, and then descended to watch the result. Cats are extremely fond of the odor of valerian, and it was not long before both of them began to sniff the air and move toward the door of a closet through which the waste pipe ran. The door was opened for them, and they immediately sprang upon a certain shelf, where they remained purring with satisfaction. A third time the woman went to the agent, who, though still unbelieving, consented to send a plumber to make further investigations, and on cutting away the plastering so as to expose the pipe, a joint was found completely separated at the place where the cats had indicated.—*Scientific American.*

HOUSEHOLD RECIPES.

POOR MAN'S FRUIT CAKE.—This cake is excellent as well as economical. Take one and a half cups of brown sugar, two cups of flour, one of butter and one of chopped raisins, three eggs, three tablespoonsful of sour milk, half a teaspoonful of soda, half a cup of blackberry jam. Mix the sugar, butter and eggs together first, then the flour and milk and fruit. Bake in a moderate oven.

BACON OMELETTE.—Cut a slice of bacon into very small pieces, and stir it into an omelette mixture made thus: Break two eggs into a basin, add a pinch of pepper and a tablespoonful of scalded and finely-chopped parsley; beat the mixture two or three minutes, stir in the bacon, fry in a small omelette pan, in which an ounce of butter has been melted.

LOBSTER CROQUETTES.—One can of lobsters, chopped; one cup of bread, softened with water; two eggs; pepper and salt to taste. Mix well together. Roll fine eight medium-sized crackers; one egg beaten, and mixed with the crumbs. Make the lobster into round or pear-shaped balls, and roll in the cracker crumbs. Fry in a spider with lard.

MUTTON, RICE AND TOMATO BROTH.—Take the fat from the surface of the liquor in which your mutton was boiled, add to this broth the bones of the cold mutton, well cracked, and let them boil slowly one hour and a half; strain and cool to throw up the fat, remove this, and put the soup over the fire with one quart of ripe tomatoes, peeled and cut very fine, and half a cup of raw rice; stew forty minutes, and add a lump of sugar, more pepper and salt, if needed, and a tablespoonful of corn starch wet in cold water; boil one minute, and pour out.

PEPPER POT.—Time, three hours and a half. Four pounds of gravy beef, six quarts of water, a bouquet of savory herbs, two small herbs, two small crabs or lobsters, a large bunch of spinach, half a pound of cold bacon, a few suet dumplings (made of flour, beef suet and yolk of one egg) one pound of asparagus tops, cayenne pepper; pepper and salt to taste; juice of a lemon.

Put four pounds of gravy beef into six quarts of water, with the bouquet of savory herbs; let it simmer well till all the goodness is extracted, skimming it well. Let it stand till cold, that all the fat may be taken off it. Put it into a stew pan and heat it. When hot add the flesh of two middling-sized crabs or lobsters, nicely cut up, spinach well boiled and chopped fine, half a pound of cold bacon or pickled pork dressed previously and cut into small pieces, a few small dumplings, made very light, with flour, beef suet, yolk of egg and a little water. Add one pound of asparagus tops, season to your taste with cayenne, salt, pepper and juice of a lemon; stew for about half an hour, stirring it constantly.

EGGS ON TOAST.—Grease the pan or skillet you wish to cook the eggs in, and salt the water. When it simmers—not boils—carefully drop into it, so as not to break, one egg at a time. There should be water enough to cover them. Before they are hard remove with a small, flat skimmer, and put each egg on a piece of hot, buttered toast.

SPANISH SHORT-CAKE.—Take three eggs, half a cup of butter, one cup of sugar, two-thirds of a cup of sweet milk, a little cinnamon, two cups of flour, and one teaspoonful of baking powder; stir the flour in, do not knead it; the eggs, butter and sugar should be beaten together till very light. Bake in a shallow tin; when it is done spread a thin frosting over the top; make this of the white of an egg, a little pulverized sugar, and a teaspoonful of cinnamon; set it in the oven to brown.

TO BROIL FISH.—A clear fire is required. Rub the bars of your gridiron with drippings or a piece of beef suet, to prevent the fish from sticking to it. Put a good piece of butter into a dish, work into it enough salt and pepper to season the fish. Lay the fish on it when it is broiled, and with a knife blade put the butter over every part. Serve very hot.

TO COOK SOFT-SHELL CRABS.—Open one side with a knife and remove the "deadmen;" lift up the pointed end at the back and pull out the turf or whiskers; at the head there is a small sand-bag; remove that, then wash thoroughly in salt water; dry well; all this must be done while the crab is alive; fry them in plenty of hot butter and lard mixed. Do not keep the crabs all night before cooking, for the shell hardens in twenty-four hours.

CHICKEN CROQUETTES.—To one chicken, chopped add a little salt, parsley, pepper, nutmeg, a salt-spoonful of onion, one cup of cream, one-fourth cup of butter and one dessertspoonful of flour. Put the chicken, spices and cream on the fire; when hot stir in the butter and flour; boil about five minutes, and when cold make into balls. Beat up one egg with bread crumbs, dip the balls in and drop in boiling lard. Very fine for breakfast. Veal may be prepared in the same way.

BOILED RICE, GEORGIA STYLE.—There are several methods of boiling rice, from which two are selected as giving good, though different results: The Georgia way, which gives the grains dry and separate after boiling, was learned from a colored cook of that State; the Chinese method was imparted to the author during a most interesting demonstration of native cookery by several of the young Chinese gentlemen who were recently students at Yale.

To boil rice in the Georgia style pick it over, wash it in cold water, put it into three times its quantity of salted boiling water, and boil it steadily for twelve minutes, without stirring it; then drain off all the water, cover the vessel containing it, and sit it where it will keep hot enough to steam for ten minutes; it will then be ready to serve. Shake it out of the boiler in a heap on the dish, but do not use a spoon to remove it, and do not press it in shape; serve it as it is thrown lightly on the dish.

OX-TAIL SOUP.—To make an appetizing ox-tail soup you should begin to make it the day before you wish to make the soup. Take two tails, wash clean, and put in a kettle with nearly a gallon of water; add a small handful of salt; when the meat is well cooked take out the bones. Let this stand in a cool room, covered, and the next day, about an hour and a half before dinner, skim off the crust or cake fat which has risen to the top. Add a little onion, carrot, or any vegetables you choose, chopping them fine first; sage or summer savory may also be added and simmer for an hour and a half.

BOILED RICE, CHINESE STYLE.—Pick the rice over wash it well in cold water, put it over the fire in sufficient cold water to rise an inch and a half above the top of the rice, and set the saucepan where its contents will slowly reach the boiling point; a little salt may be dusted over the rice if desired; be sure that the rice boils very slowly; the water will be partly absorbed by the rice and partly evaporated, as the vessel in which it is cooked is not covered; when it is tender it is served in the bowls as an accompaniment to other dishes, being eaten as we eat bread; while the grains are distinct they are slightly adhesive, and can easily be eaten with chop-sticks, which replace our forks.

RICE AND LAMB, ARABIAN STYLE. The inhabitants of the Mediterranean countries excel in the preparation of rice, and therefore a number of their dishes will be given here, as they are not expensive and not difficult to prepare, while they afford a welcome variety at table.

Boil about three pounds of lamb, exclusive of the weight of the bones, in boiling water with a little salt, until it is tender; take it from the broth, put in its place a quart of rice, or a pint of rice and soaked chick peas, (large yellow dried peas) and half a cup of raisins, and boil all together until the rice and peas are tender. Meantime cut the flesh of the lamb in pieces an inch square and fry them light brown in hot butter; when the rice is done drain off nearly all the broth; mix the meat with it, highly season the dish, which is called *aleuzens*, and serve it hot.

LIVE STOCK.

Feed the Cows Well in Summer.

The customary loss from poor and deficient feed in midsummer, when grazing is the sole dependence for the summer feed for the herd, is about two-fifths of what would have been the yield if full feeding of green food has been supplied through the entire season. When a herd has been permitted to shrink from drought, it not only gives less milk through all the remaining part of the season, but it dries up entirely very much sooner than when the flow is kept up to its maximum measure all the time. Herds which are full fed, go dry on an average only about one month in the year, while those who suffer from a drought six to ten weeks in the hot part of the season, with no extra feed, go dry on the average about three months. Animals pinched in the summer get poor and wanting in vigor, so that they do not stand the winter well, and yet it costs more to winter such a herd than it does a fleshy one. To subject cows to a lack of feed when they should be doing their best, brings disaster in every quarter, and inflicts losses upon the owner which keep him struggling with poverty from year to year, and by distressing and discouraging, make him dissatisfied with his business and life an up-hill journey.—*National Live-Stock Journal*.

How to Feed Stock.

The *Massachusetts Ploughman* says that some farmers have an idea that any boy can feed stock as well as a man, but the more observing believe that to feed stock so as to secure the best condition on the smallest amount of fodder, requires quite as much skill as any operation on the farm, and it is a work which requires both study and practice; study to learn the nature and requirements of each class of animals, and the nutritive qualities of each kind of

food; practical experience so that the particular wants of each animal in every class may be thoroughly understood. While the farmer should endeavor to have his boys feed the stock a portion of the time, he should always be with them to give directions and to see that the work is properly done. The knowledge of how to make cattle eat up the coarser fodder without waste, is fully possessed by some farmers, while others do not even know how to make them eat up the best hay, but keep large quantities before them the most of the time. For economy there is nothing like keeping a clean crib, giving cattle only as much as they will at once eat up clean. This will apply to all farm animals as well as cattle.

Harsh Grooming.

It is a very common thing among horses that are what is called well groomed, to be cross in the stable, and it is no uncommon thing to see this disposition carried into the street. Particularly do we find this fault in nearly every horse that is kept for speed, hence we are led to the conclusion that the ill temper is caused largely by the harsh use of the currying tools. As evidence of the truth of this, we notice that the celebrated trotting mare, Maud S., has a very kind disposition, and that those in charge of her are under positive instruction from Mr. Blair, her trainer, to use no grooming implements that will irritate the skin. The fact that race-horses are the best-groomed and at the same time invariably cross, is conclusive to our mind that the fault is in the harsh manner of grooming them. We often find horses that will stand perfectly quiet to be scratched with the fingers, in fact will become perfectly docile when in a rage, under such treatment; but the moment the currycomb is applied, they become restless, and often require secure fastenings while being curried. During the past two or three years we have had two horses that when we first got them would jump all over the barn at the touch of the currycomb, and yet would stand perfectly quiet to be rubbed with a wisp of hay or the brush, yet by carefully handling the currycomb on them we were in a short time able to curvy every part of them. There is no doubt that many a good dispositioned animal had had his disposition spoiled by attempting to clean the mud off his limbs with a sharp currycomb. Under no circumstances should this be done; if the weather is too cold to admit of washing when soft, allow it to dry and then rub with a wisp of hay or coarse cloth; old gunny sacks are best.

If any of our married friends doubt our theory in regard to this matter, we suggest that they place a sharp-toothed comb in the hands of their better half, and sit down on a stool in front of her, particularly if the hair on their head is a little scarce.

Wasteful Destruction of Calves.

Thinking men are much concerned over the continued habit of destroying large numbers of calves in the dairy districts. They realize fully the difficulty of persuading the dairy farmer that it would be wiser to save at least the female calves, for the farmer who can readily sell every ounce of milk at a profit will not readily bother with raising calves. Very naturally he asks, Why should I feed \$20 worth of milk to raise a \$15 calf? and it is not easy to show why, for dairymen can buy milch cows when they need fresh ones, feed them well and fatten quickly when the flow of milk shall have fallen below a profitable point, and sell to the butchers for enough, or very nearly enough, to pay for a fresh cow.

If he realizes that the time will come when milch cows cannot be bought in this way he will reply that when milch cows become scarce and hard to buy then milk will become scarce and easy to sell at higher prices than are now current. The profits of the dairyman will thus be affected comparatively little by any change which may thus come in the supply of cows. In this case, as in many others, the unwise policy of destroying the young heifers will in the end serve to increase the cost of living. Every one who uses milk or butter will have to pay a part

of the penalty for slaughtering these thousands of young calves, each of which if brought to maturity might produce in the natural course of her life food amounting to many times her own weight and value. Killed at the age of six or eight weeks she will yield at best a few pounds only of not very nutritious food.

Just how a reform may be brought about in this matter does not appear. The dairyman can scarcely be expected to feed a calf milk worth more than that calf will be worth when weaned, even though he may fully realize that there is here in the West a strong demand for all thrifty calves at prices which cause such animals to be brought hundreds of miles from the East. He may believe that the supply of cows in this country is much below the wants of the rapidly increasing population, and that beef and milk and butter must rise in value year by year, so that a few years hence each cow will become much more profitable than she would be now, but he will probably continue to sell his young stock to the butcher as soon as it shall have become old enough to kill for food.

The Glanders.

Because of the recent appearance among horses of the dread and invariably fatal disease known as glanders, and its alarming prevalence in some portions of the State, something about its nature and the means for preventing contagion may prove profitable. A well known and thoroughly informed veterinary surgeon was interviewed yesterday by a reporter for the *Times* on this subject. He said: "Of all diseases among live stock this peculiar form of glanders is the most to be dreaded. When an animal is afflicted with it there is absolutely no hope of recovery, and the only thing to be done is to limit it to the one patient if possible. This is rarely, if ever, possible, however, for with great rapidity the whole stable becomes infected, even to the building, harness and litter. In fact, everything in the barn becomes pregnant with the germs of the disease, and it is almost impossible to eradicate them. There is only one sure way known to the profession, and that is to destroy all the horses, and then burn the stable with its entire contents. The attendants upon such cases very frequently contract the contagion, and it operates with as deadly effect upon a man as upon a horse. By the most systematic disinfection, however, a man may, with comparative safety, treat cases of glanders. He must make an absolute change of clothing upon leaving the stable and take a thorough bath if he would not spread the disease or contract it himself."

"How may the disease be detected in its primary stages?"

"In the earlier stages the symptoms are similar to those of ordinary distemper, and it is very apt to be mistaken for that disease even by experienced veterinary surgeons. Within a few days, however, the changes are very pronounced. The glands of the throat become swollen, and malignant eating ulcers form in the nostrils. In a short time a dropsical swelling of the joints appears, attended by ulcerations on the lymphatics of the skin. The lungs finally become infected, followed by a distressing cough, and before long the animal dies."

"How long has the disease been known to exist?"

"For many years, but it appears periodically. During the war cavalry horses were killed by scores by glanders and it was no unusual occurrence for the horses of an entire regiment to be destroyed before the contagion could be checked."

"Does the disease ever originate spontaneously?"

"It is claimed by some that it does appear without specific contagion, but I think that such an idea is erroneous. I never heard of a case that originated without direct contact with a previous case. To prevent contagion too much importance cannot be attached to a most rigid disinfection. It should be even more exacting than in small pox."

"Do you think the disease is liable to extend beyond the district at present infected?"

"That will depend entirely upon the care that is exercised by the people in those districts. It is so easily transmitted in clothing and in almost any article that a quarantine is the only method that will insure absolute safety."—*Chicago Times*.

A KNABE IN THE WHITE HOUSE.

There was seen yesterday at Messrs. Knabe & Co.'s factory a magnificent concert grand, just finished by them for the presidential mansion. President Arthur, who is a thorough connoisseur of music, in selecting a piano for the White House decided in favor of the Knabe Piano as his preference, and ordered accordingly the instrument referred to. It is a concert grand of beautiful finish in a richly carved rosewood case, and of superb tone and action—an instrument worthy in every respect of the place it is to occupy. It was shipped to its destination yesterday.—*Baltimore American.*

COMPLIMENTARY NOTICE.

We desire to call attention to the advertisement in another column of D. M. FERRY & Co., Detroit, Mich., the great seedsmen, whose mammoth establishment is one of the sights of the chief city of Michigan. They do the largest business in their trade in the United States, reaching across the Atlantic and Pacific oceans. The house is entirely reliable, and if you wish to get exactly what you order, you cannot do better than send to them for your seeds, and you may depend upon it you will get the best that the market can supply. Their seeds have become known over the entire civilized world for purity and fertility, and have gained for them an enviable reputation. Their Annual Seed Catalogue just issued for 1883, replete with information and beautifully illustrated, will be sent free on application.

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This sterling Agricultural paper entered its thirty-sixth year on the first of January, and appears in a new dress, and gives evidence of increased prosperity. To the Farmer, Stock Breeder, Fruit Grower and Cultivator of Sorghum for Syrup and Sugar, it is almost indispensable. It should be read by every one owning a farm. It is published weekly, in the best style, at only \$1.00 per annum, by NORMAN J. COLEMAN, St. Louis, Mo.

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Dr. S. S. Rathvon, who has so ably managed the editorial department in the past, will continue in the position of editor. His contributions 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. He is determined to make "The Farmer" a necessity to all households.

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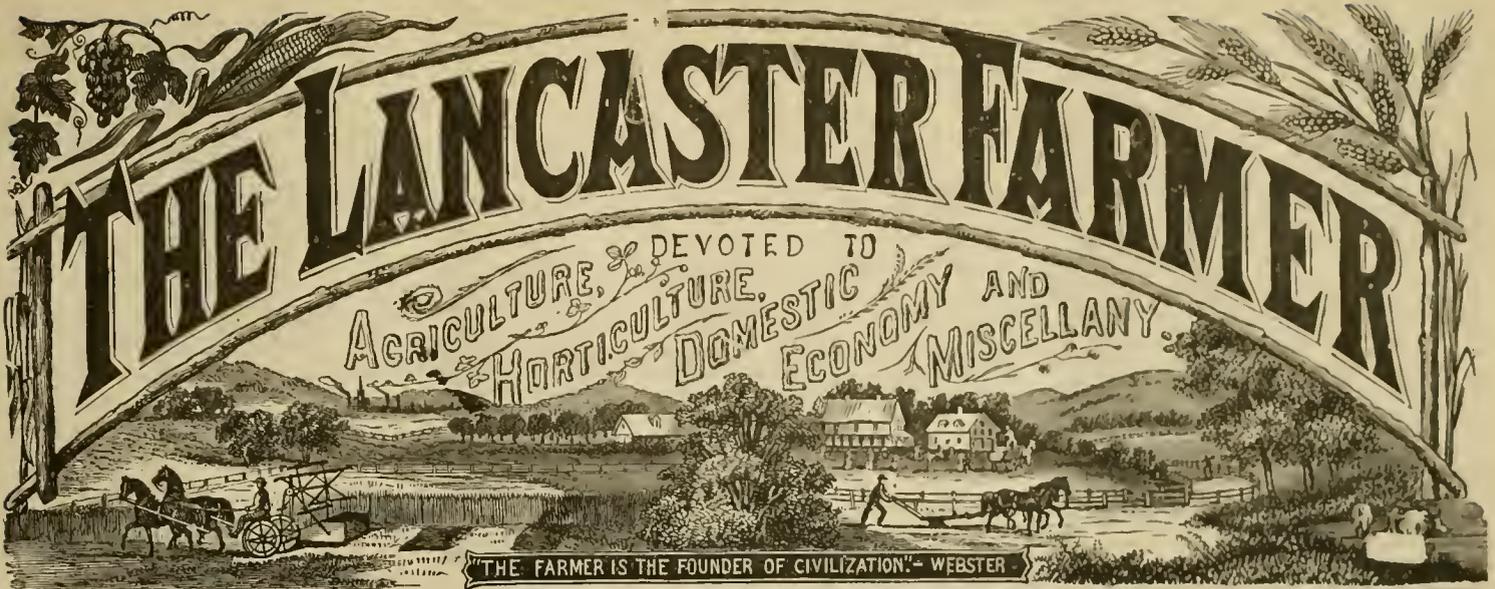
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Dr. S. S. RATHVON, Editor.

LANCASTER, PA. AUGUST, 1883.

JOHN A. HIESTAND, Publisher

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Jan-3m]

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

	Leave	Arrive
WE TWARD.	Lancaster.	Harrisburg.
Pacific Express*.....	2:40 a. m.	4:05 a. m.
Way Passenger	5:00 a. m.	7:50 a. m.
Niagara Express .....	..... a. m.	11:20 a. m.
Hanover Accommodation..	11:05 p. m.	Col. 10:40 a. m.
Mail train via Mt. Joy.....	10:20 a. m.	12:40 p. m.
No. 2 via Columbia.....	11:25 a. m.	12:55 p. m.
Sunday Mail.....	10:50 a. m.	12:40 p. m.
Faet Line*	2:30 p. m.	3:25 p. m.
Frederick Accommodation.	2:35 p. m.	Col. 2:45 p. m.
Harrisburg Accom.....	5:45 p. m.	7:40 p. m.
Columbia Accommodation..	7:20 p. m.	Col. 8:20 p. m.
Harrisburg Express	7:30 p. m.	8:40 p. m.
Pittsburg Express	8:50 p. m.	10:10 p. m.
Cincinnati Express*.....	11:30 p. m.	12:45 a. m.
EASTWARD.	Lancaster.	Philadelphia
Cincinnati Express.....	2:55 a. m.	3:00 a. m.
Faet Line*.....	5:08 a. m.	7:40 a. m.
Harrisburg Express.....	8:05 a. m.	10:00 a. m.
Columbia Accommodation..	9:10 p. m.	12:00 p. m.
Pacific Express*.....	..... p. m.	3:40 p. m.
Sunday Mail.....	2:00 p. m.	5:00 p. m.
Johnstown Express	3:05 p. m.	5:30 p. m.
Day Express*.....	5:35 p. m.	7:20 p. m.
Harrisburg Accom.....	6:25 p. m.	9:30 p. m.

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

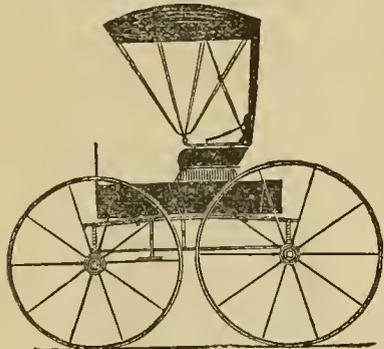
The Frederick Accommodation, west, connects at Lancaster with Faet Line, west, at 2:10 p. m., and runs to Frederick.

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

*The only trains which run daily.

†Runs daily, except Monday.

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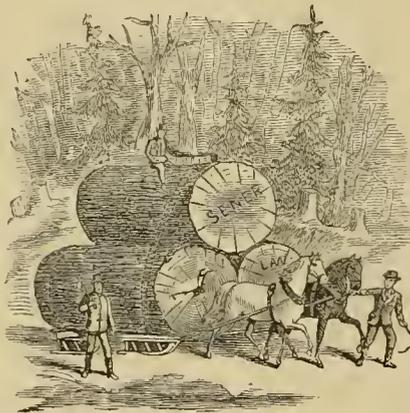
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INSECTS,

and the best remedies for their expulsion or extermination.

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LANCASTER, PA.

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Jan-3m]

THE

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JOHN A. HIESTAND, Proprietor,

No. 9 North Queen St.,

LANCASTER, PA.

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., AUGUST, 1883.

Vol. XV. No. 8.

EDITORIAL.

WRITE FOR THE FARMER.

It will pass into history, that for a period of fifteen years at least, Lancaster county has had an agricultural journal published within its territory, which has received a respectable recognition all over the Union—indeed, could we have afforded to exchange with all who have anxiously solicited an exchange, it would have exhausted our entire issue—and yet, if an omission, neglect, or refusal to write for the LANCASTER FARMER may be legitimately interpreted as an evidence to that effect, our journal has never yet received a decent home recognition. When we reflect that a journal published in New England at 50cts a year (see our literary and personal columns), could command between thirty-five and forty original contributions in a single number, we are overcome with a feeling of sadness that such a pall of literary indifference seems to hang over the great county of Lancaster. Nothing is really incorporated with, and becomes a practical part of human character in this life, and is thus transmitted to the other life—except so far as it is received and diffused—except there is an *efflux* corresponding to the *influx* of human thought, affection and knowledge. The physical man could no more be built up, strengthened, and rendered effective, by the mere taking of food into the stomach, without digestion, assimilation and secretion, than the mental or social man can by merely absorbing and never imparting that which has been absorbed—often selfishly absorbed. A dying man once exclaimed in his last gasp, “All that I *have* in the hour of death, is that which I *gave* in the hours of health.” Our torch does not burn less brilliantly by lighting the torch of our neighbor. Light should not be hidden under a bed or under a bushel, but it should so shine that it may be seen of men, and surely every one, intelligent or otherwise, may have some light that would be of value to others to know. This light should not be imparted, or given out, in occasional spasms, few and far between, but should be habitually given out, just as it has been received. The expiration should be in correspondence with the inspiration, and become as much a daily habit of life as eating and drinking, or sleeping and waking.

It cannot be possible that our farmers of Lancaster county do not think, and feel and know, or that their minds are uncultivable deserts, destitute of herb or fruit or flower. It cannot be possible that they have no experiences, or make no intelligent observations in relation to their honorable avocations. The abundant and excellent productions of the county, all point in an opposite direction; but they do not seem to fully apprehend that in telling what they know and what they experience, not only helps their neighbors, but that it is also a moral, an intellectual and a physical benefit to themselves. Many who could write for their local journal, no doubt think,

that if they cannot write a long article it would be useless to write a short one, but this is a great mistake. It is brief articles—articles illustrating a single idea—that are most desired, not only by the average reader, but also by themselves. The civilized world is a vast seminary, and every man, woman and child in it is, or ought to be a student, no matter whether their years are ten or a hundred. As long as reason occupies the empire of the human mind, there will be something to learn and something to teach to others: and no matter how aged the individual may become, if he can exercise his faculties at all he will practically realize that “it is better to wear out than to rust out.”

Of course, everyone should be left in rational freedom on this subject, and hence there should be no compulsion, save that self-compulsion which every intelligent creature feels or ought to feel, as a stimulant to simple duty. Reason as we will, in the present condition of the civilized world, there are many duties which society owes to itself, which are only performed at the beak of self-compulsion. This only illustrates that with all our boasted “virtue, liberty and independence,” we are still not in that state of freedom “which the truth makes free.” We have yet to learn that a voluntary and cheerful performance of duty is the result of culture—in other words, a habit directed by thoughtful method. We squander too much time on things trivial or morally hurtful. We have not a proper appreciation of the *love of life*, or we would not thoughtlessly waste the very stuff that life is made of in “killing time.” In conclusion, we would respectfully and feelingly admonish our patrons to *try*, if only for once, to write for the FARMER, and note its soothing and beneficent effects.

LANCASTER COUNTY AGRICULTURAL FAIR.

Monday, Tuesday, Wednesday, Thursday and Friday, September, 17, 18, 19, 20 and 21, 1883. It will be seen from the following clipped from the *Independent State Fair Journal*, that Lancaster county will have a fair this season notwithstanding its local Agricultural Society, did not feel itself sufficiently encouraged to initiate one on its own account. And now, that the enterprise seems to be determined upon, it becomes the society, in its individual capacity at least, to heartily cooperate with the parties who have engaged in the enterprise in order that it may be a success. During the interval between now and then two hundred thousand copies of the above named journal will be issued, containing premium list, list of officers, constitutions and rules and regulations, etc., etc.

Exhibition to be held at McGrann's Park, Lancaster, Pa.

Mr. Joseph Snavelly—A gentleman from Orrville, Ohio, who has had 15 years successful experience in organizing and conducting this class of exhibition, in different parts of the country, several of which had failed under previous management, holding four different

fairs this year, has consented to take charge of the Lancaster fair grounds, now for several years lying idle, and this year will devote his time and talents, with able assistants, obtaining a collection of attractions and exhibits that will not only equal, but possibly excel in grandure, anything of the kind heretofore witnessed at this point having in view, in the end, to give the grounds and place a reputation that will be the means of establishing for them a lasting prosperity.

Believing that in the vicinity there are a sensible as well as a grateful people, neither labor or money will be spared to secure this end.

The ardent desire of the proprietor is to enlist the active co-operation of every citizen of Pennsylvania and all others interested in its industrial growth and material welfare that this exhibition may, to a large extent, supply the wants of a State fair, and be in every particular a full and fair exponent of the character and spirit of all the great industries that distinguished the advanced and rapidly advancing civilization of this county and State. To this end the proprietor invites entries in all classes from any and all parts of the State, and confidently expects that the exhibits will be in both number and character fully up with the marked progress of the industry of the age, making the largest and most splendid exposition ever opened in Pennsylvania.

The fine half-mile track, which will be entirely relitted, and the liberal purses offered, attract some of the best horses in the country. Applications have been made at this early day for stable room.

Some of the extensive stock raisers in the State have already agreed to present for exhibition their fine bred herds, and strong competition is promised for the liberal purses offered in every department.

The halls will be presided over by persons fully competent to arrange and adorn them in the finest possible condition for the accommodation of exhibitors and comfort of visitors, and no one should fail to contribute liberally to their domestic manufactures, fine arts, mechanical works, agricultural and horticultural products, etc., as they will be satisfactorily rewarded in the distribution of the premiums.

An ample force of first-class policemen will be secured who will pay strict attention to the preservation of the peace upon the grounds.

Different bands of music will be hired to furnish music during the continuance of the fair.

There will be a full complement of special attractions at the fair. Announcement of which will be made on the posters and bills to be issued hereafter.

We, the undersigned, are acquainted with Mr. Joseph Snavelly, and know of his conducting agricultural fairs at various places during the past 16 years. He has been eminently successful in managing them, the premiums and other expenses have been promptly paid, and the results have been very satisfactory to their patrons.

J. F. Laning, Attorney-at-Law, Norwalk, Ohio.

Levi Brenneman, Banker, Orrville, Ohio.

D. J. Leickheim, Grocer, Orrville, Ohio.

J. S. Eshleman, Grocer, Orrville, Ohio.

Henry Shriver, P. M.

H. H. Strauss, Banker.

W. M. Koppes, Manufacturer.

D. G. Hurst, Banker.

OFFICERS.

Joseph Snavelly, Orrville, Ohio, Proprietor and Manager.

J. B. Long, Lancaster, Pa., Secretary.

J. B. Lichty, Lancaster, Pa., Assistant Secretary.

John Eshleman, Treasurer.

DEPARTMENT MANAGERS.

John Elmor, Springville, and Daniel Diller, Intercourse, Horses, Sheep and Swine.

Isaac Murr, Intercourse, Horses.

Charles Lippold, Lancaster, Poultry.

A. C. Ilyus and H. M. Ilyus, Neffsville, Machinery, Implements, etc.

A. D. Rohrer & Brother, Lancaster, Floral Hall.

For further particulars call on J. B. Long, No. 4 West King street, Lancaster, Pa.

EXCERPTS.

THE OLD FARM.

Out in the meadows the farm house lies,

Old and gray, and fronting the west;

Many a swallow thither flies,

Twittering under the evening skies :

In the old chimney builds her nest.

Ah ! how the sounds make our old hearts swell ;

Send them again on an eager quest ;

Bid the sweet winds of heaven tell

Those we have loved so long and well

To come again to the dear old nest.

When the gray evening, cool and still,

Hushes the brain and heart to rest,

Memory comes with a joyous thrill,

Brings the young children back at will,

Calls them all home to the gray old nest.

Patient we wait till the golden morn

Rise on our weariness half confessed ;

Till, with the chill and darkness gone,

Hope shall arise with another dawn,

And a new day to the sad old nest.

Soon shall we see all the eager east

Bright with the Day Star, at heaven's behest ;

Soon, from the bondage of clay released,

Rise to the Palace, the King's own feast,

Birds of flight from the last year's nest.

IN Kansas the prospect for a large apple crop is good.

THE tendersprouts on the main branches of fruit trees can be easily rubbed off now.

TWO strawberry-growers, near Vincennes, Indiana, say they will have 1,600 bushels of berries each.

PEARS that rot at the core after picking are usually not picked soon enough. Many varieties are subject to this weakness. Watch them and pick while hard.

PEAR trees come into bearing after planting sooner than apple trees, and annual crops are more certain with the usual treatment that both crops get. Generally, too, pears bring the best prices.

CORNELIUS FRANTZ, a Wabash county farmer, recently clipped from 19 sheep, 16 of them last year's lambs, 227 pounds of wool that sold at 20 cents per pound. His sheep are pure Cotswold.

A STRAWBERRY louse is said to have appeared in the Mississippi Valley which threatens to do immense damage. It penetrates the berry, checks the growth, and causes a premature ripening at the base or on one side.

THE protection of grapes by bagging should be attended to early. Paper bags, known to every grocer as "two-pound" bags, should be used. After the sack is in place over the bunch one pin will serve to fasten it there.

A cow belonging to David Jacobs, of Heth township, Harrison county, Indiana, fell a

distance of fifty-one feet into a cave, one day last week, and remained there for one day and night before discovered. She was hoisted out alive.

RYE in fruit orchards to plow under is a good plan. Sow in late August on well-manured ground and plow under in the spring just before heading out. After heading the straw is hard, and loses much of its value. The wintering covering of the soil is beneficial. Keep up the practice year after year.

STATISTICIAN J. R. Dodge calculates that the country loses nearly five million sheep each year, mostly on account of dogs. Exposure to cold and severe storms in the West kills a great many, and Southern thieves take some. Scab, foot-rot, paper-skin, dysentery, and "scarcity of grass" are also destructive. These causes bar extension of flocks, and in some sections almost annihilate this otherwise profitable rural pursuit.

ONE of the best coatings for tree wounds is gum shellac in alcohol. It effectually excludes air and the wound quickly heals over.

IN order to raise roses in perfection it is needful to feed them well and place them in the full sunlight, and not where they will be shaded by trees and shrubs.

THERE is no doubt that with good crops of fruit here our export of evaporated apples can be immensely increased. In no country is fruit so scarce and dear as in England.

ONE of the best farmers in Maine is Miss Sarah L. Martin, of South Anburn. This lady carries on a farm successfully, and pays much attention to the raising of fine stock.

A PRACTICAL farmer recommends the growing of two crops of buckwheat in succession as a means of exterminating wire-worms. They will not eat buckwheat, and are starved to death.

AN old sod will rot more quickly if plowed shallow, provided the work is well done. In the bottom of a deep furrow, especially in early spring, the sod is too cold to decompose rapidly.

SOOT is one of the best measures for house plants, and if it can be had in quantities large enough it is excellent for out-of-door use. For the latter it is best mixed with one-tenth its bulk of salt.

A NEW YORK farmer declares that an acre of Hubbard squash will fatten ten more hogs than the corn that can be raised on the same ground. He has gathered from six to eight tons from an acre.

THE Dent varieties of corn are less hardy than the Flint varieties, and needed to be planted on rich, warm soil. The grain of the former is more porous and more liable to injury from water at planting or when ripened.

CORN for fodder may be sown, or rather drilled, until the 1st of July. It is a good plan to select an early sweet variety—the Minnesota Early is as good as any. Drill in double rows wide enough apart to allow the cultivator to run through.

NEARLY 200,000 more hogs have been packed in Chicago this season up to the present time a year ago. Kansas City is fast gaining on Chicago in the number of hogs packed, and already stands second.

CABBAGE and other plants intended for the garden should be transplanted once and their leaves shortened before being finally set out. This makes them stocky. A second removal does not injure them.

THERE is no more difference in men than in the soil they till. Place a good, wide-awake farmer in one of the most unpromising agricultural neighborhoods and he will not only make his own farm better, but also increase the value of all the land in the vicinity.

IN its fright, on being chased by a hawk, a partridge flew against Joseph Brink, of Sullivan county, N. Y., with such force as to break its neck.

CHARLES HEDRICK, of Lexington, N. C., shot an eagle which had black back, wings and tail, while its neck and breast were as white as snow. It measured seven feet from tip to tip.

IN a burning cabin in Franklin county, Ga., two colored children perished, and a dog which had been left with them refused to leave them and was burned to death by their side.

A BUZZARD dined on a lamb that had been killed by a dog at New Garden, Ga. In some way it got fast in the strap which fastened the bell around the lamb's neck, and has gone jingling about with the bell ever since.

IN PADUCAH two English sparrows tried to drown each other in a street gutter. The struggle was a long and desperate one, and finally one got the head of the other under water and kept it there until life was extinct.

THERE are people in Norwich, Conn.; who believe that a robin in that town fastened a string to the limb of a pear tree, wound the string about its neck, and then dropped from its perch and in a few moments died of strangulation, while its unhappy mate sang a requiem.

A FRANKLIN, Mass., dog saw a man drop his handkerchief in the street. The dog picked it up, and going to the door of the house into which the man had entered, made his presence known by repeated raps. When the door was opened the dog presented the lost handkerchief to its owner.

THE roof of barns should be steep, and if of wood the surface either painted or the shingles dipped in lime water, to make them more durable. Straw and dirt collect under flat-roofed shingles and cause rapid decay.—*N. Y. Times.*

GALLED and sore shoulders in horses are often caused by the mane working under the collar while pulling. This can be avoided by plaiting the mane and tying it up in such a manner that it cannot touch the collar. It not only injures the shoulder, but the mane also, which is one of the beauties of the horse.—*Toledo Blade.*

A LEMON CREAM PIE may be baked with two crusts. To one glass or cup of milk allow one tablespoonful of cornstarch, the yolks of three eggs, one cup of sugar, the juice and grated rind of a lemon, or, after grating the lemon peel, chop the rest of the lemon quite fine; the whites of the eggs should be beaten stiff and added to the rest just before putting it in the oven.—*N. Y. Post.*

PRETTY bags for the children to carry their

books to school in are made of the various cords or twines so popular. A very inexpensive one is made of seine twine, or of carpet warp. Any open-work stitch will answer. To give firmness to the top and make it keep its shape sew in two whalebones; crochet a stout handle. On the front side put two ribbon bows, one at the top and one at the bottom.

FARMERS who propose to improve their fields by increasing the depth of the plowing, should, says the *Farmer's Home Journal*, do so gradually, year by year, if the subsoil is to be brought to the top. The depth may be increased an inch a year without detriment. If the subsoiler is to be run in the bottom of the furrow without throwing out its cut the greatest depth may be given at once.

HUNTING PUDDING: Two pounds of suet chopped very fine, three-fourths of a pound of flour, one pound of stoned raisins, two pounds of currants, half a pound of sugar, six eggs, six spoonfuls of rich cream, a wineglassful of brandy, four glassfuls of white wine, a good teaspoonful each of cloves, nutmeg and cinnamon; mix over night and boil six hours. When turned out of the bag sift white sugar over it. Use rich sauce.—*Boston Transcript*.

THE canker-worms have plainly been left to work their own sweet will in many places, and whole orchards look as if the trees were dead, in some localities. We note now and then a place where the dark ring of dry tar or printer's ink shows that in some time past an effort was made to oppose their ravages, but the good work was not persisted in. A large orchard on the Colt place on Wethersfield avenue is a conspicuous instance of it. Now and then too, we see where thorough work has been done, and trees stand fully decked in their robe of green beside others which look almost as if a fire had passed over them. As we have said it takes time and trouble and persistence to successfully fight the canker-worm, but it can be done, and looking upon the blighted orchards where they have been at work and are likely to work again next year, we are sure it pays. But it does not pay to put one's hand to the plow and look back.—*Hartford, Connecticut, Farmer*.

CONTRIBUTIONS.

BENEFITS AND EXPENSES OF PUBLIC ROADS.

Having in my former article, published in the July number of the *FARMER*, adverted to the great disadvantage the public suffer from the selfish imprudence of those through whose lands these roads are located, and many of which the viewers were compelled to run zigzag or crooked, over hills and dales, merely to gratify a few indiscreet old fogies who own adjoining properties, I offer the following remarks on the same subject. As I said before, many roads require four horses to pull a two-horse load, which in itself involves thousands of dollars of expense, at the present rates of horse-flesh, which is not only high in price but is also becoming scarce.

The injudicious location of these roads up and down steep hills, consequently causes them to become "washy," and constantly in need of repair. Instead of supervisors grading and macadamizing, and making the roads

high in the middle, with culverts at the base of hills and drains at the sides, they are merely dumped together haphazard, without regard to comfort, convenience or durability. They are afraid of the frowns of the awful *taxpayer*, and run over the ground as cheaply as they can, to keep down the taxes, subjecting the roads to washes at every heavy rain, leaving them rough and full of loose stones—so much so indeed as to make it almost impossible to travel over them. Most that supervisors do is to throw up a few breaks across the road where they think they may be needed, and these so high as almost to impede driving over them with only an ordinarily heavy load, and also in light vehicles, endangering springs and other gear. I may safely say that I never saw our township roads in a worse condition than they are at the present time. This does not speak well, nor look well, for the rich and thrifty county of Lancaster. Many of our township roads, like the South Carolina squatters cabin, are only made for dry weather. Like anything else, or everything else, that is intended for the public good, public roads especially, should be constructed with regard to those contingencies that are liable at any time to occur; and this, in the end, will prove to be the truest economy.

Of course we have had recent very heavy rains, but that will not excuse the supervisors from all criticism. True, some things cannot be foreseen, but it certainly is not complimentary to the judgment of a supervisor to be compelled to remake a road after every heavy rain, nor is it economical housekeeping.

We are paying from a half to one per cent. road tax, on our entire possessions, and where is the value we receive therefor? One may say, we have *roads*. So we have, but not many good ones, nor yet lawful ones. We have roads washed out in the middle; the water running over them for miles and no outlet; also full of loose stones, big and little—stones that are not only "lying around loose," but which are an absolute annoyance and a danger to wagons and carriages. Many of these stones are permitted to remain in this condition so long, and are knocked about so much by coming in contact with the wheels of vehicles, that they have become almost round, like cobble-stones and pebbles. Now, this should not be in a progressive county like Lancaster is supposed to be; but more hereafter.—*P. S. R., Litzitz, August, 1883.*

SELECTIONS.

BEES.

In order to get a succession of superior cells from my best colonies, it is necessary to keep them swarming as often as possible. To accomplish this I would adopt this plan: As soon as they have become established in their new home, say in two days after the swarm has been hived, I insert 2 frames of hatching brood in their hive, and in 3 days more I give them 2 or 3 frames more, which soon makes their hive more populous than was their old home from which they issued. This causes them to swarm again in from 12 to 18 days from the time of hiving, which gives me another lot of splendid cells. Thus I keep my best colonies producing cells of the

highest type as long as the honey season lasts. Thus I have given you my plan of getting queens that are acknowledged by all to be as good as any, and believed to be superior by some.

Having procured our queen cells, the next things in order are nuclei. There are many ways of making a nucleus, and the plan I see most recommended is to go to any hive populous in bees, and take from it a frame of brood and one of honey, with all the adhering bees (being careful not to get the old queen), and place them in an empty hive, adjusting the division board to suit the nucleus. In 21 to 48 hours after they will have become aware that they are queenless, when a queen cell should be given them. Now, although a nucleus can be formed in this way that may work in warm weather, still in cool weather it would be a failure, and, according to my opinion, is not a good plan at any season of the year, on account of the number of bees which will return to the hive from whence they were taken, thereby depopulating it to such an extent that the brood will mostly be chilled in cool weather, and seriously weaken it even in warm weather. Bees that have been used to a laying queen do not kindly take to a brood for a mother; hence all go home that are capable of getting home. But should you happen to get the queen on these two frames, you would see that the bees would feel at home, and all but the old field-workers would stay where the queen was.

From this fact, that bees will stay with their queen, I arrived at the following: Inasmuch as a queenless colony, with sealed cells, depend on those cells for a mother, if a frame of brood containing a sealed queen cell, with all the bees adhering to it, are put in a new hive, the bees will stay there the same as they would in the case of a laying queen, as given above. After thoroughly trying this plan, I have found it to work to perfection; and by making the nucleus hive perfectly tight, and shutting the bees in for 24 hours, opening it about dark, scarce one of the old field-workers will go back to their former home.

Now for my plan of making nuclei! When all the queen cells are sealed in my queen-rearing hive, I get as many frames of hatching brood from different hives, in the yard, as there are cells in the hive, lacking the number of frames of brood the hive already contains. Brush all the bees off these frames of brood, and let them run back into their old hive, inserting frames full of comb or foundation in place of them. Now carefully fit one of the queen cells into each of these frames, and set all in the colony which produced the cells, and close the hive, till 24 hours before the first of the cells should hatch. By this time enough young bees will have hatched to thickly cover all the combs, with scores till hatching every hour. Now get your nucleus hives all ready by making all as warm as possible, and having a nice fitting division board in each one, when you will go to your other hives and get a frame of honey, brushing all bees off of it, for each nucleus. Next take a frame from your queen-rearing hive—bees, queen cell and all—and place it with your frame of honey in your nucleus hive, and adjust your division

board. The next day at night open the entrance, and you have a nucleus as good as any one could desire.

In this way make nuclei of all the frames which contain queen cells but one, leaving that to form a nucleus on the old stand. In about 10 days your queen will be laying, when she can be used as you desire. Thus I have given how I rear what I term *good queens*, which have given me the results I have reported for years past, and I claim such queens cannot be reared for \$1. When our dollar queen-breeders will rear all their queens in this way, I shall be willing to say that a \$1 queen will be just as good for honey-gathering purposes as a \$3 queen.—*American Bee Journal*.

ARTIFICIAL SWARMING.

Much has been said about increasing our colonies artificially, and many that have practiced the various ways for so doing, have signally failed. Why is this? First, there are numerous ways to accomplish a desired increase, while but few methods are really desirable or practical; second, whatever course is pursued, we should imitate nature as close as possible. Not so much in allowing them a flight in the air, etc.; but the condition of the colony must be the same, both in the hive and during a flow of honey; third, nature cannot be forced, but *can be assisted* in more ways than one.

This is the key that should be kept in view at all times. A violation of the laws of nature is the real cause of failure and disappointment in nine cases out of ten. The following is the method pursued by us:

We go to a colony that is sufficiently strong in numbers, having the combs well filled with brood, and eggs deposited in the queen cells. Remove the hive a few feet to one side and place a new hive where the one just removed was taken from, and lay a wide board from the ground to the new hive, so that the few bees falling to the ground may readily run in at the entrance. Now open the hive removed and take out one of the frames, after looking it over for the queen; shake the most of the bees off on to the board in front of the new hive, when they will readily enter their new home. Now take out more frames and proceed as before until you have about two-thirds of the bees in the new hive. As soon as the queen is found she should be placed at the entrance of the new hive and see that she goes in all right. Replace the combs, etc.; and move the old hive to a new location. If the colony is one you desire to breed from they should be allowed to complete the queen cells, when they can be cut out and introduced into queenless colonies or nuclei. But if you do not wish to have the cells completed then introduce a queen cell that will hatch in 24 to 48 hours. Cells should not be introduced short of 10 or 12 hours after the manipulation.

We have practiced the above method for the past 12 years and it proves by far the most practicable, and more desirable than natural swarming.

I claim and can prove that no man can tell or pick out the colonies thus made from those that have swarmed natural after six or seven days. Such being the case what are the advantages gained?

1. We have preceded natural swarming by six or seven days; thus by the above method the new hive will be well filled with the brood and honey by the time they *would have been hived* had they swarmed natural.

2. We have a laying queen in the old hive, about the same time she would be emerging from the cell had the colony swarmed naturally.

3. All after swarming is completely controlled.

4. We do not have to climb trees, etc., during the heat of the day, and whenever and wherever the bees see fit to cluster, but we do this work when *we* are ready.—*Bee Keeper's Exchange*.

ARE TRICHINÆ KILLED BY SALT?

The prohibition of the importation of American pork by the German Government, on account of the alleged presence of the microscopic worm known as trichinæ has awakened a large degree of interest among pork raisers and shippers in this country. That trichinæ are sometimes found in pork (and in some other food flesh) is not to be doubted. That proper cooking of meats for food destroys them is unquestionable. That all authenticated cases of injury to health arising from the presence of this microscopic worm were traced to the eating of uncooked or half raw meat is a fact. But that the salting of meat destroyed the parasite is still a matter of doubt, or, at least, it is a subject of dispute.

On this point United States Consul John Wilson, stationed at Brussels, makes some statements, based on his own observations. He says:

"I have myself been present when officially appointed microscopists at some of the abattoirs of this country have been engaged in examining American pork for trichinæ, and have been invited by these gentlemen to see for myself, through their microscopes, the peculiar cell and spiral coil of the animal; but on carefully examining them I have only observed, blended with the tissue and minute salt crystals, the entombed animal, evidently as destitute of life as the structure in which it was embedded.

"It is claimed by most trichinic observers that the process of generation and birth of this little animal invariably takes place in the stomach and intestinal canal, and that within a few days from its birth it has so matured as to penetrate the walls of the intestines and rapidly make its way through the various intervening structures to the remote muscular tissue of the animal it infects, there to be speedily encysted and endowed with a subsequent dormant existence of several years, during which time its presence occasions little or no inconvenience. Of this theory of the life and movements of this little worm I can only say that it involves an almost unparalleled exception to the law generally regarded as determining animal life, and ought not to be accepted but upon the most positive proof. The law governing parasitic existence in living tissue usually involves the speedy death of the parasite after the pabulum upon which it feeds has passed from under the domain of vital force; hence, unless this tiny worm constitutes an exception to this law, its life must be short after the organic structure upon which it feeds has ceased to live."

Consul Wilson very pertinently adds that "if salt really kills trichinæ, and of it I have

scarcely a doubt, it is evidently an injustice on the part of foreign governments to lay an embargo on our pork product, which, of all others, in order to secure it against decomposition on a long journey to foreign markets, is better salted than that of any other country."—*Scientific American*.

ANALYSES OF FERTILIZERS.

Impressed with the value and importance of the analyses made by Professor A. F. Genth, Chemist to the Pennsylvania State Board of Agriculture, under the act of June 23, 1879, this journal two years ago published a complete table of the analyses made up to that time, 121 in number.

Since that time Professor Genth has been steadily at work, and has run the number of analyses of fertilizers sold in this State to above four hundred.

Every farmer will at a glance understand the value of this table. It gives the amount of potash, ammonia and phosphoric acid, the three chief ingredients in all fertilizers, and their money value, estimated by the present price of these articles in the open market. Parallel columns show the selling prices of the fertilizer and their actual money value to the farmer. If all farmers cannot tell whether their soils need a manure with more potash than ammonia, or vice versa, they can nevertheless determine at a glance that when they are asked twenty dollars per ton for an article worth only five dollars, that they are being cheated. Herein consists the great value of these tables. They show at a glance what a certain fertilizer is worth. By the act authorizing these analyses, every bag, box or bale in which they are contained must be plainly stamped by the analyses furnished by the State Chemist. In this way imposition on farmers is no longer possible. The worthless articles are at once exposed to the public, and are in consequence rendered unsalable. It may be taken for granted that no intelligent farmer will buy a manure at ten dollars a ton when he sees by the analysis that its actual valuation is only thirty-two cents. Yet numbers of these goods selling from eight to twenty dollars per ton, are shown to have an actual value of less than one dollar per ton. These published tables have had the natural result of driving the worthless so-called fertilizers out of the market on the one hand, and of increasing the value of those still on the market. Out of one batch of one hundred and seventeen samples recently analyzed, no fewer than sixty-nine were nearly worth the selling price nor exceeded it.

As nearly as can be ascertained, the annual consumption of fertilizers in this State is 70,000 tons, or about one-third of a ton to each farm in the commonwealth. Estimating the cost at \$30 per ton, we have the sum of \$2,100,000 paid annually by the farmers of Pennsylvania. It is safe to say that from five to ten dollars per ton too much has been paid for them. This has resulted in an aggregate loss of \$500,000 per annum, out of which the agriculturists of the State have been openly swindled by purchasing these several compounds at prices beyond their actual value. But now all this is changed. The wide awake agriculturist need not pay one cent more for his fertilizers than their actual worth. The State has come to the farmers' assistance and saved them half a million dollars yearly. Every man who uses these commercial manures ought to keep himself posted.

VALUABLE INFORMATION FOR FARMERS.

Tabulated Analyses of Fertilizers Made by Prof. Genth, State Chemist, from Samples Published and Selected in Accordance with the Act of June 28, 1879.

Table with columns: Record Number, NAME OF FERTILIZERS, NAME AND ADDRESS OF MANUFACTURER, Soluble Phosphoric Acid, Reverted Phosphoric Acid, Insoluble Phosphoric Acid, Potash, Ammonia, Estimated Commercial Value per ton, and Selling price per ton at point of selection.

Valuations: Soluble and reverted phosphoric acid, 10 cents per pound; insoluble, when from bone, 6 cents, and if from S. C. rock, 1 cent; potash, 6 cents, and ammonia, 17 1/2 cents. [To be continued in our next number.]

LOUISIANA SUGARS.

The planters are generally represented in New Orleans by factors or commission merchants, who attend to the purchase of plantation supplies during the planting season, and the sale and disposition of the crop when manufactured.

Arriving at New Orleans, the product is landed on the levee direct from the numerous boats that ply along the upper and lower coast to Lafourche and Bayou Teche, or, if arriving by rail, it is landed on platforms contiguous to the levee. The factor or commission merchant, who is strictly the first hand, is always represented by a broker, and the lots, whether of sugar or molasses, are always offered intact in courtesy to the dealers who, for many reasons, are the most desirable purchasers, being on the spot with ready cash, and dispensing with the trouble of shipping and the risks attending transactions with distant points. All sales are made strictly for cash, which by custom of the levee means on demand; and so well it is understood that terms are scarcely mentioned, and the dealer who is not ready with the cash when called for need not attempt any more purchases until he has rehabilitated himself.

The dealers having made their purchases, sort them out, and in every lot, either of sugar or molasses, the quality varies and frequently in executing orders several lots have to be sorted over in order to procure the required quantity of a certain grade. What remains after sorting are known as "culls," and sold for the best price obtainable, to any customer.

The classification in force on the levee is as follows: Open kettle sugars, in cypress hogshead, 12 per cent. tare. Inferior, common, good common, fair, fully fair, prime, strictly prime, choice, fancy choice.

The grades of fair and under are scarcely fit for any purpose but refining, and are usually sold to refiners to be melted and worked over.

The refiners also purchase, when values permit, the grades up to and including prime.

From fully fair to fancy choice all are known as grocery grades, fully fair being generally known in some Western markets as dry barreling sugars. Inferior and common sugars are dark in color, wet and sometimes dirty—common dry as its name implies. Fair to fully fair, bright color, dry, well-cooked, and drained and good grain. Prime to fancy choice, dry, well drained, handsome grain, bright straw color, to very bright and full grain in fancy choice.

Where these sugars have come in from the plantation and been held, and sometimes when they have come from the planter late in the season, the packages have not been re-filled after drainage, and when this is the case the customary 12 per cent. tare will not cover the weight of the package. This must be guarded against in making purchases, and is a matter for stipulation between the buyer and the seller, as a condition precedent to the transaction; either the packages must be re-filled, or taken as they are at an allowance on the price.

Molasses is classed as follows: Open kettle molasses—Inferior, common, fair, prime, strictly prime, choice, fancy choice. Centrifugal molasses—Common, fair, prime, choice.

Sirope de Batterie, as the name implies, is taken from the battery kettle before the syrup has been concentrated, and is pure juice of the cane boiled to the density of syrup. It rarely finds its way to market, however, as in a very short time it granulates.

"Cuite" ("kuett") is very similar to what is known in the "sugar-bush" and in many a Northern farm-house as "maple-wax," and is taken from the coolers before granulation occurs. This also is little known beyond the plantation house, as it too quickly returns to sugar.

Sugars from the various sections present peculiarities which render them easily distinguishable by the experts. Those from the Red river parishes for instance, where the red clay formation of the lands is so marked as to give the river itself the name it bears, are of a reddish tinge, and the same is true of the molasses from that section.

A saline taste is often apparent in both sugar and molasses, particularly in the latter; and when this is the case it is at once known that they are from the extreme Lower Coasts, or from the Lower Teche of Lafourche, where the lands are in such close proximity to the sea that the cane has absorbed salt to a certain extent, and an undue prevalence of it is an injury to the sugar, causing a greater tendency to deliquescence.

It is not so much an injury to molasses, but impairs its flavor, and is to the distant consumer unaccountable.

Almost all the plantations brand the name of the plantation on every package of their product, and some have acquired an extensive and justly merited reputation for uniform excellence and standard quality; but a large portion of the crop comes in packages rudely marked with a brush with the initials of the planter and sometimes several different initials for the same crop where it has been made on shares, and where several parties are interested.

When the crop has been finished and all the sugar and molasses shipped to market, the basin or purgery is cleaned out, and the sedimentary deposit of the molasses, composed of sugar and gummy matters, together with pieces of brickbats, flakes of cement dirt, sand, trash, etc., *ad infinitum*, and which delectable compound is known as "cistern bottoms," is filled into barrels and sent into the market, where it is bought for refining purposes, or to manufacture blacking or "essence of coffee," or other articles of domestic economy, whose obscure origin, if correctly known, would amaze the innocent consumer. But the old New England tradition, of *ante-bellum* days, that sundry remnants of "niggers" were to occasionally found in the cistern bottoms is not sustained by investigation.

The burnt sugar or "caromel," which accumulates in the kettles, is by many of the old Creoles made into a delicate breakfast beverage, which, served hot with the addition of rich cream, is similar but much superior to the best chocolate, and proves a grateful surprise to the chance visitor at the plantation.

"Vin du cane" is a beverage peculiar to the sugar house during the sugar making, and the unwary stranger is often inducted into its mysterious effects.

It is made from the hot juice as it leaves from the "grande," and with the addition of a little plantation whisky and the juice of a sour orange, it makes a drink compared to which the Mexican's "pulque" fades into miserable insignificance, and Wabash sulphuric acid corn juice is not to be mentioned.

The stranger "smiles" with gratification as he partakes of the delectable beverage, but "finds too late that men betray," and ever afterward remembers with unmitigated disgust the villainous decoction.—*New Orleans Sugar Planter.*

THE FARMER'S HOME.

The farmer's home is not a paradise; whoever attempts to portray it as such, or to conjecture it can be made such, is deluded.

I would not so attempt to picture it for such a picture would be false. The farmer's home is just what he makes it. A home without labor; a home of aimless ease it can never be, and never ought to be.

Two many young men and women in the farm-house look away to social life in a great city, and fancy that there could be real happiness; that, with all the facilities for social enjoyment, these contact with superior intellects, social intercourse with educated and refined men and women; opportunities to listen to sermons of great divines, addresses of great statesmen; lectures of men of science and letters; access to scientific and classical societies; mingling with literary and musical clubs—all the advantages of public lectures, concerts, drama, opera, pulpit and forum—present all there is of human happiness, but very much of all this is delusion.

It cannot be denied that intercourse with men and women of superior intelligence and education and experience to our own, is good for us, but other considerations are worthy of attention. The clergyman who accepts the charge of a fashionable church in a great city, accepts the contact with artificial society life, and while he may fancy his field of labor is broader and more comprehensive, he finds that the results of his labor are far less satisfactory and far less successfully in winning souls from lives of vice and sin to lives of purity and honesty, than it would be in the country. While the lawyer or the doctor, who seeks notoriety and reputation, has more varied opportunities to advance his ambition in the city than in the country, yet the country doctor or the country lawyer, who makes his profession a lifetime of study and honest research, finds himself sooner or later, standing upon a plane of professional honor equal to that of his city colleague.

So the life of the farmer, though not so rich in adventure, not so full of artificial accomplishments, is fuller in that which goes to make up a pure and noble life. He can get nearer to God and his works. Higher is the scale of mental and moral culture, nearer to manly perfections, because his life is simpler, more refined, less tainted with those things which corrupt and demoralize. I am neither a believer in total depravity, nor in human perfection. Our lives are a compromise between both; we find in all humanity, in all walks in life, in all conditions, the good and the bad. It is for us to so use the good and the bad, as to render our lives more or less

useful, wherever our lot may be cast. My own observation and experience convinces me that the truest happiness, the nearest to a perfect home life, can be had on the farm.

Life in a great city may be elegant, brilliant, fascinating, but it is artificial; life on the farm may be humble, simple, commonplace—it is natural. It has been wisely said, "the sum of human happiness is made up of little things." Eminently does this proverb apply to the life of the farmer.

When one travels through our agricultural country, and passes farm after farm, where the house is a box, devoid of art or beauty, or even the simplest attempt at comeliness; where the barn is but a tumble-down hovel; where fences are thrown together as barricades against invading animals only; where no trees, or shrubs, or plants break the monotony of the home surroundings; where the labor of farming is drudgery and daily toil only, no wonder that the children, when grown to advanced youth, come to despise them, and look forward to the time when they can forever turn their backs upon them.

I would say to every farmer, for humanity's sake, for the sake of your own happiness, for the sake of the happiness and regard of your children and those around you, make your home pleasant, attractive, homelike! Don't say you have not the time, nor the means; you have both. When you are returning from your backwoods in spring or autumn, how much time will it take for you to pull up a pretty sapling, such as you will pass hundreds of, carry it in your hand to your house? and how many minutes, while the good wife is preparing your dinner or your supper, will it take you to plant it where its growth will beautify your home?

Your forests and fields abound in flowering plants and shrubs, which every year you cut down when you cultivate the ground. It is no more expensive for you to carry one in your hand when you go home than to carry it to the pile you intend to burn.

It costs but the thrust of the spade to make a hole to receive it; it costs nothing to make it grow; it is only transplanted, and grows as well in the home yard as in the back lot; it will become a thing of beauty. Try it, and my word for it, you will not stop at the first trial.

When you are cutting timber to fence about your garden plat or about your house and barn, it will cost you no more time to select a few pieces, separate them from the others, for some rustic beauty or odity, if you please, and construct them into a rustic arbor about your house, which, when constructed, will present something of pictureque beauty, than to throw them all together in the clumsy manner in which too many farm fences are built. When you build your house, your barn, your hen-house or pig-pen, it will cost no more material, very little more labor, only a little artistic taste to build a pretty rustic cottage structure, instead of the square, uncouth, box-like affair, too commonly seen as country homes.

A willow riding-stick has many a time been stuck in the ground when the rider dismounted from his horse, taken root, and grown to a magnificent tree. A hedge-row of blackberry or raspberry bushes will as

effectually "stop the cattle" as an unsightly hedge of dead tree-branches.

The American forests are full of wild vines, which, if transplanted, will overrun gate-posts, rough fences, out-buildings; the transplanting may cost ten minutes of easy labor. In the cities thousands of dollars are expended in accomplishing the growth of vines, which would cost the farmer a few hours labor only each year.

Five years ago the writer planted with his own hands in the city of Washington four trees—two maples, two elms. They cost perhaps two dollars. They are now the pride of his home and the delight of his friends. Any farmer could do the same without cost, but with the same results.

Plant trees, plants, vines; plants shrubs and flowers. Your mother or wife or sister will cultivate them. All women love flowers. Your friends and neighbors will admire them; your children and your neighbor's children will grow up under and around them, will love them as a part of the home, will love you because you planted them, will love each other because love begets love. Every beautiful thing about your home will create a beautiful thought and purify the soul of one of God's beautiful creatures.—*H. N. Howard.*

MANUFACTURE OF AGRICULTURAL MACHINES IN RUSSIA.

Herewith I have the honor to transmit a translation of an article on the manufacture of agricultural machines and implements in Russia which recently appeared in the *Russian Review*:

The article is interesting as showing the condition of an industry whose development in this country cannot be a matter of indifference to the United States. It is the aim and hope of the Russian manufacturer to supply the wants of the Russian people with Russian-made goods, and however laudable this effort is, years must elapse before complete success attends it.

The whole paper shows the primitive character, not only of this industry—which has to contend against a strong foreign competition, a lack of capital and skilled laborers, an unfavorable money market, and a limited demand—but also of agricultural pursuits in general.

It is in this century a strange spectacle to find an almost exclusively agricultural country, possessing over 80,000,000 inhabitants, consuming annually not more than \$3,000,000 worth of agricultural implements. But such are the existing conditions that is hardly possible for matters to be different, and, all things considered, it is a matter for surprise that the progress made should be great as it is.

During the period of serfdom a superabundance of rich soil and laborers induced a careless and wasteful system of agriculture whose baneful influence is still felt among the peasant classes.

The reorganization of these classes is a problem which the government has long been seeking to solve, one of a nature so complex as to present infinite difficulties and thus far to elude anything like a satisfactory solution.

If an ultra simplicity and the restriction of all wants to articles of the merest necessity

were indicative of the perfection attained by a nation, then Russia is indeed a Utopia, for among civilized nations it would be difficult to find a people with greater simplicity and fewer wants than the Russian peasant classes.

But this very absence of all wants is one of the greatest obstacles to the development of manufacturing industries, and in my opinion precludes the hope of the great industrial progress until the people have been educated to have other wants than those which the possession of a sheepskin coat, top boots, and a few yards of coarse cotton cloth can satisfy.

The dearth of money, when so great that an association must be formed to enable a peasant to purchase a \$30 plow, must also obstruct the industrial progress of the nation.

The managing director of one of the largest iron foundries in South Russia writes as follows:

We employ from 500 to 800 hands, and used to make horse and steam thrashing machines, portable engines, fire-engines, plows, etc., as long as we had iron free of duty, but since this privilege was taken from us, January 1, 1881, we and all our neighbors were compelled to abandon this branch of industry. Hands are far dearer here, than abroad, or even in St. Petersburg, and small agricultural machinery from abroad enters free of duty, there is no possibility of competing. In reaping and mowing machines we do a good business with America, importing from 800 to 1,000 machines yearly. I cultivate mostly the Johnston harvester. As to portable engines and thrashing-machines, I prefer the English make—Clayton and Shuttleworth. They are far dearer than the American ones, but also stronger and more solid.

This letter corroborates the statement of the inclosed report, and shows that high-class machines cannot be produced as yet in Russia. They are almost exclusively imported, and I have no doubt but that the American manufacturers could increase their share of this import by studying the wants of this country, and by the establishment of local agencies.—*Edgar Stanton, Consul-General.*

BREEDING HORSES.

It is a well established fact that many of the acquired diseases to which horses are subject afterwards becomes hereditary and descend from parent to progeny. Crabs, spavins, ringbones, heaves and the long list of defects to which every horse is liable from improper and hard usage, often become constitutional and inherent in the blood of dams, and their progeny are liable to become inoculated in the germ to the most distant posterity.

To the miserable practice of breeding from mares which too often come into the category of "those unfit for work, hence will do to breed from," is due in part the existence of the vast number of unsound horses which are to be found on nearly every farm, and which are heard wheezing and coughing at the hitching posts about the corner groceries. I am well aware that to the care and usage to which horse-flesh is subjected may be attributed much of the unsoundness and ungainly movements possessed by the average equine of our time. The remedy for this lies right in our own hands. The road to improvement in this matter is direct and lies straight before us.

The market demand is for good-sized and "good-stepping" horses. I don't mean by

good-stepping; competitors for the honors of the turf; but such animals as shall develop to good roadsters so the owner can, upon occasion, go to the village for the doctor or anybody else he wants to see, and not be obliged to work his passage or use up too much precious time. If the horse can strike a three-minute gait it won't hurt his salable qualities at all, but he may be a good horse for all essential needs and not approximate to that time. The general farmer cannot afford to breed merely for speed. That should be left for those who have taste, time and means to devote to this work, which at best is but a lottery. If a farmer has a heavy horse which is sound and all right, he has no difficulty in disposing of him. With the small animal, unless he has speed to offset his diminutive proportions, he'll find customers will pass him by and seek for those of more size.

Light horses, as a rule, are not profitable to use upon the farm. Often a fine, heavy horse will do the work upon a farm where two lighter ones would be required to do the same work. It is true a large horse will usually consume more feed than a small one; and so he will do more work and the ratio of difference in work is far greater than the difference of cost of keeping, for eight times out of ten the old mare will out-eat a 300-pound heavier horse which is just bordering on his teens. "But my lighter horse is spryer and can get around faster than your big, lummoxy fellow," you say. That doesn't always follow, neither is it more than an exception to a general rule; close observation will reveal the fact that the rule will apply as often the other way. I believe it to be the part of economy that we raise larger, sounder and better styled horses. It may cost a little more in the outset, because we should use the best males as well as good mares, but the improvement and consequent enhanced value will more than repay the increased cost.—*L. F. Abbott, in Rural New Yorker.*

FEED FOR YOUNG PIGS.

Perhaps there are no greater mistakes made in feeding animals than is often the case with pigs. Indeed, we are inclined to think that the climax of expensive absurdity is reached in swine feeding. Often animals do grow and develop in spite of very bad feeding. But our swine, we almost say as a rule, do not develop. Fat takes the place of development, and somehow we get the idea that fat is growth. If we do not make this mistake almost from the beginning, we are entirely too apt to fall into the error before the pig reaches maturity. It is always a very great mistake, and the earlier in the life of the pig that we begin to make it, the greater mistake it is. To expect a young pig to develop bone and muscles, without feeding it anything that will make bone and muscle, is a great absurdity. Yet that would often seem to be the theory in hog raising. After its birth the pig is either left to take care of itself, the dam not even being properly fed sometimes, or is fed upon that reprehensible theory that fat is growth. Men have been known to feed all the corn meal that the young animal would eat, just as soon as it could be taught to eat corn meal. What could naturally be expected as the result of such a course? Corn meal contains sixty-six

per cent. of starch, seven per cent. of fat, ten per cent. of nitrogenous elements, and scarcely any phosphate of lime. Now a growing pig can be literally starved to death upon such a ration, although it may be so fat that it cannot stand upon its feet. Indeed, its inability to stand upon its feet would soon manifest itself, and would be an evidence that it was starved. Its legs would not be strong enough to hold it. Its bones and muscular system would have nothing to feed upon, and must necessarily grow weak, at least weak in proportion to its age and growth of fat. There would all the time be a demand for an increase of muscular and bony strength to support the growing weight, and no response whatever to the demand.

In the artificial feeding of young pigs skim milk stands at the head of food, and when there is plenty of that there need be no serious uneasiness about results. Cooked corn meal may be advantageously added in small quantities to the milk—provided there is plenty of milk, as it is the milk that will furnish the albuminoids and mineral elements. Indeed the proportion of those is so very large, that to produce the very best results corn meal in proportion of say about one pound to a quart of milk, is very desirable. This ration about equalizes the albuminoids and fat producing elements, as required by the animal system. If the farmer does not have the milk, cooked corn meal and oats in equal parts and one part of oil meal will prove to be a good ration. Some grind oats and peas together, and feed cooked, and others feed six parts of peas, four parts of corn and one part of flaxseed. If our pigs do not gain as much as a pound a day in live weight we can conclude at once that there is a radical defect in our system of feeding. The young pig should be fed liquid food, as that is more easily digested, and should after weaning, be fed five or six times a day for a considerable time, after which the number of times can be reduced.

Of course the feeder will not undervalue grass as a food for pigs. If he does, he will dispense with a very cheap means of feeding, and injure the animal besides. It will not answer to feed growing animals wholly upon concentrated food. Concentrated food enters the stomach in a solid mass, and it requires time for the gastric juice to mix with it and digest it. But if with the concentrated food grass is fed, the mass is loosened up and the gastric juice has a greater surface to attack. And there is one other very important matter to be taken into consideration in connection with pigs running upon grass. It furnishes them exercise, and exercise, the reader need not be told, is about as important as food. It is true that a pig does not need a quarter section to range over to get exercise enough, but on the other hand, it should not be too closely confined, and if on pasture it will be in no danger of that. If it has plenty of room it is sometimes the case that soiling is very profitable. It requires less land to support a pig if the soiling system is adopted, and where there are not many pigs it is altogether practical and profitable.

THE LIMIT OF WHEAT PRODUCTION.

Dr. Max. Sering, a scientist sent by the German Government to investigate the limita-

tions of wheat production in America, has reached home and made his report. He gives it as his opinion, based upon investigations carefully pursued in California, Oregon, Washington Territory, Dakota and Minnesota, that the "United States is near the limit of its ability to flood Europe with cheap wheat." He argues that the great increase in the production of wheat that has occurred only in the last fifteen years, has resulted from increased acreage through new settlements, and not from any increased production per acre in the older grain fields. He might have said, further, that while there are millions of acres of good wheat lands as yet untouched, much of that which has been employed in the production of wheat is being put to other uses. And still further, he might have said that by the exhaustive methods of wheat farming in America the rank productiveness of the soil is being impaired, and that other crops are proportionately more profitable. These considerations, while not mentioned, were doubtless thought of, and part of the basis of Prof. Searing's somewhat striking assertion. With him, we believe the limit of wheat production in America has practically been reached. The export totals may increase a little, but we doubt if the great advances of the past ten years will be paralleled in years to come. The country will have the capacity to produce more wheat as it becomes more populous and its wild lands are put under the plow, but it will be found that wheat production on the great and exclusive scale to which it has been carried in certain localities, will not pay.

Nothing is to be expected from improved and more careful methods of cultivation of which we hear so much. Whatever the improvement may be, it will not compensate for deterioration of the soil under repeated croppings. No lands under cultivation will ever yield more than they have during the past years, and it may be doubted if they will yield as much. Certainly they cannot always maintain their present high standard of production. Besides, lands are becoming more valuable as the vacant districts of the country becomes fewer, and the country becomes richer, and after they have attained a certain value, wheat cannot be raised upon them with profit. For example, when land was worth fifteen dollars an acre in some of the far west States ten years ago, wheat growing was more profitable than it is now when the land is worth three times fifteen dollars per acre. While the value of the farm has increased there has been no proportionate increase in its product or the price of that product. Upon a much greater investment, the farmer does no greater business than he did ten years ago.

The considerable decrease of wheat production in the States of the upper Mississippi, and the lighter decrease in Iowa, Minnesota and Wisconsin, illustrate not degeneracy of soil or lessened activity in agriculture, but that wheat has been found an unprofitable crop. More rapid and cheaper transportation has made it possible to dispose of products which a few years ago it was impossible to get to market in saleable condition. By means of the refrigerator car, shipments of fresh dairy products from Minnesota to the great markets of the Atlantic cities is now as

easy as similar shipments from central New York. Farmers are not slow to see new opportunities, and the bad economy of relying year after year upon an exclusive crop is now generally understood.

Wheat production is naturally the first effort of the settler on western lands. The grain is easily planted, easily cared for in the field, and easily harvested, and is certain of a fair price. Where one gets the land for the mere taking, wheat-farming can be carried on with very little capital, and so, till he gets a little ahead in the world and can furnish his place with stock and can surround himself with orchards, etc., wheat is the settler's almost exclusive crop. But if the conditions of market and transportation are favorable, he soon branches out into more varied industry and wheat-raising becomes merely an element in his business. This has been the history of wheat culture everywhere. In Oregon and eastern Washington territory wheat has been the only farm product for which there has been a certain market and very naturally, the period of its exclusive hold on the farmer has been longer there than in localities where transportation facilities have brought even the settler on wild lands into close communication with the great markets. But the conditions here are changing. Extending railroad lines will soon enable the farmer to get his fruit, vegetables and dairy products to market, and the effect will soon appear in a varied agriculture heretofore unknown in the western part of the country, and wheat will cease to be the exclusive article of export.—*Lancaster Examiner*.

PROVIDE YOUR OWN LIGHTNING ROD?

Dr. Geo. Thurber gives much valuable information in an article on the above practical question in the *American Agriculturist* for August.

First. As to the rod itself. It is well known that copper is a much better conductor of electricity than iron, but it is so expensive that iron is most generally used, making the rod much larger than would be necessary if it were of copper. The shape is of no consequence, and the twists and grooves in some "patented" rods are merely to beguile the ignorant. The rod may be of round 7-16 inch iron, or it may be a flat strip an inch wide and 3-16ths of an inch thick. If more convenient to procure, larger iron may be used, but it should not be smaller than these sizes. It is very important that the rods be continuous. The pieces of round iron may be joined by couplings which are cut with a screw-thread on the inside, while the ends of the rods are made to fit. The portions are usually joined by welding.

Second. The manner of fastening to the building. At one time it was customary to pass the rod through a glass ring, which was fastened to the building, and the rod thus kept from contact with it. But insulators of this kind are quite useless, for as soon as they are wet they cease to insulate. The rod may be attached by staples. There is not the least danger that lightning will leave the rod to pass into the house by way of the staples. A flat rod may be fastened by a strap of iron fashioned to clasp it. Should the rod be paint-

ed? Some years ago there was an idea that the conducting power of the rod would be injured by painting it. This is not true. Paint the rod any color that will make it as inconspicuous as possible.

Third. How far will a rod protect? The old rule was that a rod would protect an area with a radius twice as great as the height of the rod. In practice, little attention is paid to this rule, it being customary to provide each chimney with a rod, which, in most houses, will bring them much nearer than the above rule requires. Each chimney should have a rod, connected with the main rod, which runs along the peaks of the roof and to the ground. Upon all ordinary buildings but one main rod is needed. If there is a roof of tin or other metal, this, as well as all iron crestings and other ornaments, should be connected with the rod.

Fourth. The upper end of the rod. Formerly much stress was placed upon having the rod terminated above by a very sharp point, which should be kept gilded to protect it from rust, and latter, platinum points were used. At present neither of these are regarded necessary. The rod extends a foot or two above the top of the chimney, and is filed to a point. The various ornamental crestings much used on buildings answer as points. If the chimney is a long distance from the gable-end of the roof, it is well to place a short upright piece of rod there, which should, of course, be pointed.

Fifth. The lower end of the rod. The mere placing of the lower end of the rod in the ground, so that it will be out of sight, will make the rod intended as a protection a source of danger, and the building would be safer without it. The whole object of the rod is to carry off the electricity quietly, and its usefulness depends upon a proper termination in the ground. Dry earth is a poor conductor; moist or wet earth is a good conductor. The lower end of the rod should reach a place where the earth, in the driest time, is always moist. Some dig down to this point and then surround the lower end of the rod for a few feet with coke, which absorbs moisture and is an excellent conductor. The ease of finding a moist stratum for the rod will differ with the locality, but it should always be secured.

THE BLACK KNOT ON PLUM TREES.

Dr. B. D. Halsted, writes of a serious pest of the orchard, in the *American Agriculturist* for August.

Mr. D. D. Gaines, near Catskill, N. Y., brings us peculiarly distorted branches from his plum orchard, and complains that the trouble is a serious one, as he has over two thousand plum trees more or less affected. The cause of this distortion of the smaller branches is a fungus, and it has long been known as "Black Knot." It has often been claimed by careless observers that the swelling were due to various insects which infest the peculiar outgrowths. The parasitic fungus attacks the young branches in early spring, causing them to increase rapidly in size rupture of the bark soon follows, and the soft substance, coming to the surface, expands in an irregular manner, and is shortly covered with a peculiar olive-green coat. The fungus plant is like many others of the same low order of vegetation, as the various moulds,

mildews, etc., and consists of a multitude of fine threads, that run in all directions through the substance of the plum tree. The olive color of the surface is due to a vast number of minute bodies called spores, which are formed on the tips of the threads, and breaking away from their attachments, serve to propagate the trouble. After the knot has grown to some size, its soft substance offers a good home for various kinds of insects, and it is rare to find such a knot that is not thus infested. This was the strong argument in favor of the view that the knots were of insect origin. The scientific name of the fungus is *Sphaeria morbosa*, and this, the cause of the black knot, is as much a plant as the plum tree upon which it lives. The olive surface-spores continue to form through the summer, and at autumn another kind of spore begins to develop within the substance of the knot. These are of slow growth, and are not ripe until the following spring. The only remedy thus far known is the judicious use of the knife. The knots should be cut off and burned whenever they are found. They are most conspicuous in the winter, when the branches are not covered with leaves; but when a tree is attacked, it is not wise to delay the removal until a more convenient time. The diseased branches should always be burnt, otherwise the spores will continue to form for a while, and thus propagate the contagious pest. If the tree is badly attacked, it may be best to remove it entirely.

The Choke Cherry is a favorite host of the black knot, as the neglected fence rows often show in winter. All such trees should be rooted out. The cultivated cherry trees are subject to attacks by the black knot, for which the same remedy as that for the plum tree is recommended. Use the pruning-knife, always at sight, and cut several inches below the swelling, that all the infested portion may be removed.

PHOSPHATES AS APPETIZERS.

A little knot of farmers were discussing the other day the benefits of phosphates. One said he sowed a hundred pounds to the acre, and he had "good wheat." Another had put phosphate in the hill with his corn, and he had "first-rate corn. It grew right along." Another said: "I like phosphate; it is such an easy way to manure the land." The last man put in the clincher: "I do not know that it is so much of a manure, but it is a good appetizer." So is whisky. I do not believe in paying forty or fifty dollars per ton for "appetizers" for land any more than I do in attempting to live on stimulants. There is enough virtue in most phosphates to stimulate a crop at first and cause it to start with a more rapid growth. In the same way a good drink of stimulant will give a person a brave start, but the trouble is the effect is not sufficiently lasting—it does not hold out. In many cases this stimulated growth is a damage, for when the cause is exhausted, the plant is weakened and checked in its growth, or else it has formed an unnatural stem or stalk which the soil is not able to supply, while if there had not been this excess of stalk or stem, there would have been no check, but an ability on the part of the soil to have met all the requirements of the plant.

Before commercial manures were puffed up to the extent they are now, I had a notion I could make corn grow on the same principle—stimulation—and I prepared a compound, not wisely mixed, perhaps, but about as sensible as many of the modern doses which farmers swallow so easily, and I put this mixture into the hill, put earth over it, and then planted my corn. It came up so green and rank as to attract the notice of persons passing on the road, and the stalks were grand, but I never had so few ears in proportion. My compound consisted of air-slaked lime, plaster, (sulphate of lime) and wood ashes. Now, a chemist can tell me just what was lacking, I suppose, and if I had put that in, there would have been a proportionate crop of ears. I should like to have him. Now I will tell him something. If I had kept my compound out of the hill, and had a natural growth of stalks such as the land would have produced, the crop would not have had the set-back it did, and there would have been a proportionate crop of ears. My point is that stimulating a crop is an injury, unless it can be kept up until it matures. As farmers usually use commercial manures, they do little if anything more than push the crop at the start, and often this extra growth is an injury. I watched a field of buckwheat last summer with a great deal of interest, where the seed had been drilled in with some kind of phosphate, and a strip left across the lot without any of it. The phosphated part came up first, and at blossoming time was several inches taller than the portion where no phosphate was used. The straw—mark this—was a great deal coarser, and the leaves broader, and the cluster of blossoms more scattered or wider apart. The owner said he did not think there was any better yield, and I do not think there was as good. The phosphated part grew faster, blossomed first, and was a few days riper, although it was all cut at the same time.

On soil so poor in organic matter (the basis of vegetable growth,) that it would not produce a crop, chemical fertilizers no doubt could be added to cause a crop to grow. They would also help to extract plant food from the soil, but would a crop grown at such an expense pay? I do not like such a foundation to build upon. As a last resort it might do. I know there is a great deal of wisdom spread on here by professors and manufacturers of chemical compounds. To most of us it is dust in our eyes, so far as comprehending their talk; but they do succeed in selling a world of stuff, which in my humble opinion does very little good. Not one of the farmers whose remarks I quoted at the beginning of this article knows that he was benefited in the least by his expenditure for phosphates. The probabilities are that they threw away their money, and thousands of others are doing the same thing every year. Does it never occur to our farmers that possibly they may be humbugged a little? Only a few years ago there were few makers of commercial stimulants, or, as the farmers call them, "phosphates." Now their name is legion, and every third farmer is an agent. Have farmers and philosophers always been fools, or have there been new discoveries in the science of growth which can only be developed in the laboratory

of some phosphate-compounding establishment?

It would be more profitable for farmers when they meet to discuss how they can increase the bulk and quality of barnyard manure, and turn their grain, straw and hay to the best account to increase growth on the farm, to exhort each other to better culture, which will pay more in the end than by buying fertilizers. I do not like to see this drifting away from the old common sense and substantial landmarks and practices, which have brought prosperity to so many homes, to the uncertain, shiftless and costly ways where so much is paid out and so little returned. Would it not be a wiser policy for farmers to expend the money they pay for chemical fertilizers in the purchase of oil meal and bran to feed to their cows, and to make more mutton, beef and manure? I consider oil meal at \$28 per ton and buckwheat bran at \$18 per ton to be a better investment than paying \$40 or \$45 per ton for a small percent. of nitrogen or phosphoric acid.—*F. D. Curtis in Country Gentleman.*

HINTS ON LAWN MAKING.

In making a lawn now, as at any other season, it is well to recollect that the work is to be done for many years, and that in no part of the grounds will thorough preparation, deep tilling of the soil, and abundant fertilizing, pay better than here. In a lawn of considerable extent, it is a mistake to suppose that it is necessary to reduce the surface to a dead level. For small grass plots, on small places, this may be desirable, but a large lawn appears to much better advantage if the surface is gently undulating. Various mixtures of seed are offered by the seedsmen. Some of these seem to be well considered, but anything more unsuited to our climate than the "French Lawn Grass" can not be imagined. Probably not a third of the kinds of grass it is said to contain, will survive in our climate. The best lawns we ever had were sown with "Kentucky Blue-grass" and "Rhode Island Bent" (a variety of Red-top), in both cases a small amount of "White Clover" was added. For strong soils, the former, for light and sandy ones, the latter, will no doubt give satisfaction. In buying grass seed for a lawn, look well to its quality. Some seed of "Kentucky Blue-grass" (the same as "June Grass") sells for twice the price of others, and is worth four times as much. Chaff does not always cover seed, and the samples should be carefully inspected. The advice to use from three to eight bushels of seed to the acre, is founded upon the uncertain quality of the seed. Probably four bushels of fairly good seed would be ample. The seed should be divided into two or four equal portions, and the sowing made, after thoroughly preparing the soil, in different directions. The seed may be brushed in, but at this season, a good rolling will give a sufficient covering. Where the lawn borders on roads or paths, or on shrubbery or other plantations, it will be best to lay a margin of turf, six inches or more in width. For small areas, the laying of sods is advisable, and this may be done now, as well as in spring. In most localities, a common, or the road-sides, will usually afford a fine, close turf. The soil, in this case, should be

as thoroughly prepared as for seeding, and the turf well beaten down, to bring its roots in close contact with the soil. If necessary to cover steep banks, sods must be used. These may be held in place by the use of pins; plaster's lath split is best. These will decay by the time the sod becomes well established.

—*American Agriculturist for August.*

SELECTING A FARM.

In the selection of a farm the following are some of the points to be taken into consideration: The means, experience, adaptation for certain kinds of farming, present and future fertility, and condition of soil; distance from and accessibility to home and foreign markets, school, people, local government, title of land, climate, healthfulness of place, probability of increase in value of land from surrounding causes, or internal improvement. Lack of sufficient means in farming, as in all other business, is a serious drawback, and in the selection of a farm is a most important consideration, as affecting the size and value land to be bought. As a rule all one's capital should not be put into the farm, and loss in proportion as the land is high and the increase in value of land not so important a consideration. Experience and adaptation are important factors in deciding the location of a place to farm, and they should decide, to a great extent, the kind of farming to be pursued. Fertility of land available and reserved, is not an easy matter to determine. Land at present fertile may be much sooner exhausted than land at present less fertile. For instance in new country the high lands are the most fertile, while the low swampy places upon being drained become most the valuable. Roads are a matter of importance as influencing the cost of marketing of crops and sale of land, and comfort of the farmer. Poor roads prevent social intercourse. In that portion of the year when farmers have time to meet together for mutual enjoyment and to discourse subjects of interest and profit, they are very apt to have bad roads which prevent their meeting. This is one of the difficulties in the way of enlightenment of the farmers. Sloughs and lowlands lying between the market and a farm are often a great hindrance, not only from their inconvenience but from their establishing the kind of farms and farmers with whom you will come in contact. From many towns in the West produce can be shipped for the same price as from points half the distance owing to the difference in facilities for transportation.

The size of a farm should depend upon the capital you have to invest in and upon your farm, and upon your skill and ability. The latter is a property that can not be measured so well in quantity and is of different kinds. For instance, one man has the ability to make a "sand-bank" of thirteen acres yield \$4,000 a year in market gardening, while you can find men of equal intelligence who, if compelled to make their living off of that amount of land, would almost starve to death. Again there are men whose whole life is made up of transactions on a large scale. With plenty of capital a farmer of good executive ability can hardly have too much land. The profit per acre does not depend upon the size of the farm, but the capital invested upon the land and the ability to manage it.

Given \$5,000, one-half to be invested in land—where shall it be invested, and what price paid per acre? Shall eighty acres worth \$30 an acre be bought in this State, or shall 480 acres worth \$5 an acre be bought further West? Below are given some points in favor of the latter. The remaining \$2,500 can be employed more economically. Less capital will lie idle in machinery, as there will be more use for it. It can be more economically used, as the work required to use machinery in a large field is proportionately less. Farm buildings on a large farm give better returns for capital invested. The machinery necessary on the larger farm is not much greater than on a smaller farm, and the buildings necessary to protect it do not differ much. Less fencing is required in proportions to the size of the farm. More land is available and the harbor for weeds less. More cattle can be raised off of 120 acres of land that can be bought for \$5 an acre, that can be raised off twenty acres worth \$80 per acre, and more grain can be raised from 240 acres, minus the difference in cost of production. Furthermore, not only a large profit in the aggregate can be made, but in all probabilities, as the country grows older, and the influence of home consumption and cheap labor are brought to bear, a larger profit per acre can be made. For, as before stated not so large a proportion of the land is appropriated by fences and fence corners. More thorough machinery for cultivation and preservation of crops can be used and more economically employed. It costs less to market the crops. How much more does it cost to market 500 pounds of butter than fifty pounds? In the sale of cattle one can deal more directly with the consumer, in buying, more directly with the producer. Time can be taken to watch and carefully oversee the farm-work and other details, while on a small farm the owner is compelled to spend his time in manual labor, which, however good in itself, does not, as a rule, yield as good returns. Time can better be afforded to obtain the best and fullest information about one's calling, and to make personal investigations as to the best of things in one's line to be obtained. The larger farm is the best adapted for the rotation of crops. In the selection of the land for different crops there is a wider range. In short, a larger effect can be produced with the same amount of capital.

Socially, the owner of a large farm has the advantage. He is less isolated from the world. Many farmers on forty and eighty acres of land in the Eastern States are far more isolated from the world and its doings than the owner of a large farm in the far West even. They have more frequent visits and correspondence with purchasers, which acts as a stimulus to better work. Experience of any neighborhood amply proves that the men who settled in a place when it was new and remained there, with industry and economy have become its best, most substantial and trustworthy citizens.

As to the State best to settle in or latitude in which to settle, we know nothing except as a general rule it is probably best to settle in a region approaching the one you are used to. But supposing this point settled, how shall we invest the remaining \$2,500? We

give the following estimate: House, \$800; out-buildings, \$250; machinery, \$650; horses, three teams, \$600; running expenses, \$200—total, \$2,500. In this estimate private expenses are not included, and no stock is provided for as the small capital would not make it advisable to handle any.—*T. P. Hunt, in Western Rural.*

HOW TO SELECT A HORSE.

Dr. E. A. A. Grange lectured before the Agricultural Department of the Minnesota State University on "How to Select a Horse."

A live horse was induced, after much persuasion, to enter the lecture room, and the lecturer illustrated the various points to be noticed in the purchase of a horse.

In examining horses for soundness, said he, it is necessary to proceed in a systematic manner. His own method was to begin upon the left side of the animal, and usually with the front, at the left nostril, dilating it, and looking at the inside for the rose pink color, which is the healthy condition. If the animal is suffering from any catarrhal affection you will observe that the nostril is inflamed. Then you examine the red membranes to see if it is free from ulcerated spots. If there is any doubt whether the animal is suffering from glanders, by holding a lighted candle you can see a considerable distance up. Then, after examining this thoroughly, open the mouth and look at the tongue, to see if it is there and in perfect condition. Then pass the hand down on the lower jaw and examine it to see that there are no tumors in the back part—tumors there indicate glanders and a disease called distemper, which is quite common among horses.

Next examine the left eye, to observe whether the pupil responds with action of light, and if it does it is healthy. To determine that you place a hat or something of that description over the eye and the pupil to contract. Then the eye should present a clear appearance. If it has a cloudy or hazy appearance, with a scum over it, it is not in a healthy condition. It will also be observed of an eye in an unhealthy condition that there is generally weeding or flow of tears over the side of the face. You must examine the poll to see if poll evil exists. The jugular vein should also be examined to see whether it exists, because from careless treatment, from irritating the vein and careless bleeding it becomes inflamed, and after the process of inflammation has run its course it becomes obliterated if you turn the horse out to pasture the head will swell up. Then you pass the hand along the back toward the tail, examining, on the way, the withers for fistula, a disease similar to poll evil, a running sore, very troublesome in its nature; examining also along the spine for collar galls.

Then, in proceeding to examine the fore leg, first of all you examine the shoulder for sweeney, which is a wasting of the muscles of the shoulder. If the wasting has proceeded to any very considerable degree the action of the shoulder is plainly visible, and it is often thought by casual observers that the shoulder is out of joint. After examining the shoulder, examine the elbow to see if the condition called capped elbow exists. It does not interfere with the horse's usefulness, but looks

ugly. Then pass the hand down in front of the leg. If white hairs are found upon the knee, that indicates that the animal has been down some time or other, and is perhaps a stumbler. Passing the hand down, examine with the fingers the inside of the leg for splint. Then examine the fetlock for ringbone, comparing both feet if there is any doubt about its existence. There are two flexible plates of cartilage around the heels, which sometimes becomes diseased, in a condition called sidebone, which must not be confused with ringbone, one being a disease of the bone, the other of the cartilage. If the plates are flexible they are in a healthy condition. The hoof should next be examined for sand crack, the bottom portion of it, in cleft of the frog, for thrush. Thrush is a disease of the sensitive structure above. Then it is well to take a look at the limb from shoulder to foot to see if the joints are in their natural position, and that the animal does not stand over either at the knee or at the fetlock. Having done so you turn your back to the animal's head and examine the back tendons of the leg. On a well-bred animal they show almost as plainly as if the skin was removed. Then feel to see if the outlines are smooth, and that there are no lumps upon them. Lumps upon them would indicate sprain at some previous time. After examining the fore leg in this manner, pass your hand over the chest, the part from the shoulder back to the end of the ribs. Then examine the abdominal cavity to see if a rupture exists. So far as the general usefulness of the animal is concerned rupture, unless it is a very large one, does not interfere with their every-day work. Still it is not advisable to buy a ruptured animal. Then get an assistant to take up the fore leg, holding it by the toe. The object of this is to throw the weight of the body so that it stands firmly upon its hind legs. Then examine the hind leg, passing the hand down until you come to the point of the hock. Examine there for capped hock, which, although it does not interfere with the usefulness of the animal, yet it indicates a kicker. Look also for curb, which is a sprain of the short ligament which passes down from the hock, say four or five inches, and for bog spavin. Bog spavin seldom does any harm, but in an animal required for road purposes the disease is often serious and troublesome. Then examine for bone spavin toward the inside at the front of the hock. Stand about three feet from the shoulder and look from the inside of the hock, and if the line is ordinarily straight it is not likely to exist. You then pass the hand down the front of the hind leg and examine carefully for ringbone, the front leg being up all the time. Side bones do not occur in the hind leg. Examine also for thrush and sand crack. Having made an examination of the left, you proceed to the front and examine the right side in exactly the same manner. Then stand behind the horse a few yards, and make an examination of the hindquarters and see whether it is hipped, so that the hip on one side is less than it is on the other side, and the animal is said to be down in the hip.

In gray horses it is advisable to make a careful examination of the urinogenital organs.

There is a very troublesome disease peculiar

to these animals, consisting of a tumor, sometimes of considerable extent, a collection of thin mucous-like substance in which is the coloring matter of the skin. These tumors do not necessarily interfere with the usefulness of the animal, but they are unsightly and will interfere with the sale. Having then examined these parts, a look over the animal should be carefully taken to see if anything has been passed over.

Next test the animal's wind. It is well to let the animal have a little hay. In some cases of heaves there are various substances which are given to allay the symptoms temporarily. When the bowels are empty the heaves are scarcely noticed. A pail of water or three or four pounds of hay should be given. Then you examine the larynx or organ of the voice. Sometimes the larynx do not open and shut as required when the animal is unhealthy, and the air goes through with a roaring and whistling sound. After testing its breathing apparatus, it is well to throw a little hay upon the ground to see whether the lips are sound. Sometimes they are paralyzed and the animal can not gather its hay properly.—*Planter's Journal*.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The regular meeting of the Agricultural and Horticultural Society was held on Monday afternoon, August 6, a fair attendance being present.

The meeting was called to order by the president, Henry C. Resh.

In the absence of the secretary, Joseph F. Witmer was chosen secretary *pro tem*.

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

Mr. Cooper, of the committee appointed to attend the meeting for the election of trustees of the State Agricultural College, read the printed report of the committee's trip.

Crop Reports.

Mr. Cooper said the hay crop was the heaviest in his section he had ever known, but it was not of the best quality; the harvest has been nearly equal to that of last year; early potatoes were right good; corn has come out well and promises a full crop; young clover was never better than at present, and pasture is very abundant; the prospects of the apple crop are very poor; peach crop is quite good, and pears are also better than he had anticipated; grapes, promised well early in the season, but they are now rotting badly and the mildew is affecting them. The rainfall for June was 6 6 10 inches; for July it was over four inches.

Mr. Kendig said the hail did considerable destruction to the tobacco crops in northern Manor, from 75 to 100 acres of tobacco having been partially cut up. The wheat crop was good; but the fruit crop will be light. The rainfall for June was 6 4-5 inches and for July, 4 9 10 inches.

Mr. Hiller did not think the corn crop was going to be a full one, for several reasons; first, it was slow growing, and second, it was damaged considerable by floods; tomatoes are not ripening well, but potatoes are growing fast; the fruit crop will be very poor, and he will not have one-tenth of an apple crop out of his orchard of over 800 trees.

Mr. Cooper corroborated most that had been said, except as to the corn crop, which he said was unusually promising in his section of the county; wheat yielded from 30 to 38 bushels per acre; the hay crop was unusually large, but poor in quality; as to tobacco he had never seen a better growth at this season of the year; the fruit crop will be poor, al-

though pears may turn out better than was expected several months ago; clover is remarkably good.

Mr. Resh, of Pequea, reported a similar state of affairs in his section.

One of the members having asked as to the best time to plow clover under—when green or when ripe? Mr. Cooper said there was a difference of opinion on the subject. Some think it is better to do so before it is ripe, as it then has more strength; others plow it over after it is ripe, because the seed may make plant food.

Mr. Resh said there were very few seasons when it was possible to plow clover dry. The seed when turned over will be beneficial as a fertilizer.

Mr. Buckwalter, of Salisbury, said that two years ago a neighbor plowed down clover just as it was going to seed, and he had next year the finest crop of wheat he had ever seen. As to crop prospect he reported about the same as the other gentlemen.

Mr. Reist reported very favorably for all crops, except tobacco, which will not be full, and which will also be foxy to a greater or less extent.

Mr. Wood said the corn in his section was pushing out very well; wheat and oats were about as previously reported.

S. P. Eby said his grapes were doing very well, and he would have a full crop; peaches also promised a large crop. He was of the opinion that the ground in the orchards should be cultivated every year. He asked whether there was a remedy to prevent the rotting of plums.

Mr. Hiller did not think there was a remedy, for he was of the opinion that it was caused by the atmosphere. If the trees stood on ground 400 or 500 feet above the ordinary level he did not think they would rot.

Mr. Engle partly agreed with Mr. Hiller, but he thought some varieties of plums were more apt to rot than others.

The Apple Question.

Casper Hiller, to whom had been referred a question as to whether it would not be better to go to the Southern States for our winter apples, replied that in his opinion it would not. He had experimented with a few varieties, and did not find that they did very well.

Mr. Engle agreed with Mr. Hiller. He thought we had plenty of apples in this county which would do very well provided the proper care was taken of them.

Mr. Eby referred to a man who had a forest planted on the north of his apple orchard, and he took occasion to cultivate his trees. He also asked whether the plan of grafting had not something to do with unhealthy trees.

Mr. Hiller replied that he did not think this was the case, and he attributed the deterioration of the apple crop to atmospheric causes.

Mr. Engle was in favor of grafting, but from healthy trees only, as the operation aided the growth very materially.

Mr. E. S. Hoover was of the opinion that the increase of insects had more to do with the decay of our apples than any other cause.

Mr. J. G. Rush also spoke on the above subject, and gave as his opinion that the practice of allowing swine to run about the orchards was a good plan for keeping the orchards in good condition.

Mr. Witmer said Mr. Rush's plan might be good for the apples, but he did not think it would be good for the pork. He always found that when he allowed his swine to run about they would make no growth.

New Business.

Dr. Bollinger, of Lancaster, was elected a member of the society.

On motion of Mr. Cooper the secretary was instructed in the future to leave the minutes in the room.

Mr. Engle amended by instructing him to mail them to the society in case he cannot be present.

Mr. Eby asked what moles eat—insects or plants? Mr. Hiller replied that he had seen many mole hills, but he never knew of them to destroy plants.

Messrs. Hunsecker and Hoover were appointed a committee to report on the exhibit of fruit, and after examining it awarded first premium to Casper Hiller for the largest collection and first premium to Mr. Engle for the best plate.

After some time spent in social intercourse the meeting adjourned.

THE FULTON FARMERS' CLUB.

This club met at the residence of Solomon Gregg, August 14, 1883, the following being present: Joseph Brown, Lindley King, Montillion Brown, Wm. King, C. C. Cauffman, Day Wood, Mrs. Dr. Sides and daughter, Mrs. Stewart, Joseph Jenkins and wife, Mrs. David Widley, and several other ladies. The members were all accompanied by others of their families, and including the visitors made quite a large company.

The minutes of last meeting were read and approved.

There being no specimens to exhibit, Wm. King asked the question, "Where he was going to apply 400 to 600 pounds of fertilizer to the acre, would it be advisable to drill all of this quantity in with the grain?"

The members were all of the opinion that it would be better to plow a part of this down and drill the balance. Sol. Gregg asked what is the best way to destroy plantains in the yard? William King replied that he had seen in some paper that by dropping sulphuric acid on this weed would destroy it. Several others thought the only and best way was to pull them up.

Jos. Brown asked: "What kind of wheat do the members intend to sow this fall?" Jos. Jenkins said he has been sowing the Italian variety for several years; he liked it very well, and intends to sow the same this year. Several of the members said they intend to sow the same, but all present except one still stick to the Foltz variety. One member intends sowing some old Mediterranean.

Day Wood asked: "What will make the best kind of fence to build across meadows that flood over!" Several present thought barbed wire would make the best as it was small and offered less surface for rubbish to collect on and if they were broken would not float away. Others' ideas were more on the floodgate principal.

The late floods of this neighborhood having been so disastrous to bridges, led Wm. King to ask, if bridges built close to the water and substantially built and bolted down would not stand the floods better than the common way of building them? Some thought it would.

Ment. Brown said he has a bridge on his farm that has stood successfully all the high water so far. The bridge is about as high as those on each side of it on the same stream that have been taken away.

Mr. Brown attributes this to the solidity in building it. He first imbedded very large logs to start the abutments on, which are made of very large stones. He then puts a large bolt running through the bed logs and the sleepers on top of these, thoroughly holding the bridge together.

Montillion Brown asked what time members intend sowing wheat? From the 15th to 20th of September was the general intention.

Lizzy Wood asked whether we can use too many hops in making yeast? Mrs. Stewart thought there can be too many used, as it would make the yeast bitter. She used one handful of hops, one quart of water, three tablespoonfuls of flour, one tablespoonful of ginger and one cup of yeast. Mrs. Thomas Griest's recipe was: Two handfuls of hops to one quart of water; boil well and have flour enough to make a batter, to which add one teaspoonful each of ginger and molasses; pour the liquor boiling hot and when sufficiently cool add one cup of good yeast. One cup of this yeast will be sufficient for a large baking.

The club then adjourned for dinner and after doing justice to the good things prepared by the hostess the male members took a walk over the fine farm of the host, viewing his crop, stock and buildings, after

which they walked to the canning establishment of the Messrs. McSparran near by. The gentlemen are just starting in this business. They have put up a building 85 by 30 feet with scaleshouse attached and fitted it inside with all the improved machinery pertaining to this branch of business. If they succeed in filling all the cans on hand they will certainly do a large business. We wish them success.

After reassembling the yeast question was again brought up amongst the ladies and from what the secretary could catch each one seemed to have a different way of making yeast, and as all make good bread one would suppose the receipts were all equally good.

The minutes of the last meeting held here, were then read, and criticism called for. The host was complimented on the fine appearance of his farm and crops.

Mr. Gregg has planted a quantity of sweet corn and tomatoes which he expects to dispose of at the cannery near by. The club would be pleased if he would keep some accurate account and report if these crops can be raised with profit at the prices paid by the cannery.

The host had read the address of the president of the Agricultural Association of Lancaster county, and then read an article giving his own ideas regarding the value and cost of barnyard manure compared with those of South Carolina rock, contending that he can keep his land in good condition by the use of commercial fertilizers and sell his hay, straw and corn, and the cost will not be as great as the barnyard manure.

This is a subject on which many farmers would differ with Mr. Gregg. There seems to be a lack of knowledge regarding the cost of barnyard manure. It is certainly a subject of great importance to farmers.

Lizzie Woods read an article describing the way in which tomatoes were introduced into this section of country. Mont. Brown read a letter he had received from Joseph Roman, a former member of the club who settled in central Missouri last spring. This letter was very interesting (as all Mr. Roman's letters are). The club would be pleased to hear from Mr. Roman again, and extend their sincere good wishes for his success in his undertaking.

Adjourned to meet at Wm. King's, September 1, 1883.

POULTRY ASSOCIATION.

The regular meeting of the Poultry Society was held Monday, August 6th, ten members being present.

In the absence of the president, Mr. M. L. Grider, of Mount Joy, presided.

Mr. Long reported that the debt had all been paid except \$30, and that there was \$5 in the treasury. Several persons still owed for their stock, and when they pay their subscriptions there will be enough money in the treasury to pay all the indebtedness.

It was reported that arrangements had been made with the persons who purpose holding a fair here next month by which the society would realize a rental of 25 cents for each poultry coop belonging to the society which is used at the fair.

The following persons were elected to membership: Drs. S. T. and M. L. Davis, D. McMullen, Esq., D. M. Myer, C. F. Stoner, Dr. B. F. W. Urban and Christian Musselman.

Adjourned.

AGRICULTURE.

Tropical Farming.

Mr. Alfred Trumble describes the farming of the tropics in the *American Agriculturist* for August, from which we clip the following:

There is but little dignity about farming in the tropics. It is true, there are great plantations of sugar and coffee, but the owners of them are either companies, formed abroad, and represented by overseers and officers, or proprietors who are far too

aristocratic to touch a hoe-handle, or harness a team. The white man does not work in the warm latitudes. The farmer proper of the tropics is in the main little better than the slaves, whose place he occupies. In the West Indies he is invariably a negro; on the continent of South or Central America a half breed, or rather a hybrid, the result of a couple of centuries of Indian, Spaniard and negro cross-breeding. But wherever he is he is always wretchedly ignorant and poor. He always farms in a very small way, and by the most primitive methods. An acre of ground constitutes a large farm. He never plows, the hoe and spade being his only tools. He raises yams and kindred indigenous vegetables, and very good crops of them, too, for he has a fertile soil to aid him. He never plants on poor ground. If he lives near a running stream he generally has numerous trees of the banana and plantain. Though these grow wild in the tropics they are improved by cultivation. The wild bananas root close to the water's edge, and a freshet may carry the plants away. We have often seen a rude canoe slip by on some South American stream at early morning, carrying an old squaw, in a scarlet cotton gown, and a cart-wheel hat, with a roll of tobacco-leaf between her teeth, and two bunches of bananas for a cargo. These bunches are all she has to sell, and she will travel twenty miles to dispose of them. The old woman is never without a naked boy and a lean dog for company, and when the tide is fair the party float along, carried by the current, and propelled by the wind blowing on a big plantain leaf, which the boy holds upright, for a sail.

No more picturesque or wretched picture can be conceived than one of the little farms of South or Central America. A hut of palm boards, with a rotten roof palm branches, swarming with bats, scorpions, and other vermin, constitutes the farmer's home. The floor is of earth, the beds are frameworks of boards, on which the inmates stretch without the effete formality of undressing. Hammocks are not as often seen as one would fancy. All travellers, however, carry them, and for a dime obtain the privilege of slinging them from the beams. Many farm houses are mere sheds, with the sides open to the winds. The farms themselves present none of the pleasing aspects of cultivated ground. The different crops grow in patches, it is true, but rank, unweeded, and without care. Nature provides a soil so rich that man needs to give but little labor; when, after years, the ground is worked out, the farmer opens another patch, for all is free.

Such a land as this would be a paradise for the intelligent and energetic Northern farmer, but for the fact that in this encraving and malarial climate hard labor is deadly. The white man, who settles here and works as he is accustomed to labor in the cooler climate at home soon dies, and only he who adapts himself to the listless climate survives.

Breaking up Land.

A correspondent of the *Iowa Farmer* has been utilizing his sheep in breaking up land. He says: "My flock consists of about 500 sheep. Two years ago I fenced in about 150 acres of wild prairie and used it for sheep pasture. The pasture was good until last summer. I did not think for one moment, but that the blue, joint grass was all right (it has immense and numerous roots, which are sent down deep in the soil), and I suppose was good for ten or fifteen years' pasturage, but I incidentally discovered, last fall, that the close pasturage of the sheep had killed it, the roots were rotted, and on putting in the plow the mellowest soil a farmer could desire was turned up. My sheep, in two years, had broken over 100 acres. I had it plowed, and in hiring some done, I found the party would prefer plowing in this pasture to "back-setting" last summer's breaking. I estimate the value to the 150 acres added by the sheep at \$600—\$200 in killing the prairie grass, and \$400 in their manure. I suppose it is of greater value than this, but it is certainly this. Of course, breaking prairie with sheep is another and new source of profit in these most valuable animals on the farm. I just pulled down and removed over

two miles of six wire, three smoothed and three barbed wire, fences, and just as soon as the frost is out I shall fence a new pasture on the wild and unbroken prairie for my sheep. On looking it over I find my fencing cost me \$250 per mile. In two years I have got back \$300 per mile by pasturing my sheep on the land fenced. Looking at it in this light it seems to be quite a profitable thing to pasture sheep, and it is a new idea to me. My farm is on the "slope," in Western Iowa.

Early Plowing for Fall Wheat.

The first object gained by early plowing, is time for the proper preparation of the seed bed. All possible fertility should be made readily available. To be so, it should be soluble, and division aids solution. The ground becomes hard in July and August, and if plowing is delayed too long, the soil breaks up in hard lumps. If plowed early, it will turn up moist and fine. Rain and air are nature's two great disintegrating forces.

Seeds germinate quickly and plants grow rapidly in a firm seed bed. The increase of insect enemies of wheat makes late sowing, coupled with rapid, vigorous growth, desirable. Hence the importance of a firm seed-bed, which also prevents much freezing out of the plants. To make the seed-bed firm, it must first be fine. It is not a hard soil, but compact, fine soil that is desired. It may be compacted with the roller and harrow; but if the farmer, by early plowing, can gain the aid of a heavy rain, it will save him much labor, and it will do the work of preparing the soil far better than he can alone.

Another object gained by early plowing is the destruction of weeds. They are robbers of the wheat, and the sooner their growth is stopped by plowing, the less plant-food they will take from the soil. Early plowing will destroy them before they mature their seeds, and thus prevent perpetuating their kind. Late plowing admits of a large growth, and when this is turned under by the plow, it is impossible to compact the seed-bed, and the green manure affords a harbor for enemies.

Early plowing admits of a better application of manure. Manure is most needed in autumn, and to be at once available to the roots of the young plant, it must be fine and near the surface; not on top of the ground, but thoroughly incorporated with the upper layer of soil. If the ground is plowed early, the manure can be applied to the surface, and the work of preparing the seed bed will fine it and mix it with the soil. Commercial manures should be sown with the grain.

Early plowing admits of atmospheric fertilization. Whether it directly adds the elements of fertility to the soil or only frees and unlocks that which it already possesses, is immaterial. Plowing the land exposes a greater surface and permits of the easy passage of the air into the interior of the soil.—*American Agriculturist for August.*

Best Time to Cut Grass for Hay.

Grass should be cut before the seed has matured, except when grown for the seed. Grasses for hay, as a rule, are at their best when in blossom. Clover is usually cut while in full blossom, though there are cultivators who wait until a few of the seeds begin to dry up and the reproductive functions are being brought into play for the maturing of the seed.

There are exceptions to this universal rule of cutting grasses for hay while in bloom, in the cases of some of the natural grasses. Crested dogtails for instance, has been proven by analysis to be an exception; so has orchard grass, which at the time the seed is ripe and at the time of flowering is, in regard to its nutritive qualities, as seven to five.

It has also been proven that the stems of timothy contain more nutritive matter when the plant is nearly ripe than at the time of flowering. But it has also been decided that the loss of aftermath, which would have formed had the plant been cut in blossom, more than balances the gain in the ripening seeds.

While there are different times for the different varieties of grasses, the time of flowering is the general indication for the harvest to begin. At this season the saccharine juices that go to form and develop the seed are in the stalk and leaves, and if the grass is then mowed it must of necessity be palatable and succulent.

Another argument advanced for cutting grass before the maturity of the seed, is that when the seed is allowed to form the vitality of the grass becomes impaired, a heavier draft is made upon the soil, and the meadow, in consequence, soon runs out.—*N. Y. World.*

Avoid Farm Mortgages.

Mr. H. A. Haigh, gives the following wholesome advice on mortgages to farmers in the *American Agriculturist* for August :

Mortgages are necessary and beneficial in civilized society, but there are unpleasant features about them. They often enable a man to accomplish what he could not otherwise do, and they also involve a man who would have been otherwise successful. They often enable a man to get out of trouble which he could not otherwise avoid, and they perhaps equally often make miserable a life which would have otherwise been happy. It is easy to get them on to the farm, but it is not always so easy to get them off. Farm mortgages are about the best investment that capital can find. Investors generally like them. They partake of the nature, permanence and other substantial qualities of real property, but are relieved from many burdens imposed upon land.

Therefore—1. Do not mortgage the farm unless it seems absolutely necessary. But, as a general rule is less valuable than a particular one, it may be well to specify, by adding: 2. Do not mortgage to build a fine house. By so doing you will have to pay money for an investment which does not bring money. 3. Do not mortgage the farm to buy more land. Where there is absolute certainty that more can be made out of the land than the cost of the mortgage this rule might not apply. But absolute certainty is rare, mistaken calculation is common. 4. Do not mortgage the farm unless you are sure of the continued fertility of its soil. Many persons borrow with an expectation of repayment based on an experience of the land's virginity only, which, on failure, may leave the land less productive, and the means of repayment thus be removed. In this way trouble begins which may result in the loss of the farm. Keep very clear of mortgages.

The Crops of the Country.

Our commercial prosperity is based on the crops and the crop situation, as compared with previous years, may be briefly stated by giving the crops of past years and the expectations for this year. The wheat crop of the United States in 1877 was 365,000,000 bushels; in 1878, 420,000,000 bushels; in 1879, 440,000,000 bushels; in 1880, 498,000,000 bushels; in 1881, 355,000,000; in 1882, 515,000,000 bushels. The expectation for this year (after making all reasonable allowances for damage to the winter wheat in Ohio, Indiana and Illinois, and for drought in that part of the Red River Valley in Minnesota and everywhere else in the Northwest) is not less than 450,000,000 bushels. The corn crop, which is really of as much value as all the other grain crops put together, presents the following record, viz: Crop of 1877, 1,345,000,000 bushels; in 1878, 1,388,000,000 bushels; 1879, 1,548,000,000 bushels; 1880, 1,717,000,000 bushels; 1881, 1,194,000,000 bushels; 1882, 1,617,000,000 bushels. The present prospects of the corn crop are more favorable than at this time in the season for several years. The increase of acreage planted this year is 2,500,000 acres, or 38.00 per cent. With an average yield per acre the total yield, the total area should this year yield at least 1,750,000,000 bushels, and with a good fair yield over 1,800,000,000 bushels. The *New York Evening Post*, from which we take the above statement, says: It will be seen by these prospective figures that, as far as the crops are concerned, the prospect for railroad

traffic was never better than at present. It would require the most extraordinary change of weather to disappoint the expectations as above for the corn. As for the wheat crop, it is now past all danger of any further serious damage. These facts, however, do not seem to count for much in the general demoralized condition of the stock market, though they are having their effect upon the general prospects for trade.—*Philadelphia Ledger.*

The Old-Time Farmer and His Ways.

The grandfather of the present-day farmer for every day had a linsey-woolsey suit, woven, cut and fitted by his wife; but for Sunday his glory was a suit of thick, black broadcloth, kept religiously clean and handed down to his son as an heir loom. Neither himself nor family bought clothing, since the farm produced all that was needed, and he thought himself ruined if he had to spend more than twenty dollars a year for necessary articles which he could neither raise nor make. He read little, and books were scarce, but he talked much, and every item of evidence points to the fact that he was the most inquisitive man of any country or age. Every foreign traveler who visited New England in the last century has something to tell of his sufferings at the incessant questionings he was forced to endure. The tavern-keeper, the farmers along the road, the passers-by all plied their questions, and in spite of his reluctance, usually extracted answers. Thus the honest farmer kept himself informed at the expense of his neighbors, but in spite of his life of gossip he was as punctilious in all matters of devotion as could well be imagined. A drama was to him a device of the devil, a novel was an abomination. He seldom laughed, never jested, never spoke or thought of dancing without abhorrence, nor ate meals cooked on the Sabbath. Christmas and Easter and Good Friday were to him snares set by the Papal Antichrist. His children were rigidly brought up in the same way as he himself had been. The boy attended the district school for two months in the winter time, when there was a "master" who could do the proper amount of flogging; in the summer the boys worked on the farm, the "master" was discharged, and a "school ma'am" was employed in his stead. The "master" and the "school-ma'am" boarded round, taking turns with every family in the district, and staying with each a length of time proportioned to the number of children sent. The only orthodox way, then, of getting ideas into the heads of children, was to pound them in through their backs with a stick, and if a "master" ventured on innovations in this particular, the old farmers of the neighborhood soon called him to order. If the farmer's boy was unusually smart he sometimes went to Yale or Harvard, and there was fed on victuals that would now make a tramp fight. A pint of coffee, a biscuit and butter formed the breakfast; Monday and Thursday were "boiling days," the other "roasting days." On "roasting days" there were two potatoes and bread; on "boiling days" there were cabbage, potatoes and pudding; for supper every day there was a slice of bread and a bowl of milk, or the unlucky wretch who was still hungry bought more if he could or went hungry if he could not.—*St. Louis Globe Democrat.*

HORTICULTURE.

The Grape Vine in August.

While grape vines have more enemies than almost any other fruit-bearing plant, they are, with the exception of the little understood "rot" easily managed if taken in time. Mildew is usually prevalent this month. If neglected, but little fruit can be hoped for. Mildew is easily kept in subjection, if sulphur be applied to them in time, as directed last month. If a rain falls soon after sulphur has been used, the application should be repeated. If the vines are kept well dusted with sulphur, the trouble will make but little headway. The insects that infest the vines at

this season are mainly large and solitary caterpillars and beetles, destructive enough, but so scattered that hand-picking is the only remedy that can be applied. Where droppings are seen on the ground beneath the vines, search for the caterpillar that made them. On old vines there will often appear vigorous shoots from the base, or at the root, and anywhere upon the old stem. These, as a general thing, are not needed, and should be removed as soon as noticed. If the laterals continue to push out the new growth should be pinched back, leaving the lower leaf. Where vines trained to a trellis, have been shortened, the uppermost bud will often start into growth. This should be treated like a lateral, pinching it back to the lower leaf, and repeating the operation as often as a new shoot starts. Those who grow grapes to compete for prizes at the various exhibitions, sometimes thin out the berries in the clusters, that the remaining fruit may attain a larger size.—*American Agriculturist.*

Apples for Market.

In selecting early apples, it is important to regard appearance, as such fruit is judged by the eye. A friend told us, a few years ago, that two trees of the "Summer Queen" were the most profitable of any in a large orchard. It is later than some others, but its large size and showy character, it being handsomely striped and shaded with red, caused it to bring the highest price. Another very showy fruit—and one of the most attractive—is the "Duchess of Oldenburg." It ranks, perhaps, as an early autumn rather than as a summer fruit, but is so hardy, productive, and handsome, that it should not be omitted. Among other excellent early sorts are "William's Favorite," a handsome red fruit; "Tetofsky," a Russian apple, now becoming very popular; "Red Astrachan," a beautiful red, but sour apple, and perhaps more generally planted than any other; "Carolina Red June" is similar in color. "Early Harvest," "High-top Sweet," "Large Yellow Bough," and "Summer Pippin," are among the best of the yellow or green apples. We have given a sufficiently large selection for a market orchard. If one wishes choice fruit for home use, he can find nothing better than the "Primate," "Early Strawberry," "Summer Rose," and "Summer Sweet Paradise," but save the second named, they are not so desirable for orchard culture. Selecting early apples, and packing them carefully in new half-barrels, lined with white paper, or in suitable crates, will greatly increase the market returns for this kind of fruit.—*American Agriculturist for August.*

Early Greens for Next Spring.

The city markets in the early part of spring, and often in a mild spell in winter, abound in "greens." and there is no reason why these should not be equally abundant on every farm. Where the meat served is to a great extent salted, green vegetables are not only acceptable, but necessary to health. Cabbage is for many so indigestible, that it can not be eaten, and where this difficulty does not exist, a variety is always welcome. Spinach, the most delicate and palatable of all the vegetables used as greens, can be raised on any good farm land, and with very little trouble. The soil being well prepared by the use of the plow and harrow, mark it off in fifteen-inch drills, and sow the seed rather thickly, covering it with about half an inch of soil. Use a roller, or pat the soil down firmly with the hoe or back of the spade. Some carefully go over the rows and tread down the soil over them. The fall rains soon bring up the plants; they will grow rapidly and be large enough to gather in September or October. For use at this time, the plants, where they are thickest, are to be cut out at intervals, using a stout knife, leaving the remainder room to grow. Where the winters are severe, scatter straw, leaves or other litter between the rows, and slightly cover the plants. As soon as the ground thaws, cuttings may be made, and if this is done so as to thin the plants a second time, the rest will grow all the larger, and be ready to use later. "Sprouts," as it

is called in the market, is a variety of kale, a cabbage that does not head. This is cultivated in the same manner as spinach. If a farmer finds that he has more spinach than can be consumed at home, a few barrels of it will meet with a ready sale at the nearest market.—*American Agriculturist*.

Preparing Fruit for Market.

"Farmers are cheats," we heard a city man remark the other day. "I do not buy a basket of strawberries that has not the biggest and best on top, and when the peach season comes I get a dozen or two of fine peaches at the top, while the rest of the basket is filled with small, green and gnarled fruit; they are all cheats." The very next day after hearing this remark we were among the fruit commission houses, and in one place saw some young men, who had bought several crates of berries to peddle. They had a lot of smaller baskets, to which they transferred the berries from the larger ones they had bought, and as they filled these they topped them with the largest berries with surprising dexterity. We concluded that all the cheating, in strawberries at least, was not done by the farmers. That there is much "deaconing" (the market phrase for topping) of peaches and other fruits, we do not doubt, yet the tendency is all in the other direction. Take peach growers, for example, those who are regularly in the business, and expect to continue it, strive to make their brand upon a crate or basket a guarantee of honest packing. This is insisted upon at all the meetings of peach-growers; only recently we received the transactions of a fruit-growers' society in North Carolina, in which this point, honest packing, was dwelt upon at great length. "Honesty is the best policy," is not a proverb of the highest moral tone, as it implies that it pays to be honest, but the peach-growers are willing to adopt it. In packing peaches the first point should be to assort them, making as many grades as the condition of the fruit requires. When brought to the packing shed, the fruit is at once thinly spread in the shade, in order that it may cool as much as possible. In assorting, any that are at all soft are put aside, to be left at home; then two or three qualities, extras, firsts and seconds, are made, and with the best growers, the packages of each are alike all through. It is allowable to turn the colored sides of the top layer uppermost, in order that the fruit may appear at its best, but not to select large specimens for the top layer. Those who send peaches to market for the first time, will find it to their advantage to observe this rule. In packing grapes for market the box is opened at the bottom, fine large bunches are laid in and the box filled up with smaller bunches. This is done in order that the fruit, when the top is taken off, may present a good appearance, and if the filling is done with good fruit, even if not the most select, there is no harm done. But if, as is sometimes the case, poorly-ripened fruit, and even loose berries are used to fill up, the grower will in time find that his brand is not in demand in the market. The fruit-grower, who expects to continue in the business, can not afford to pack his fruit dishonestly.—*American Agriculturist*.

Pumpkins Among Corn.

Although some farmers reject the long and well-sustained practice of planting pumpkin seed among corn, on the ground that it detracts as much from the corn product as in the profits it adds to the stock of provender, still it is the general method pursued to get a crop of pumpkins. Besides, from our own experience and observation, we have had and seen as good crops of corn with as without the pumpkins. It may appear at first thought as if the land could not sustain two full crops of anything; but this is not so in all cases, as in those where the two crops do not require the same manurial stimulants, inasmuch as a portion at least that one will take up will not be required by the other. Of course, it requires very good land to raise pumpkins; but even in this case, though an extra crop of manure may be needed to

be applied to the corn ground where pumpkins are to be planted, there will be a saving in the element of time, and, instead of one crop from the land in a year, we gather two. The objection that some make that the vines shade the ground while the ground requires all the heat it can get, is not well founded, as the corn itself furnishes perfect shade without the vines, which really can add little more to injure the crop. It is far more probable that the objectors to this double crop who fall in getting all they want, owe their lack of success to poor land, or negligent cultivation, and we suggest that they should change their system by manuring and cultivating more, and then wait and see.—*German town Telegraph*.

HOUSEHOLD RECIPES.

TO MAKE COFFEE.—Mix the coffee with one egg (not beaten), then add half a pint of cold water; mix thoroughly; put in the coffee boiler and pour on one quart of boiling water, and let it boil fifteen or twenty minutes, then set it where it will not boil, and add half a gill of cold water. After standing a moment or so, it will be ready to serve. The strength of the coffee will of course, depend on the quantity used. For very strong coffee use half a pint of ground coffee.

CHOCOLATE.—Heat together half a pint of milk and half a pint of water until they nearly boil. Scrape into this, while on the fire, an ounce of Chocolate, stirring quickly till dissolved. Then boil two minutes.

SNOW CAKE.—One and a quarter tumblers of pulverized sugar; one tumbler of flour; whites of ten eggs, one teaspoonful cream of tartar, one teaspoonful lemon extract. Beat the whites to a stiff froth, mix the sugar, flour, and cream of tartar well together and stir in the whites of egg quickly and put at once in the oven to bake.

ICING FOR CAKE.—For a large cake, sift a half-pound of white sugar with four spoonfuls rose water and the whites of two eggs beaten and mixed well; and when the cake is about cold, dip a feather in the icing and cover the cake. Set it away in some dry place.

COCOANUT CAKE.—Three eggs (the whites of two of them for frosting); two-thirds cup of sugar, two-thirds cup of sweet milk, one and two-thirds cups of flour, one teaspoonful cream of tartar, half teaspoonful of soda. Bake in three round tins, spread frosting on each layer, and sprinkle cocoanut in the frosting.

CORN STARCH CAKE.—One cup of butter, three cups flour, one cup of corn starch, whites of twelve eggs, one teaspoonful of cream of tartar, half teaspoonful soda. Flavor with lemon. This will make two large loaves. For one loaf use one half the quantity of each ingredient. In cool weather it will keep nicely for some time.

GOLD CAKE.—Yolks of three eggs, one cup of brown sugar, three-fourths cup of butter, half cup of sweet milk, two cups of flour, one teaspoonful of cream of tartar, half teaspoonful soda. Season with nutmeg.

CUP CAKE.—One cup of butter, two cups of sugar, five eggs, two teaspoonfuls of cream of tartar, one teaspoonful of soda, three full cups of flour, one cup of milk.

WEDDING CAKE.—One pound of butter; one pound of sugar; one pound of flour; twelve eggs; three pounds raisins; two pounds currants; one pound citron; spice highly; half cup brandy; use brown sugar. This will keep for months, or a year, if well baked.

CORN BREAD.—One quart buttermilk, two eggs, one-fourth ounce saleratus, two ounces butter; stir in meal until the mixture is about as thick as buck-wheat batter. Bake in square tin pans about an inch thick, half an hour, in a hot oven.

SILVER CAKE.—The whites of three eggs; one cup of white sugar; half cup of butter; half a cup of

sweet milk; two cups flour; one teaspoonful cream of tartar; half teaspoonful corn starch; half teaspoonful lemon extract.

SARATOGA GRAHAM MUFFINS.—Take three cups of sour milk, one-half cup of molasses, three small teaspoonfuls of soda and a little salt. Put the molasses in the sour milk and add the soda and salt. Mix in one quart of graham flour, and bake in muffin tins.

SPONGE CAKE.—Beat three eggs two minutes, add one and a-half cups of sugar; beat five minutes; one cup of flour with one teaspoonful cream of tartar, beat two minutes; one-half cup of water with one-half teaspoonful of soda, juice of half lemon, beat one minute; one cup of flour, beat two minutes.

HOP YEAST BREAD.—Take one yeast cake, dissolve in a cup of warm water, with a tablespoonful of sugar; two quarts of the best flour, one large tablespoonful of lard mixed well with the flour. Then pour in the yeast cake, with sufficient warm water to make a moderately soft dough. Knead well. Set it in a warm place to rise until morning, then knead well again. Make into loaves or rolls, and put into the pans, letting it rise again an hour or so. It is ready then for baking. Follow the above recipe, and you will never fail to make good bread.

MUFFINS.—To one quart of milk add two eggs well beaten, a lump of butter half the size of an egg, and flour enough to make a stiff batter. Stir in half pint yeast. Let them stand until perfectly light, and then bake on a griddle, in tin rings made for the purpose. These are merely strips of tin three-quarters of an inch wide, made into rings from two and a half to three inches in diameter, without bottom, the ring being simply placed on a griddle, and the batter poured in to fill it up.

GINGER CAKE.—One cup of sugar, one cup of butter, one cup of molasses, one cup of milk, four eggs, one teaspoonful of cream of tartar, one teaspoonful of soda, four cups of flour.

CORN-CAKES.—Take one quart of corn meal and two tablespoonfuls of common wheat flour (not prepared); add salt to taste, and mix thoroughly with a sufficient quantity of buttermilk to form a batter. Next melt a heaping tablespoonful of lard, stir it with the batter well, and bake on a hot griddle, pouring them thin.

BEST NEW ENGLAND JOHNNY-CAKE.—Take one quart of buttermilk, one teacup of flour, two-thirds teacupful of saleratus, one egg (beat, of course). Then stir in Indian meal, but be sure and not put in too much. Leave it thin, so thin that it will almost run. Bake in a tin in any oven, and tolerably quick.

RICE PUDDING.—One quarter of a pound rice; one quarter of a pound butter, one quarter of a pound sugar, five eggs, a pint and a half milk, a teaspoonful mixed spice. Boil the rice till very soft, and set it away to get cool. Stir the butter and sugar together till very light; add the spice. Beat the eggs and stir them gradually into the milk. Then stir the eggs and milk into the butter and sugar alternately with the rice. After it is baked, grate nutmeg over the top.

ENTOMOLOGICAL.

The Grape Vine Plume.

A caterpillar with a very long name (*Pierophorus periselidictylus*) works in an interesting manner upon the grape vines. About the time the third cluster is forming on a vigorous shoot, the young leaves at the extremity may be found fastened together, making a cavity in which one or more caterpillars find a retreat. The mature insect is a moth of a tawny yellow color, with a very rapid flight. The wings are split up into feather-like lobes, and on this account the insect is known as the Grape Vine Plume. The larva hatch soon after the grape leaves begin to expand. At first the caterpillars are nearly smooth, but after each change of skin the hairs become larger and more numerous. They feed

for about a month upon the tender grape leaves, and then, fastening themselves by the hind legs to the under side of leaves, etc., they change into the inactive or pupa state. A second brood is not known, but if there is one, it can do but little injury.

The method of treatment is hand-picking. The part attacked should usually be removed in the summer pruning or pinching, and therefore the Plume is not very destructive. Sometimes the third cluster of grapes is included in the fold of leaves and silken threads, and if this is to be preserved, care must be taken in removing the unsightly twisted tips of the infested branches.—*American Agriculturist*.

The Sheep Grub.

During the hot days of mid-summer, sheep often huddle together with their noses upon the ground, or in some other constrained position. This is done partly, at least, to secure them from the attacks of the pestering Gad-fly (*Gestrus ovis*), which is the parent of the annoying Grub-in-the-head. This insect is closely related to the bot-fly, that deposits its eggs upon the neck, shoulders and fore-legs of horses, from which they are removed by the teeth of the animal, to allay the itching, and are taken into the stomach, and develop into the troublesome bots. The female sheep gad-fly aims to deposit her eggs in the nostrils of the sheep, and the animals apparently aware of the effects to follow, try to prevent it. If the eggs are laid, the young soon hatch, and the grubs ascend the nostrils, greatly to the distress of the affected sheep. The "worms" attach themselves to the sinews of the nose, by means of hooks like those of the horse-bot, and live upon the mucus secretions of the irritated surface to which they cling. When fully grown, the grubs work their way down through the narrow openings by which they entered, when first hatched, and again cause the sheep much pain. The grubs fall to the ground and burrowing for a few inches, become chrysalids, which develop into perfect flies in about two months. The grubs pass from the sheep in early summer, and the flies come out of the ground from July to September. A daub of tar upon the nose is the best preventative, and should be frequently applied during the summer months. This may be done by sprinkling meal or salt over the tar in a trough, when the sheep will apply it themselves as they eat the meal. Some farmers plow furrows in the pasture, to furnish the sheep a good place to bury their noses. The sheep grub is not fatal, but very disagreeable, and doubtless has a bad effect on the general health of infected sheep. If any one desires to study the grubs, he may find them in many of the heads of the sheep killed at the shambles.—*American Agriculturist*.

Tomato and Tobacco Worms.

The great, green, ugly tomato worm loses a large amount of its repulsiveness when we have seen and known it in its perfect state. How many people have watched with joy and pleasure its hovering at twilight over their flowers, extracting the honey there from, and from its movements have called it the "evening humming bird," little dreaming that this lively little creature and the slow-moving tomato worm were the same thing presented in a different form.

The tomato and tobacco worms belong to a division of the scale winged insects called Sphingæ. By scale winged insects we mean such as the butterfly, from whose wings the scales (frequently called "feathers") may be easily rubbed. To the naked eye these scales appear as fine dust, but under the microscope the butterfly's wing resembles a fancy shingled roof. The Sphingæ in their perfect state usually fly in the twilight. A great many species in the larva or worm state have the habit when disturbed of drawing the head into the first segment, raising the forepart of the body, and striking it violently from right to left. Some species also remain quiet for hours in this raised posture, and Linnæus, the great naturalist, imagined they then resembled the Sphinx of Egypt, so he gave name of Sphingæ to them.

The tomato and tobacco worms are so nearly alike as to be easily mistaken one for the other. They both grow to be the same length, from three to four inches, and are provided alike with a spine or horn near the posterior part of the body. Neither are at all poisonous though held in fear by many persons. They feed alike promiscuously on tobacco, tomatoes, potatoes, etc. The tomato worm is rather light green, with yellow oblique stripes on the sides, while the tobacco worm is dark green, wrinkled somewhat in appearance, and with whitish dots and oblique lines. We have seen specimens of the tobacco worm so dark in color as to be almost black.

When full grown the worms descend into the ground a few inches, and form oval, earthen cells. In these cells they change into chestnut brown chrysalids or pupæ, about two inches long. The tube that contains the tongue of the inclosed torpid moth is bent around so that it forms a good sized handle. Goodly numbers of these pupæ are dug up during the spring months in vegetable gardens, when we have often heard them called by children, "the little brown jugs we find in the garden."

When about to appear in its last and perfect form, the pupa works its way to the surface of the ground, where it breaks open and the imprisoned moth escapes. At first it is very weak, with its heavy body and shriveled wings. So it crawls up a few inches from the ground on whatever it can until its wings have expanded and become hardened. There it rests quietly until twilight when it flies away. The moths of both the tomato and tobacco worms are gray. The wings expand from four to five inches, and are long, narrow, and pointed. In fact the wings of all the sphingæ are long, narrow and pointed, their bodies long and heavy. The bodies of both tomato and tobacco moths are decorated on each side with a row of five large yellow spots. The tongue of these moths is peculiar on account of its length. We have seen tomato moths having a tongue six inches long. Their food is the honey of flowers, over which they hover, and while feeding supporting themselves by the very rapid movement of their strong wings. A cross section of the tongue slightly magnified shows it to be a double tube. When not in use it is coiled up tightly like a watch-spring beneath the head. Now for the distinguishing features. The tobacco moth is a shade darker than the tomato moth, with not so many distinct, black, wavy markings on the wing, and with the body more slender.

The tobacco moth has a white spot on each fore wing next the body; that is wanting in the tomato moth. If you take a tomato moth and hold it with the head toward you, to our eyes a dog's face is plainly traceable on the back of the thorax or middle part of the body; that you can not see on the tobacco moth. There are two broods of these moths a year, the first coming in June and the other in the latter part of August or early in September. They pass the winter in the pupa state. Handpicking is the only practical remedy.—*Alice B. Walton, in Iowa State Register*.

LITERARY AND PERSONAL.

DIRIGO RURAL.—An eight-page imperial quarto, published every Saturday morning, by D. M. Hall, editor and proprietor, No. 11 Central street, Bangor, Maine, at \$1.50 a year, and no reduction to clubs. Devoted to agriculture, domestic economy, industries and general literature. Able, interesting and worthy of patronage.

HOUGHTON FARM.—Experiment department. Diseases of plants, normal condition of cellular structure and peach yellows, by D. P. Penhallow, B. S. New York, 1883. 44 pp. imperial octavo, with four full page finely executed plates, in colors. *Houghton Farm* is located near Mountainville, Orange county, N. Y., and this pamphlet includes Nos. 1 and 2, series 3, and includes two treatises—No. 1, on "The Normal Condition of Vegetable Structure with Reference to Cell Contents," and No. 2, on "Peach Yellows," both by Mr. Penhallow, giving the details of

experiments made during the year 1882, from which we shall make extracts in a future number of the *FARMER*, having received this excellently executed work too late for anything but this brief notice in our present number.

DEPARTMENT OF AGRICULTURE, Special Report, No. 60, on the acreage of spring grain and cotton, the condition of winter wheat, and European grain prospects, with freight rates and transportation companies, for June, 1883. 56 pages octavo, condensed extracts from which will be found elsewhere in this number of the *FARMER*. Of course there is much in these reports that are only of local value to readers, except as consumers.

THE SPRAY.—Published weekly by the Cape May Improvement Company, Cape May Point, N. J., devoted to the improvement and advancement of the interests of Cape May Point and vicinity. Price 5 cents a number. A demi-folio of 8 pages, profusely illustrated, on excellent paper and admirably executed. Interesting to those who can afford to visit Cape May, or sojourn there for the season, and especially those who hold, or desire to hold property there.

DR. FOOTE'S HEALTH MONTHLY.—A demi-quarto of 16 pages, at 50 cents a year, and devoted to moral and physical health. No. 7, vol. 8, for July, 1883, contains a synopsis of the proceedings of the Third Annual Convention of the *INSTITUTE OF HEREDITY*, held in Wesleyan Hall, Boston, Mass., May, 1883, in which there was some plain speaking or what is generally regarded "Avoided Subjects."

WESTERN PLOWMAN, for July, 1883.

CIRCULAR, and list of officers and committees of the *American Pomological Society*, 1883.

GOOD CHEER.—A monthly journal for the people. Published at Greenfield, Mass., by Henry D. Watson. Edited by Mrs. Kate Upson Clark. Subscription, 50 cents a year. Single copies, 5 cents. Devoted to the interests of the home and family, "The strength of a nation is in the homes of its people." A 16 paged, 4 columned, quarto, typographically well executed, and replete with romantic, sentimental, domestic and practical literature, liberally interspersed with choice poetry. The vignette of the title is embellished with a "cuddy" looking bird ('pears to have been on a "lark"), but, nevertheless, a jolly good-looking bird, whose "song brings good cheer." On the whole *Good Cheer* is a capital family paper, conducted with ability and adapted to the wants of the young, the middle aged and the old.

There is one feature of this journal that speaks well for the intellectual status of the community from which it hails, and must prove a chief element of success. Nineteen contributions are certainly furnished by female writers, ten by male writers and ten anonymous; in addition to these the editress herself is by no means idle in that respect. Could we elicit such literary support, it would eminently be to us "good cheer."

TEXAS STATE FARMER.—A 20 pp. quarto, published monthly at Fort Worth, Texas, by the State Farmer Printing Co., at \$1.00 a year, in advance. W. J. Saunders, business manager. Office, Southwest corner Second and Houston streets, next door to Traders National Bank. This is a remarkably neat and well gotten up journal, and the material and the typographical execution are entirely faultless. Its literary contents would be a credit to the most advanced region of our Union, and it be regarded as a true reflex of our agricultural civilization, Texas must be counted in the front rank. No. 3, vol I, for June, 1883, has reached our table, and it indicates that Fort Worth is a place where people *live*, have something to *sell* and know how to produce it and use it. Fort Worth, that only a few years ago—with in our own lifetime—had neither a local habitation nor a name. It is doubtless named after General Worth, a name that became only prominent in the annals of our country, during our war with Mexico. With such journals as the *Texas State Farmer*, and the *Texas Farm and Ranch*, Texas is bound to become an agricultural success.

CATALOGUE and premium list, of the Pennsylvania Horticultural Society for 1883.

THE AMERICAN AGRICULTURIST for August opens with a spirited full-page engraving of the two fastest teams in the world. We allude to Maud S. and Al-diue, belonging to Mr. Wm. H. Vanderbilt, and Edward and Swiveller, belonging to Frank Work. This picture, drawn from life for the *American Agriculturist* by Edward Forbes, is the only one ever executed. The teams are in motion, and present a most animated, breezy appearance. Among the leading writers are: Dr. Stockwell—The Raccoon; A. B. Allen—Improvement of Jersey Cattle; H. A. Haigh—Avoid Farm Mortgages; J. M. Stahl—Early Plowing for Wheat; Joseph Harris—Twenty Years in Swine Husbandry; Dr. Geo. Thurber—Various Horticultural Topics, etc.; Dr. B. D. Halsted—The Liver Fluke, Black Knot, etc.; Orange Judd—Comments on the Markets, etc.; Prof. A. J. Cook—Bee Notes; S. B. Reed—A Double \$2,500 Cottage, with four Engravings; H. A. Hammond—A Dairy Ice House, illustrated; F. Gruudy—A Root Cellar, with eight Engravings; Mary Branch—The Six-winged Butterfly; E. E. Rexford—A Cabbage Cutter. Alfred Trumble fully illustrates "Tropical Farming," and G. R. Halm attractively presents "Summer Days in the Country." Among the 100 original Engravings are those of the Cotton Flower and Boll; A Shoulder Yoke; New York Weevil; "Club footed" Cabbage; Fruit Evaporator; Wooden Bridges; Chicken Yard we find illustrations of the Mourning Iris; Snakes; Tongue Orchis; Paper Mulberry, Coltsfoot, and Cocoa Plum. "The Household" and "Boys' and Girls'" Columns are filled with interesting and valuable matter, fully illustrated. Sundry Humbugs continue to find space given them in this sterling home Journal. The prairie farmers have been favored with a call from one of the editors, who writes at length of his tour through many of the Western States. Published by the ORANGE JUDD Co., 751 Broadway, New York. \$1.50 per year; single numbers 15 cents.

Sparrows on Toast.

The English sparrows, which have been condemned in this State to extermination, twitter as incessantly as ever, and, notwithstanding the law which permits persons to kill them by wholesale, there has been no general onslaught upon them. "It is much easier," said a scientist, who has assisted in the crusade against the sparrows, "to make a law than it is to make away with the little pests. There are millions and millions of them, and they multiply so fast that it will require a hard and unceasing fight to exterminate them. However, in a contest between society and the sparrow, society, backed up by law, should certainly win."

The farmers, truckers and gardeners propose to make an effective fight by going at the root of the matter. They do not propose to waste powder and shot on the bird midgets, because that would be a tedious and uncertain way of ridding themselves of the pests. They propose to destroy the nests and eggs at breeding time. Cruel as this method may appear, it is said to be really the only effective one.

A popular French cook of this city, who knows something about sparrows, says the new law should be bailed with delight by all good livers. The sparrow, he says, is not only good to eat but is really a great delicacy, and in France nothing enjoys greater popularity among gourmands than the sparrow when properly prepared in pot pie or fricassee or on toast. It is a secret of the American kitchen that young sparrows have not infrequently done good service in the seasons when the tender and succulent reed bird has been less plentiful than usual. A well broiled young sparrow is easily mistaken for a Delaware reed bird. All this to a French cook's idea is worth considering when the slaughter of the little birds really commences, if it ever does, and he thinks that if the little pests must go they may as well be put into the broiling pans of the kitchen as to be thrown away.—*Philadelphia Record*.

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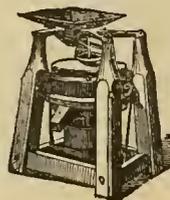


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EDITED BY DR. S. S. RATHVON.

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

Dr. S. S. Rathvon, who has so ably managed the editorial department in the past, will continue in the position of editor. His contributions on subjects connected with the science of farming, and particularly that speciality 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. He is determined to make "The Farmer" a necessity to all households.

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All communications in regard to the editorial management should be addressed to Dr. S. S. Rathvon, Lancaster, Pa., and all business letters in regard to subscriptions and advertising should be addressed to the publisher. Rates of advertising can be had on application at the office.

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jan-5t



Dr. S. S. RATHVON, Editor.

LANCASTER, PA. SEPTEMBER, 1883.

JOHN A. HIESTAND, Publisher

Entered at the Post Office at Lancaster as Second Class Matter.

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PENNSYLVANIA RAILROAD SCHEDULE.
On and after SUNDAY, JUNE 24, 1883, trains leave the Depot in this city, as follows:

WE TWARD.		Leave	Arrive
		Lancaster.	Harrisburg.
Pacific Express*	.....	1:35 a. m.	2:55 a. m.
News Express*	.....	6:25 a. m.	7:30 a. m.
Way Passenger*	.....	6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy*	.....	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia*	.....	9:35 a. m.	11:05 a. m.
Niagara Express	.....	9:45 a. m.	10:55 a. m.
Hanover Accommodation..	.....	9:50 a. m.	Col. 10:20 a. m.
Fast Line*	.....	1:35 p. m.	2:55 p. m.
Frederick Accommodation.	.....	1:45 p. m.	Col. 2:15 p. m.
Lancaster Accommod'n.	.....	2:30 p. m.	4:00 p. m.
Harrisburg Accom.	.....	5:20 p. m.	7:20 p. m.
Columbia Accommodation..	.....	7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express	.....	7:40 p. m.	8:50 p. m.
Western Express	.....	11:10 p. m.	12:25 a. m.

EASTWARD.		Lancaster.	Philadelph
Mail Express*	.....	12:42 a. m.	2:55 a. m.
Philadelphia Express	.....	2:27 a. m.	4:25 a. m.
Fast Line*	.....	5:35 a. m.	7:50 a. m.
Harrisburg Express	.....	8:10 a. m.	10:20 a. m.
Columbia Accommodation..	.....	9:00 a. m.	11:45 a. m.
Seashore Express	.....	12:58 p. m.	3:15 p. m.
Johnstown Express	.....	2:20 p. m.	5:05 p. m.
Day Express*	.....	5:25 p. m.	7:25 p. m.
Harrisburg Accom.	.....	6:45 p. m.	9:45 p. m.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 1:35 p. m., and runs to Frederick. Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m. will run through to Hanover daily except Sunday. Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York. The Fast Line, west, on Sunday, when flagged, will stop at Downingtown, Coatesville, Parkesburg, Mount Joy, Elizabethtown and Middletown. The Johnstown Express from the west, will connect at Harrisburg on Sundays with Sunday Mail east, for Philadelphia, via Marietta and Columbia.

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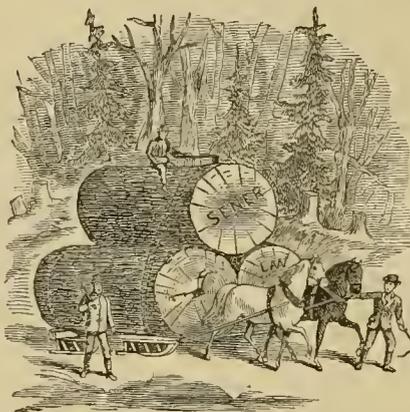
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Jan-3m]

The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., SEPTEMBER, 1883.

Vol. XV. No. 9.

EDITORIAL.

WRITE FOR THE FARMER.

If it were not for the *proceedings* of the local agricultural societies and clubs of Lancaster county, regularly published in the columns of the LANCASTER FARMER, together with an essay or report read, now and then, before one of the home or State societies, or perhaps an occasional paper or statistical table inserted in a local history or a United States census, there would be little or nothing go down to posterity to indicate that Lancaster had ever been a great agricultural county, or that any resident of its territory had ever distinguished himself as one of those who had tilled the soil. But, in these proceedings the names of the individual men who had devoted their lives to agriculture are recorded, their experiences, their sentiments, their successes and their failures, are transmitted to the generations of the far future, in a compact, durable, and accessible form. It is true, other local papers also publish these proceedings, essays and reports, but they are not contained in as convenient and as durable a form as they are presented in the columns of the FARMER. Out of the many thousands of folios published in Lancaster county, how many of them are preserved and bound into volumes? Except the copy carefully preserved by each publisher, precious few indeed. No matter how rapidly and ruthlessly we hasten down the race course of time, and plunge into the vast area of the future, we nevertheless cannot ignore the toils and experiences of the past; and think you the fathers, the mothers, the sons and the daughters of the future will ever become indifferent, insensible, or oblivious of the experiences, the labors, and the sentiments of the parents, grand-parents and great-grand-parents of the past? Not while the human mind progresses will such a state of moral and mental oblivion supervene. History and human experience are constantly reproducing themselves. The thoughts, sentiments and modes of the past are not to be repudiated merely because they are old. Many of the improvements in art, in science, and in mechanics of the present had their incipency in the long past, and are but rediscoveries of principles and manipulations that had their origin in ages belonging to the earlier periods of the human race. We seem to be rushing along beyond all reasonable bounds, discarding all that belongs to the present in pursuit of something new, without regard to its intrinsic quality, only that it is *new*, until our eyes become suddenly opened to the fact that it is *old*—that men's thoughts and minds had been engaged, and their energies exercised on these subjects, long before the present generations were born. When a representative volume, written and printed to-day, is opened fifty or a hundred years hence, it surely would afford more satisfaction, more interest, and also more instruction to the future

reader, to know that the sentiments it contained were made up of the united experiences of many intelligent minds, than if they were the productions of only an occasional one or two, because, the reading world in any age is not so obtuse that it cannot realize that "in a multitude of council there is safety." The world is naturally dubious of *ex parte* testimony, or anything that savors of the *ipsi dict*. It wants to know "if any of the doctors have believed."

No agricultural publication in Lancaster city and county has maintained an existence, by ten years, as long as the LANCASTER FARMER, and if that journal is suffered to lapse for want of moral, pecuniary and literary support, no one in the near future will feel encouraged to initiate a similar enterprise. We have farmers competent to fill our county offices, our legislatures, and other offices of the State, and it seems a reflection upon the honorable calling—which has made them what they are—to practically ignore it, as a subject unworthy of their literary elucidation. Send in your "desultory dottings down," if only five or six lines at a time—always provided they express an idea, and that idea contains a fact.

HISTORY OF LANCASTER COUNTY.

We have examined an advance copy of this work, published by EVARTS & PECK, Philadelphia, from the press of J. B. Lippencott & Co., and it would be safe to say, that no historical work yet issued, relating to Pennsylvania or any portion of the State, makes any approximation to it, either in quality, mechanical execution, or interesting contents. The volume is a Royal Octavo of 1101 pages, and printed in fair type, on fine white calendered paper, elaborately illustrated, bound substantially and ornamentally, and finished with gilt edges. The work includes 77 chapters, devoted separately to each township, city and borough in the county, beginning with the Indian, and subsequent civilized occupation through successive periods down to the present time, including the topography, geology, history, biography, military record in the revolutionary war, the war of 1812, the Mexican war, and the great rebellion. The immense scope of the work may be inferred from the fact that there are nearly nineteen hundred subjects referred to numerically through its copious index. Conspicuously are also noted its agriculture and agricultural products, its manufactures, and its minerals and mining resources, its internal improvements, its public buildings, its educational and literary institutions, its benevolent and religious associations, its civil and political history and the prominent characters who were actors in its past and present development. Although time may demonstrate that there are some things omitted that should have been included to make it more complete, yet we feel assured that the reader will be astonished to find so much relating to his natal domain of which he never

had a previous knowledge. No public or private library, in Lancaster county at least, can be regarded as complete without a copy of this work; and as a book of reference it will be found invaluable. Its value as a historical work is enhanced from the fact that nearly the whole volume is made up from the contributions of local writers and their assistants. In a few days the work will be delivered to subscribers, and those who have not subscribed should avail themselves of the first opportunity to secure a copy. The work is not only a credit to the publishers, but also to the great county and the people, whose history it portrays.

AGRICULTURAL FAIRS.

Sixty-six county fairs in Pennsylvania this year.

The above very small but very significant "slip" we scissored from the variety column of the *Public Ledger* of the 14th, inst. Notwithstanding the local indifference (if not local contempt), it appears there are, in the State of Pennsylvania *sixty-six* counties that hold their annual agricultural exhibitions the present season. While this number of the FARMER is running through the press, the so called *Independent State Fair* is in process of being held in the McGrann Park, in the eastern suburbs of Lancaster city, therefore, we are unable to chronicle its success or failure, but we hope to do so in our October number. We hope, however, for the credit of Lancaster city and county, it shall have been a success. This Fair, our readers are aware, is a personal enterprise, and all the responsibilities of cost and conduct will devolve upon those only who have undertaken the enterprise. We hope that the idea of its being a mere "foreign speculation," will not have prevented any of our people from placing a liberal quantity of their meritorious products on exhibition, because, should it have failed in material, a greater or lesser share of the responsibility will be imposed by the public at large, upon the citizens of Lancaster city and county, and they will hardly be able to shake it off successfully, however little they may have been instrumental in originating it. We know that there are some people who argue that State and County Fairs are merely selfish organizations that belong to the past, and that "they must go." No man is able to say truly what the state of agriculture and the social and domestic condition of the farmer would have been, had these Fairs never been instituted and held. They are infinitely more legitimate and civilizing than base-ball clubs, boat clubs, tennis-lawn associations, &c., which the public press is so much exercised about, and the details of which are more conspicuously spread in its columns than any special inculcations of moral, physical and domestic use.

In conclusion we submit the following from the columns of a most worthy contemporary journal, as germane to the subject:

"If the agricultural fair is not an educator, the fault lies in its management; yet it is a

miserable concern indeed if it bring no new and progressive ideas into the community. And it is not too much to say that a wide awake society is a power for improvement whose scope is not easily measured. The following remark was made the other day by a breeder at the close of a neighboring exhibition: "At the opening of this Fair, ten years ago, comparatively few of our people were interested in the production of good stock, and the idea of registering anything grown here was an almost entirely new one. Now we have as good stock as is to be found anywhere." And he reasonably attributed the change in part to the influences of the fair. The developing influences of these exhibitions operate in many ways. They (1) give the people a chance to see what good stock is like, and to compare it with the average scrubs with which so many parts of the country abound. (2) They stimulate that feeling of pride which prompts every live man to desire to possess as good as the best. (3) They furnish an opportunity for those disposed to improve to compare breeds and make such selections as they may deem best suited to their wants. (4) The premiums and competition have a general awakening influence the effect of which is most wholesome in any community. For these and other reasons, such as the acquaintance which farmers thus make with improved machinery, and the stimulus given to high-class vegetable and cereal production, the fair is a good thing, and no good one should be allowed to die without arrangements being made for something at least equally good to succeed it."

RECIPES.

The recipes, from time to time published in the columns of the FARMER, as well as those published in other journals, are, no doubt, all of them, excellent in their way—indeed in reading over the various compounds we feel that many of them at least, are *very good*—but, at the same time, we cannot resist the notion that a large number of them are entirely impracticable so far as they relate to the wants of small families, and especially the poor. For instance, some days ago we read in the domestic column of a "family paper," a recipe to prepare stuffed egg plants, commencing in this wise: "Take six egg plants," &c., &c., without any qualification whatever in regard to the size of the egg plants. An hour before we had passed along the Northern Market and saw four egg plants which completely filled a bushel basket. Six of those stuffed would have made an ample "Fourth of July Dinner" for twenty men. What is the use of enumerating such an indefinite quantity, seeing that egg plants in our markets vary in size from a common goose egg all the way up to a twenty-five cent watermelon. On another occasion one of these domestic recipes commenced thus: "Take five pounds of the very best beef," &c., &c. Now, only about one family in a hundred can afford to buy the *very best beef*, and a less number still can afford *five pounds*, for any purpose, at a single meal. True, it may be said that any one at all gifted with conceptions of mathematical proportions can for themselves reduce numbers, weights and quantities, so as to bring them within the amounts specifically required, but there are a great many who are not so gifted, and these would be very apt to discard the whole batch of domestic recipes with disgust. Information of this kind should be adapted to the wants and the abilities of the masses and on the plane of domestic economy. It is easier for the affluent to increase the

quantity and quality of ingredients in culinary preparations, than for the indigent to diminish them in their proper proportions. There are many "Cook Books" in the world, but there are very few of them that are adapted to the general wants of the people, and it is they that form a cordon of protection and support around the circles of communities, States and Nations. We still need an economical Cook-book for the million—something to devise nutritious ten or fifteen cent dinners for the people.

'INSECT PESTS.'

Our venerable correspondent, or contributor, J. B. G., of Columbia, seems to have been the special victim of "insect pests" during the present season, and from the proceedings of the September meeting of the Agricultural and Horticultural Society, it will be perceived that one or more of its members makes a somewhat doleful report of the ravages of the "Colorado potato-beetle." We confess that we are not greatly surprised at this, for in each case there is an implied acknowledgement that there has been a relaxation of that "eternal vigilance" which is alone "the price of liberty," or an immunity from the depredations of insect pests.

Every intelligent and vigilant farmer knows exactly *what* to do in order to forestall the potato-beetle, and also *when* to do it. If he neglects this, then the consequences must fall upon his own head. From the antecedents of this insect (with which every intelligent farmer ought to be tolerably well acquainted by this time) if undisturbed in its destructive peregrinations, there is little prospect of its dying out, or becoming obsolete. We are admonished in the sacred oracles that the poor we have always with us, and thus that they are ever the objects of our benevolent ministrations.

In as emphatic a sense the potato-beetle, and many other insect depredators, we have also ever with us, and hence they should become the objects of our most searching and unrelaxing vigilance. During the present season we crushed a number of potato-beetles crawling on the pavements in the very heart of Lancaster city, whilst dozens of people passed and repassed them without seeing them, or heeding them, and it is very possible that many farmers may look upon a single beetle as an object too insignificant to elicit any special attention, and, perhaps, be surprised, later in the season, to find two or three hundred beetles, or their *larvæ*, preying upon their potato vines, possibly all the progeny of the single beetle they may have neglected to destroy earlier in the season. In the degree that the farmer educates himself into the doctrine that the potato-beetle has "come to stay," in that degree will he continue to exercise his vigilance in counteracting the beetle's destructive progress. It cannot be extinguished by the omission of cultivating the potato, because it is not a one-ideaed insect, it can adapt itself to other means of support than the potato alone.

But to return to the lamentations of our friend J. B. G., of course we can only *infer* that the "insect pest," so injurious to his currant bushes and their fruit, is, or was the larva of the "Imported Currant Saw-fly," (*Nematus ventricosus*) and of course, also it is too late to lock the stable door after the horse

is stolen. His sin of omission was in not destroying the few he noticed last year, as by that means he might have prevented the many he had this year, that is, provided it really was the caterpillar of the imported Saw-fly that ruined his currant crop, because, in addition to the aforementioned, the larvæ of the "Native Currant Saw-fly," the "Ohio Currant Saw-fly," also the "Currant Span-worm," the "Spinous Currant Caterpillar," the "Currant Angerona," the "Currant Amphidosis," the *Cecropia* and the *To*, "Emperor Moths," the "Banded Leaf-roller," the "Saddle-back Moth," the "Currant Endropia," and several "Woolly Bears," according to Mr. Saunders and others, have all been detected feeding on the foliage of the currant and gooseberry, although some of them rarely or in limited numbers.

And this is not all, for the canes themselves are often infested by the "Imported Currant Borer," the "American Currant Borer," the "Currant Bark-louse," the "Five-striped Plant-bug," the "Currant Plant-louse," the "Oyster-shell Bark-louse," and the "Red Spider." Whilst the fruit itself is often infested by the "Currant Fruit Worm," the "Gooseberry Fruit Worm," the "Currant Fly," and the "Gooseberry Midge," &c. We refrain from mentioning the Scientific names of these depredators, lest we "make confusion more confounded." Amongst all these, perhaps, the most destructive to the currant and the gooseberry, is the imported Currant Saw-fly, of which we have given the Scientific name above. The coincidence is indeed singular that imported insects are usually more prolific and more destructive than representative native species, indeed, more so than they are in their native country. But the currant-worm yields readily to an application of powdered Hellebore, administered after a natural or artificial shower, or in the morning while the plants are covered with dew. Some prefer a liquid application, say an ounce of Hellebore to a common pail of water. Hot water not too hot to scald the plants, is also recommended as an effective remedy if used plentifully. A tablespoonful of carbolic acid in two gallons of water, is said to prove as destructive to the currant-worm as hellebore.

The green "cabbage worm" which our friend complains of, is most likely the *larva* of the "Imported white cabbage butterfly," (*Pieris rapæ*) and this also, with proper vigilance, may be nearly or quite exterminated by the use of the remedies already mentioned, although the experiences of some have demonstrated that it does not yield as readily to *Hellebore* as the currant worm does, hence *Paris green* has been recommended. If a solid head is developed there is little danger of the poison penetrating it, for the case has been satisfactorily tested by intelligent experimenters in this county; moreover, as cabbage continues to grow late in the fall, the rains will have washed the poison off before the crop is gathered for use. But the parent butterfly of this green worm is so well known, that it perhaps would pay to hire boys to capture them early in the spring, when they only appear in limited numbers; thus resorting to that "ounce of prevention" which is always "worth a pound of cure." But, this worm passes into the pupa form in the vicinity of

the cabbage-patch—some times even adhering to the undersides of the leaves—hence, if the first brood of chrysalids are searched for, gathered and destroyed, it would prevent the second brood, which is always the worst. All, or nearly all the insects aforementioned, have parasites which prey upon them, and in some localities these parasites are said to have nearly exterminated their hosts. Returning to the first brood of the currant worm, they spin their cocoons on the ground, under the leaves and grass beneath the currant or gooseberry bushes, and are not hard to find; but the second brood goes into the ground, spins a cocoon, and there hibernates during the winter, the flies appearing during the following spring when their food plant is in foliage. Insects never will be exterminated until the millennial, whenever that may be, nor will they be held in wholesome check until their histories and characters are better understood by the masses than they are now, and an intelligent and systematic warfare is promptly and perseveringly waged against them. No sane man expects a crop of anything unless he digs, plants, manures, cultivates and gathers it. He must also regard insect contingencies as important factors in his crop calculations, and make the necessary provisions to cope with them.

Through a combination of meteorological, climatic or incidental causes, certain species of insects become almost or quite extinct in certain localities, and nothing may be seen of them for a long interval of years, and then they suddenly reappear in immense and destructive numbers. We may instance that in the years of 1853, 4 and 5 the maple and Linden trees in and about the city of Lancaster were so badly infested and disfigured by a certain species of "scab" or "Barklouse," (*Pulvinaria innumerabilis*) that many of them had to be cut down (notably a row in East King street) but in a few years thereafter they entirely disappeared, and only reappeared the present season, but not nearly so numerous as they were on the former occasion. But this *suddenness* in the appearance, or reappearance of insects is only a *seeming*; for if we have had our eyes about us, it will be found that for two or three previous seasons a few of them had been observed. We noticed a few of these insects in 1881 and 1882, and as nothing was done to destroy them the present season, they *possibly* may occur in greatly increased numbers in 1884, and possibly also they may not; and it is these remote possibilities resolving themselves into mere probabilities, that lull the people into insecurity.

In conclusion, observations upon insect development, their histories, and especially their destructive characteristics should be initiated and conducted by the young and sharp-sighted. As we become advanced in years, in their early stages they are out of the focus of vision, and we only become sensible of their presence when they have advanced very far in their destructive development. On one occasion an elderly lady called our attention to a favorite rosebush, the leaves of which had been skeletonized by the "rose-slug." She had passed it and repassed it daily, and wondered what was the matter with it, and was perfectly surprised when we raised up one of its branches and exhibited some fifty of these

slugs upon it. Again, when discoveries of destructive insects are made, specimens of them should at once be sent to an entomologist, with a portion of the plants or other substances upon which they are found feeding, together with such explanatory observations as they have been able to make on the subject, and this should be done before it is too late to apply a proper remedy. Otherwise, mere complaints will effect nothing.

EXCERPTS.

CABBAGE, if fed in two large quantities, is certain to injure the quality of milk.

A **LARGE** and good "batch" of cookies can be made from this receipt: One cup of butter, two cups of sugar, four eggs, two tablespoonfuls of sour or butter milk, half a teaspoonful of soda, with flour enough to make a moderately stiff dough.—*N. Y. Post*.

NICE Corn Bread: One egg, one teacup of sugar, two cups of corn meal, two cups of flour and two large teaspoonfuls of baking powder sifted together, two-thirds cup of lard, two cups of sweet milk, and one teaspoonful of salt. Should only the half be required, be sure and use the one egg.—*The Household*.

PURSLANE, or "Pussley," as we were taught to call it, is, like green clover, excellent for pigs. Hens in confinement also eat it readily. It is a great nuisance in the garden, and the best way to get rid of it is to cut it off with the hoe or pull it up and take it to the pig-pen or poultry-yard.—*Prairie Farmer*.

HOME is not a name, nor a form, nor a routine. It is a spirit, a presence, a principle. Material and method will not and can not make it. It must get its light and sweetness from the sympathetic natures which, in their exercise of sympathy, can lay aside the tyranny of the broom, and the awful duty of endless scrubbing.—*Cincinnati Times*.

The following remedy, when applied within six hours after a bite from a rabid animal, has been successful in preventing hydrophobia: Make a strong wash, by dissolving two tablespoonfuls of chloruret (chloride) of lime in half a pint of water, and instantly and repeatedly bathe the part bitten. The poison will in this way be decomposed. The fact "that chlorine has the power to decompose and destroy the deadly poison of the saliva of the mad dog" was first published in this country by Prof. Silliman.—*N. Y. Tribune*.

A **CELEBRATED** military surgeon recommends for quenching thirst and sustaining strength oatmeal water as superior to any other drink. Boil a quarter pound of the meal in two or three quarts of water, and one and a half ounces of sugar, if sweetening is desired; use cold in summer and hot in winter, shaking before taking. If a supper is to be missed, or extra demand made on the system, as some day in harvest time, the proportion of meal may be advantageously increased to half or three-quarters of a pound.—*Exchange*.

FOR mice-gnawed trees, a correspondent of the Germantown *Telegraph* recommends covering the wounds with grafting-wax at once, then pile earth and pack it around high above the place to keep covered, as it will settle and wash down some. This, if done early, will save thousands of trees that have been in-

jured by mice and rabbits. Make wax of one pound beeswax to four pounds resin and a half pint of linseed oil. If too soft, add more resin; if too hard, more oil. The wounds must not be neglected until they are hard and dry.

AN old sod will rot more quickly if plowed shallow, provided the work is well done. In the bottom of a deep furrow, especially in early spring, the sod is too cold to decompose rapidly.

THE Hungarian wheat crop is estimated at a full average and the Austrian crop at fifteen per cent. below the average. The amount of wheat available for export is estimated at 5,500,000 meter-centals, and the amount of barley of 3,000,000. It is expected that no rye or oats will be available for export. The International Corn and Seed Market has been opened in Vienna.

A **FEW** small boxes filled with charcoal, ground bone and pounded oyster shells, and placed within reach of poultry, will be of great service during this season, when the fowls are moulting.

TOBACCO smoke prevents the attack of all insects that infest plants, and does no injury to the plants unless they are confined in it for too long a time. While it often keeps off insects it does not always destroy them, though it is fatal to many.

THE Elmira Farmers' Club has been discussing the barbed wire fence question, and arrived at the conclusion that the wire furnished with flat pointed pieces of metal so attached that they project above and below the wire, was a dangerous material to employ, whereas the wire barbs, pointed sharp, were much liable to injure stock in case of accident or entanglement.

O. M. TINKHAM, Secretary of the Vermont Dairymen's Association, has devised some improvements in packing butter. Instead of lining his packing-boxes with muslin he uses a certain kind of brown paper, which is odorless and tasteless, and costs very little. He also lines his cases throughout with a layer of felting half-an-inch thick. This, it is alleged, keeps out the heat most effectually.

ORCHARDISTS are more thoroughly convinced than ever that orchards should be spread broadcast with manure when the trees are set out, that the extremities of the roots may be benefitted. Manuring heavily a certain section about the tree—and this applies also to trees that are in bearing condition—tends to aid only the immediate part affected. It is much better to stir up the entire orchard than to cultivate a small circle at the foot of the tree.

SOUTH CAROLINA is going into truck farming somewhat for the Chicago markets. Arrangements have been made with a railroad running in that direction to take the truck to Chicago and bring back dressed beef. At a recent meeting of farmers and railroad officials 4906 acres were reported to be planted with watermelons, 126 in round potatoes, 15 in cabbage, 18 in cucumbers, and 3 in onions, all within ten miles of the road, and, we believe, all in one county.

ONE of the most satisfactory methods of growing young vegetables or flower plants is

to plant one seed in a half egg shell or in a hollowed piece of turnip or beet filled with a little earth. The plants can be transplanted by simply breaking the shell, or, if in turnips, the receptacle will rot away, supplying nutriment to the plant. This practice is followed to a considerable extent among small gardeners. Plants grown in this manner are sure to live when transplanted.

EXPERIMENTS were made at the Massachusetts Agricultural College in girdling surplus branches which were to be afterward cut away. A revolving knife cut rapidly a ring of the bark a fourth of an inch wide just below the bunch of fruit about midsummer. This treatment was performed on twelve rows of grapes. The enlarged and early fruit sold for \$36 more than the same amount of the common or main crop, the labor being less than half the sum. No injury has been apparent to the vines so treated, the girdled canes being cut away when done with.

A NEW YORK farmer declares that an acre of Hubbard squash will fatten ten more hogs than the corn that can be raised on the same ground. He has gathered from six to eight tons from an acre.

THE striped bug, which destroys young plants, is a great obstacle to cucumber culture. Various expedients are resorted to in attempts at protection against this pest. An ancient remedy is sprinkling the plants and surface of the hills, while wet, with ashes, soot and superphosphate. There is probably no better remedy than soot when this can be obtained in sufficient quantity. Boxes with mosquito netting or glass for the top are cheaply and readily made, and when placed over the hills prevent the bugs from their work of destruction.

A CORRESPONDENT of the Ohio Farmer gives the following about the peach tree borer: "The beautiful blue fly, resembling a wasp, which lays its eggs just at the surface of the ground in the stem of the trees, may be seen occasionally at this time pursuing its allotted task. The simplest remedy, or rather preventative of its attacks, is a piece of stout wrapping paper a foot wide wound around the stem of the tree just above the ground. A little dirt should be drawn up around the bottom of the paper, while the top can be tied with a cotton string.

CATERPILLARS are devouring the foliage of the trees in City Hall Park, New York. It is pertinent to inquire what the festive English sparrows, who their admirers say will eat anything from a grub to a grindstone, propose to do about it.

A QUART of good milk should weigh about 2.15 pounds, or nearly 2 pounds 2½ ounces. If milk is weighed, this rule will give the monthly yield in quarts more exactly than measuring.

MOST fruits need a good deal of water to ripen a full crop, but not many will do well on land naturally wet. They want water, but it must not stay long enough to become stagnant water.

IMMERSION, for at least five minutes, of the vessels in which milk is set will, it is asserted by a member of the French Academy, destroy the organisms which in the form of dark blue spots distress dairymen.

Do not leave any unoccupied land to grow a crop of weeds. When an early crop is removed sow at once any crop that will keep them down. Buckwheat and peas are good, and may be turned under before frost.

SUPERPHOSPHATE, or bone manure, in any form is a specific for turnips or rutabagas. English farmers discovered this and now apply bone manure to their root crops instead of to wheat, as is usually the practice here.

THE *Gardener's Monthly* says that a little windmill, such as some boys can make with a jack-knife, will keep birds out of a cherry tree in case a tiny bell is attached to it. It is better than a stuffed cat or an imitation hawk.

A BUTTER-MAKER, writing to the Iowa *Homestead*, says the best butter color is a pail-full of cornmeal mush, fed warm once a day, the corn to be of the yellow variety; adding that it will increase the milk and butter as well as give a good color.

IT is noted that in Georgia an acre of land, which in 1880 produced only 500 pounds of seed cotton, was manured by having fifty sheep penned on it twenty nights, and in 1881 it produced 1500 pounds of seed cotton. This virtually tripled the annual value of the land.

LEADING members of the Kansas State Horticultural Society agree upon the following distances apart to plant trees: Apple trees, thirty-two feet each way is none too much; pear, standards, sixteen feet; dwarfs, ten feet; peach, twenty feet; plum, ten feet; cherry, twenty feet.

A YATES county, New York, correspondent of the New York *Tribune* reports that a quince bush grafted on common thorn and without being cultivated, has borne regular crops of fruit for over forty years. He thinks that this points a moral to nurserymen, as the quince upon its own roots is uncertain and short-lived.

WHEN an old fence has been removed the crop the first season is no sure test of the quality or fertility of the soil. It takes one year of thorough culture to clear out the sods, bushes and rubbish that accumulate in such places. After this is well done the fence row will usually be as fertile as any other part of the field.

Hog manure should not be used on land intended for cabbage for at least one year before the crop is grown. Its premature use is a mistake commonly made by farmers who draw manure for the garden from the hog pen. Hog manure breeds worms that work at the roots of cabbage plants and render them worthless.

THE SOURCE OF TRICHINÆ.—J. E. Morris, M. D., in the *Clinical Brief*, says in regard to trichinæ in swine that it is a well-established fact that the real source of infection in swine lies entirely in the rat. A committee of Vienna physicians found in Moravia thirty-seven per cent. of rats examined trichinous; in Vienna and its environs ten per cent. The well-known voracity of the hog, and its special fondness for meat, causes it to feed upon the flesh and excrements of other animals infested with these parasites, and especially rats and mice. To prevent trichinous swine, it is highly important to cut off all the sources of disease in the diet of these animals.

CUCUMBERS, according to M. Delice, caterer of the New York Club, should be peeled and put to soak in ice-salt water at least an hour before served. The salt extracts the poison and the ice renders them brittle and easier to be digested.

FOR breakfast try this: Take the skin off a nice piece of salt codfish; wash it in several waters, and lay it on a gridiron to broil. It should be broiled for about twenty minutes, and must be turned often to prevent burning. This is nice for tea also.—*Chicago Journal*.

A CORRESPONDENT of the *Husbandman* uses his buckwheat chaff as an absorbent in cow-stables. One and a half bushels will be sufficient for ten cows over night, keeping them clean and dry. In addition to his own he buys from his neighbors, paying one dollar for a load of fifty bushels.

IT is advisable to give the chicks which are with their mother a feed early in the morning, another feed in the middle of the forenoon, then at noon, followed by a feed in the middle of the afternoon, and again late in the evening.—*Cincinnati Times*.

TO EXPEDITE the making of a lemon pie use hot water in place of cold, stir the cut-up lemon, the sugar and corn-starch or flour and eggs together, as if you were making pudding sauce; then pour in hot water; if the pail or basin containing this is then placed in a vessel of boiling water it will cook in five minutes.—*N. Y. Post*.

IF it is possible so to arrange the order of dinner getting, do not shell the peas until a few minutes before they are to be cooked. They lose much of their fine, distinctive flavor if shelled some time before cooking; and do not wash them. What water is so clean as the lining of the pod?—*Exchange*.

EARLY HOEING.—By this we do not mean hoeing early in the season, but early in the morning. In the early morning the dew is on, and this is charged with an available amount of ammonia, which, of, course, feeds the roots below. If the surface is neglected a crust forms and the air does not circulate in the soil. Get the farm hands to begin work a couple of hours earlier in the morning, and give them the same time at noon to rest.—*N. Y. Herald*.

FARMERS, observes a recent writer, are very negligent in regard to keeping well-informed as to prices. Two cents, or even one cent, on the yearly butter product of twenty or thirty cows, is no small loss for any ordinary farmer. No loss can be averted and gain insured without radical improvement in the manufacture of the butter. The best brings the top prices; the poorest is hard to sell.—*Prairie Farmer*.

CONTRIBUTIONS.

FOR THE LANCASTER FARMER.

INSECT PESTS.

PROF. S. S. RATHVON, Dear Sir:—You can give the Latin names of the hosts of insects that bother the farmer and fruit-grower, but as I am no Entomologist I can only say bugs, worms, caterpillars—some old acquaintances, and some new ones. I do not know if these pests are doing as much injury in other places

as they are doing with me, but such hosts of certain species of insects I have never before seen. I had noticed in the papers for several years, that in some sections some kind of a worm was defoliating the currant and gooseberry bushes, but only last year I noticed some of the leaves on a single gooseberry stalk a few of them eaten off by some insect, but paid no attention to the matter. This summer, however, these worms came in countless thousands and eat off every leaf on all our currant and gooseberry shrubs. They only appeared when the fruit was full grown, so I did not venture to make use of poison, and the red currants on a row through the garden, 80 feet long, hung on the bushes fully exposed to the solar heat, and did not ripen properly. A writer in some paper says, strong soap-suds will kill or drive them away. If this eating off the leaves will continue for a few years, the bushes will die. I fear we will have to say "good bye" to current pies, jelly and currant wine.

A worm on the grape vines is also in millions eating the leaves. The worm I have seen a few every year but never knew them to eat more than a leaf here and there, but this season they take *all* the leaves for yards on the trellis. I pull off the leaves where I see them and crush them under foot. Thousands have I killed in this way, but it don't appear to lessen their number, nor their voracious appetite in the least. The little gall insects on the underside of the leaves too are more numerous than ever.

Apparently a new insect has made its appearance on the wheat, just before harvest; I have not seen it, but they tell me that a worm an inch to an inch and a half long, crawls up the stem, bites off the ear, which drops to the ground. The worms then crawl down another stem, performing the same operation over and over again until the ground lays full of wheat-ears—doing much damage in spots.

Apple worms, codling moths and worms at the roots of trees, are also more numerous than ever before. Then the "yellows" on peach trees are sweeping that fruit from the county, and the early peaches all rotting.

And as to apples, such knotty fruit as we now have, and dropping from the trees half grown—hardly fit for hogs to eat—I have never seen before this season. Fruit growing is getting to be a precarious business.

But on the other side we have no potato bugs to do injury, and there will be a large crop of "murphies," which is some consolation, at least to those who are fond of the tubers.

Cabbage worms, too, are very few, and we may hope for a large return of cabbages, and plenty of sourkraut.

Squash bugs are nowhere, but the vines of squashes, calabash and cucumbers, are running "to the end of creation," if there is an end, but produce no fruit as in former years. Celery is growing rampant, and weeds are not slow.

In general, a prolific season for vegetation of most kinds of vegetables, also weeds and grass, but fruit is scarce. Pears are bearing a fair crop, are cracking and dropping from the trees, half grown. Plums, *as usual*, of no account, and grapes bearing only half a crop, and will probably not come to their usual per-

fection on account of those worms eating off the leaves. Our Bartlett pears are lying thick on the ground, half grown, and none on the trees.

But you may say "I am getting off the track," as this was to be an insectivorous letter, still as insects and vegetables, as well as fruit and grain, are necessary for insect life, it is natural to notice them together. But what is the world, or at least this locality, coming to? If these insect pests continue to increase, and every year bringing us new ones, will, in a short time, have neither fruit nor vegetables for human sustenance; but it is useless to anticipate the evils we know not of, for to predict the "good and evil" in store for us in the future, we might be placed in the same category as the weather prophets who pretend to tell us what the weather will be a year or a day in advance.

"Sufficient for the day are the evils thereof."

Respectfully. J. B. GARBER.
COLUMBIA, Pa., August, 1883.

[The *apparently new insect* on the wheat was probably the "white lined army worm," and those on the grape vines the "Grape Flea beetle," the American Procris," or the "Grape Saw-fly." This loose allusion to insects in August and September, which ought to have been attended to in the earlier part of the season cannot end in very satisfactory results, for, at best, we only can guess what insects are meant.—ED.]

SELECTIONS.

PEAR BLIGHT.

The growing of the pear in grass as a protection against blight, must be upon the principle that cultivating the soil stimulates a more copious flow of sap. In our mind, it is an excessive supply of sap, uncarbonized, that in a sultry, still time starts the blight. Grass, so far as keeping the ground cooler, checks an excessive flow of sap. Our experience is that grass tends to keep or causes the ground to become dryer. And that also is a check to an excessive flow of sap, at a time when the atmosphere is not in motion, but still and not coming in rapidly-changing contact with the trees, leaves and branches, enough to carbonize its sap. At such times we think that the newly-formed cells are surfeited to bursting.

The submitting of a healthy vigorous growing pear branch to artificial heat, equal to the atmospheric heat that they often have to pass through, its effects upon the leaves and soft tissues of said branch will be exactly like that of the natural blight. Small patches of blight at the base of limbs, while the balance of the pear tree seems perfectly healthy and vigorous, I regard as indicative of a previous hot, still condition of atmosphere at a time when there was a large flow of sap, the weather changing, breezes springing up and giving relief by enabling the leaves to utilize sap before the bursting of the new sap-cells became general and the blight extensive.

The pear is a native of a northern climate, and is said to flourish at 57 degrees of North latitude, and even that far north it may not be exposed to as great extremes of cold as with us. As I am told that in Denmark, 55 degrees North, there is seldom snow enough

to run a cutter, and seeding is at times done by Christmas and New Year, and yet Denmark lies from ten to fifteen degrees north of us.

Subject a vigorously-growing pear tree branch to a certain degree of low temperature or so subject it even after the sap has commenced movement therein in the spring, and the effects will be precisely that of pear-blight. Hence, it is suggested that to avoid as much as possible the pear-blight, is to avoid, as much as possible these extremes in their planting, and in their culture and their too rapid growth.

Years ago I was informed that charcoal dust mixed in the soil about pear tree roots was the best preventative for pear-blight. I have since been told by those who have given it a fair trial that with them it had proved a success, and not one have I heard claim that he had given it a fair trial, and that it had not been successful.

I have just read Henry Wilbur's article on "Blight-proof Pears," and then came up the question, "what varieties that are generally cultivated blight soonest, or are more subject to blight, than the Bartlett, Clapp's Favorite and Flemish Beauty?" It would be a source of information to find such a list in the *Telegraph*; also the increasing of the "Blight-proof Pears" list over the Duchess, Seekel, Beurre Clairgeau and Winter Nelis. Can Mr. Wilbur, or any other reader of the *Telegraph*, add to said list?—Z. C. Fairbanks, in *German-town Telegraph*.

FEEDING VALUE OF ENSILAGE.

We have inquiries concerning the feeding value of ensilage, some of which show some confusion of mind in regard to the subject. Bearing in mind a few general principles will help to a better understanding.

First—The value of food preserved in a silo depends very greatly on what was put in—its nature and condition. The material used and the degree of maturity of the crop will greatly affect the value.

Second—Putting grass, cornstalks or other substance in a silo does not add anything to the nutriment contained in the material. We cannot take out what we did not put in. Cutting and storing the green food in a silo may make it more digestible; may and often does make it more palatable than when the food is dried in the open air. Letting the moisture dry from the meadow grass or from green cornstalks in itself, should not make these substances less desirable as food. In fact it does make them less palatable. Preserving much of this moisture in the ensilaged food may be a help.

Third—If fermentation goes on in the silo to any considerable extent there is absolute loss of food value.

Fourth—Reason and experience alike lead us to conclude that we cannot make ensilaged grass or cornstalks alone fully take the place of good grain feed. The latter should be given in connection with the former.

Fifth—Reason and experience alike show that almost any palatable, nutritious, succulent plant, kept in a silo, with reasonable exclusion of the air, makes a palatable and fairly satisfactory food.—*Breeder's Gazette*.

VALUABLE INFORMATION FOR FARMERS.

Tabulated Analyses of Fertilizers Made by Prof. Genth, State Chemist, from Samples Published and Selected in Accordance with the Act of June 28, 1879.

Record Number	NAME OF FERTILIZERS.	NAME AND ADDRESS OF MANUFACTURER.	Soluble Phosphoric Acid	Reverted Phosphoric Acid	Insoluble Phosphoric Acid	Potash	Ammonia	Estimated Commercial Value per ton	Selling price per ton at point of selection
228	Star Bone	J. E. Tygert & Co., Philadelphia			25.05		4.92	47 28	40 00
229	Soluble Pacific Guano	Soluble Pacific Guano Company, Boston	9.33	3.38	2.23	0.49	2.80	37 80	35 00
230	Star Guano	J. E. Tygert & Co., Philadelphia	5.23	2.68	1.35	3.20	3.45	34 56	37 00
231	Corn and Oats Fertilizer	Lorentz & Rittler, Baltimore, Md.	5.16	4.34	1.96	1.61	2.37	30 80	34 00
232	Truckers' Triumph	J. E. Tygert & Co., Philadelphia	6.22	1.03	0.17	3.80	6.40	41 66	53 00
233	Pure Ground Bone	J. Schaal, Erie, Pa.			21.13		4.64	41 60	36 00
234	Pacific Guano	Glidden & Curtis, Boston	6.51	4.63	2.32	1.06	2.64	34 65	45 00
235	Superphosphate	Jarecki Chemical Company, Erie, Pa.	3.20	6.44	4.94	2.41	2.47	36 75	31 00
236	Honest Buffalo Phosphate	L. L. Crocker & Co., Buffalo, N. Y.	3.56	4.15	4.06	0.99	3.81	34 82	34 00
237	Newport's Rectified Phosphate	W. C. Newport & Co., Willow Grove, Pa.	6.22	6.56	2.21	6.34	2.41	43 82	42 00
238	"A B" Phosphate	W. Kedderline, Lumberville, Pa.	5.07	5.18	3.98	2.91	1.72	33 19	35 00
239	Schaal's Phosphate	J. Schaal, Erie, Pa.	3.35	4.65	2.00	1.94	2.86	30 80	32 00
240	Ground Bone	Jarecki Chemical Company			22.34		5.01	44 35	35 00
241	Superphosphate	Chappell & Sons, Baltimore, Md.	6.65	2.20	2.30	2.25	2.88	32 24	34 00
242	Soluble Flour of Bone	Chappell & Sons, Baltimore, Md.	6.84	2.48	2.72	1.12	2.71	31 63	33 00
243	Swift Sure Phosphate	M. L. Shoemaker & Co., Philadelphia	7.45	4.03	2.46	4.47	3.83	44 68	40 00
244	Raw Bone Meal	Whann & Armstrong, Landenberg, Pa.			21.24		4.11	39 88	38 00
245	Acid Phosphate (S. C. Rock)	Walton, Whann & Co., Wilmington, Del.	12.89	0.09	3.53			28 44	26 00
246	Acid Phosphate (S. C. Rock)	Bowker Fertilizer Company, New York	10.03	5.14	2.97			32 72	25 00
247	Hill and Drill Phosphate	Bowker Fertilizer Company, New York	6.68	2.35	3.35	2.72	2.62	33 17	40 00
248	Dissolved Bone Phosphate	Bowker Fertilizer Company, New York	4.61	2.82	4.93	1.23	2.50	29 03	36 00
249	Globe Fertilizer	Haller, Beck & Co., Pittsburg			0.02	1.14	0.04	0 46	12 00
250	Ammoniated Phosphate	Chappell & Sons, Baltimore, Md.	7.87	2.14	1.91	1.35	2.69	32 50	37 00
251	Twenty-five Dollar Phosphate	Baugh & Sons, Philadelphia	5.12	2.27	3.30	0.22	2.09	26 32	29 60
252	Ammoniated superphosphates	Tyson & Sons, Frederick, Md.	7.04	2.25	4.42	2.05	1.85	31 07	38 00
253	Economical Fertilizer	Baugh & Sons, Philadelphia	4.39	2.00	2.05	2.70	1.85	24 96	34 00
254	Acid Phosphate (S. C. Rock)	Baugh & Sons, Philadelphia	6.18	5.04	6.13			27 84	29 60
255	Muriate Potash	Mapes Formula Company, New York				59.97		71 96	40 00
256	Sulphate Ammonia	Mapes Formula Company, New York					25.70	89 95	100 00
257	Dissolved Bone Phosphate	Sharpless & Carpenter, Philadelphia	3.83	4.88	2.01	1.72	1.84	27 53	36 00
258	Exchange Guano	Parks & Co., Baltimore, Md.	7.53	2.49	0.73	2.05	1.66	28 89	35 00
259	Bone Phosphate	Pierson & McDowell, Oxford, Pa.	1.27	4.67	3.07	1.53	0.99	20 87	34 00
260	Acid Phosphate	N. J. Chemical Company, Philadelphia	6.58	5.19	4.32			27 00	25 00
261	Dissolved Bone Black	Mapes Formula Company, New York	11.59	0.07	0.31	0.27	0.74	26 60	31 50
262	T. & P. Acid Phosphate	Waring Manufacturing Company, Calora, Md.	9.81	3.26	3.74			29 13	24 00
263	Philadelphia Standard Phosphate	U. S. Chemical Co., Philadelphia	12.23	3.31	2.14			32 79	25 00
264	Ground Bone	J. Gawthrop & Co., Kennett Square, Pa.			20.47		5.05	42 06	38 00
265	Bone and Potash Phosphate	J. Gawthrop & Co., Kennett Square, Pa.	2.60	4.90	1.89	6.79	0.76	28 12	35 00
266	Baker's Standard Guano	Chemical Company of Canton, Md.	4.52	3.29	5.49	1.14	2.51	30 17	35 00
267	Acid Phosphate	Moro Phillips, Philadelphia	7.47	6.06	4.69			30 81	26 00
268	Colgate Manure	Chemical Company of Canton, Md.	6.56	3.43	5.08	2.40	1.62	32 59	35 00
269	Acid Phosphate	Maryland Fertilizer Company, Baltimore, Md.	8.51	2.43	1.93	1.33		25 02	26 00
270	Alkaline Bone	Maryland Fertilizer Company, Baltimore, Md.	8.97	2.97	2.03	2.74	0.17	29 39	32 00
271	Ground Raw Bone	W. D. Alexander, Oxford, Pa.			21.85		4.71	42 71	38 00
272	E. Frank Co's Phosphate	Coe & Richmond, Philadelphia	9.47	1.45	0.98	0.44	3.18	34 64	38 00
273	Ground Bone	Bollinger & Fry, Seitzland, Pa.			21.65		4.44	41 52	38 00
274	Ammoniated Bone Phosphate	Bollinger & Fry, Seitzland, Pa.	4.54	3.91	2.60	1.87	1.72	28 28	38 00
275	Hess' Phosphate	D. D. Hess & Son, Reading, Pa.	5.07	2.28	1.55	1.64	1.81	23 12	38 00
276	Cumberland Co. Fertilizer, Grade A	Brandon & Co., Carlisle, Pa.	0.13	1.06	0.40	0.89	0.33	5 05	20 00
277	Raw Bone	Brandon & Co., Carlisle, Pa.			24.02		4.31	43 91	50 00
278	Cumberland Co. Fertilizer, Grade C	Brandon & Co., Carlisle, Pa.							
279	Forest City Phosphate	Cleveland Dryer Company, Cleveland, Ohio	1.62	4.20	0.96	2.74	3.48	29 28	25 00
280	Smoky City Phosphate	J. & R. Young, Pittsburg, Pa.	7.46	3.70	2.66	3.88	2.88	35 91	40 00
281	Schilling's Premium Bone	Excelsior Fertilizing Company, Alliance, Ohio	1.91	1.57	2.47	3.88	1.19	24 25	35 00
282	Homestead Nitro Phosphate	E. H. Souder, Soudertown, Pa.			23.05		5.03	45 26	45 00
283	Homestead Phosphate	Michigan Carbon Works, Detroit, Michigan	3.36	5.68	3.68	1.03	2.42	32 18	37 00
284	Ammoniated Dissolved Bone	Ames, Leeron & Co., Waynesboro', Pa.	9.04	1.86	0.40	0.75	2.56	31 14	39 00
285	Unchallenged Bone Phosphate	Ames, Leeron & Co., Waynesboro', Pa.	1.30	5.53	3.94	7.84	4.92	44 59	39 00
286	Bone Phosphate	Ames, Leeron & Co., Waynesboro', Pa.	0.13	4.57	8.58	5.00	3.36	37 46	35 00
287	Acid Phosphate	Walton, Whann & Co., Wilmington, Del.	0.79	6.66	4.57	3.50	1.78	31 81	28 00
288	Keystone Raw Bone Phosphate	Whann & Armstrong, Landenberg, Pa.	9.97	5.50	1.19			31 89	24 00
289	Chester Valley Phosphate	W. E. Whann, Atglen, Pa.	5.07	4.02	2.86	1.15	1.03	26 60	35 00
290	Oriole Acid Phosphate	Symington Bros. & Co., Baltimore, Md.	4.39	4.73	2.90	1.92	2.14	29 41	36 00
291	Oriole Ammoniated Bone Phosphate	Symington Bros. & Co., Baltimore, Md.	9.16	3.85	0.75	0.54		27 27	25 00
292	Oriole High Grade Phosphate	Symington Bros. & Co., Baltimore, Md.	7.52	3.99	0.72	0.64	0.91	27 56	35 00
293	Zell's Dissolved Bone Phosphate	Zell & Sons, Baltimore, Md.	4.21	1.81	0.12	2.10	2.10	22 01	39 00
294	Lobo's Peruvian Guano	Peruvian Guano Company	9.38	3.82	0.82			27 06	28 00
295	Guaranteed Peruvian Guano	Peruvian Guano Company	1.17	8.64	7.18	4.00	6.22	54 81	65 00
296	Oriole High Grade Phosphate	Symington Bros. & Co., Baltimore, Md.	2.15	12.33	3.53	3.01	6.96	61 17	72 00
297	Oriole Ammoniated Bone Phosphate	Symington Bros. & Co., Baltimore, Md.	5.40	1.33	0.15	3.27	1.98	24 43	38 00
298	Oriole Acid Phosphate	Symington Bros. & Co., Baltimore, Md.	9.50	4.37	0.48	0.47	0.78	31 41	36 00
299	Ammoniated Dissolved Bone Phosphate	Symington Bros. & Co., Baltimore, Md.	8.25	4.25	0.68	1.01		26 75	28 00
300	Tip Top Raw Bone Phosphate	Ames, Leeron & Co., Waynesboro, Pa.	1.30	5.53	3.94	7.48	4.92	44 59	39 00
301	High Grade Nitro Phosphate	J. F. Thomas, Cheyney, Pa.	7.14	6.12	2.12	0.74	1.45	34 24	38 00
302	Philadelphia Standard Phosphate	C. A. Robinson, Rockville, Pa.	5.02	4.13	4.23	0.11	1.97	30 41	36 00
303	Globe Fertilizer	U. S. Chemical Company, Philadelphia, Pa.	8.43	7.20	0.69			31 81	26 00
304	Ground Bone	Haller, Beck & Co., Allegheny			0.31	0.12	0.10	86	15 00
305	Pioneer Raw Bone Phosphate	Windle, Doan & Co., Coatesville, Pa.			21.00		5.44	44 24	38 00
306	Rectified Phosphate	J. W. Downward, Coatesville, Pa.	1.80	5.70	1.98	2.10	0.93	22 74	35 00
307	Coarse Bone	W. J. Newport & Co., Willow Grove, Pa.	5.64	6.47	3.76	4.77	3.41	45 64	38 00
308	Fine Packing-House Bone	Thompson & Edwards, Chicago, Ills.			16.73		2.72	29 60	36 00
309	World-of-Good Phosphate	Thompson & Edwards, Chicago, Ills.			26.53		4.14	46 33	36 00
310	Fine Ground Bone	Thompson & Edwards, Chicago, Ills.	3.33	4.52		0.11	4.19	40 27	35 00
311	Fine Ground Bone	Gawthrop & Co., Kennett Square, Pa.			21.05		1.76	41 96	36 00
312	Jarecki's Phosphate	Gawthrop & Co., Kennett Square, Pa.			20.88		4.38	40 39	36 00
313	Pioneer Raw Bone Phosphate	Jarecki Chemical Company, Erie, Pa.	3.06	3.07	6.78	1.92	2.87	33 79	38 00
314	Yarnall Phosphate	J. Yarnall, Media, Pa.	2.42	4.81	1.83	2.55	1.89	24 61	35 00
315	Bone Phosphate	Shoemaker & Co., Ebensburg, Pa.	4.34	5.86	3.49	1.44	2.09	33 64	38 00
316	Acid Phosphate	N. J. Chemical Co., Philadelphia, Pa.	0.06	7.56	6.55	0.20	3.03	32 97	33 00
317	Pure Raw Bone	Whann & Armstrong, Landenberg, Pa.	5.51	8.27	3.82			38 67	22 00
318	Acid Phosphate	Coe & Richmond, Philadelphia, Pa.			22.26		4.76	42 39	36 00
319	Raw Bone Phosphate	Windle, Doan & Co., Coatesville, Pa.	9.62	4.17	1.64			28 89	25 00
320	Dissolved South Carolina Rock	Windle, Doan & Co., Coatesville, Pa.	4.68	7.56	5.59	0.13	2.39	39 72	38 00
321	Bone Phosphate	Pierson & McDowell, Oxford, Pa.	9.17	4.72	0.95			28 54	23 00
322	Soluble Bone Phosphate	Pierson & McDowell, Oxford, Pa.	8.92	2.55	1.67	0.27	3.02	35 01	23 00
323	Bone Phosphate	Moro Phillips, Philadelphia, Pa.	8.45	6.11	2.66			31 25	25 00
324	Dissolved South Carolina Rock	H. Cope, Lincoln University, Pa.	5.54	5.17	2.44	1.42	1.72	30 89	33 00
325	Ammoniated Bone Phosphate	Walton, Whann & Co., Wilmington, Del.	8.10	6.11	2.29			30 25	29 00
326	Dissolved South Carolina Rock	Susquehanna Fertilizer Company, Oxford, Pa.	6.35	5.14	2.38	2.08	1.11	31 27	32 00
327	Pure Raw Bone Phosphate	Susquehanna Fertilizer Company, Oxford, Pa.	9.24	5.00	1.16			29 41	25 00
328	Lancaster Wheat Grower	Susquehanna Fertilizer Company, Oxford, Pa.	5.09	8.57	3.43	1.10	3.51	45 05	38 50
329	Dissolved South Carolina Rock	J. F. Orth, Reading, Pa.	0.52	2.25	0.97	0.92	0.54	9 69	26 00
330	Bradley's Patent Phosphate	Lorentz & Rittler, Baltimore, Md.	9.51	4.00	1.64			28 33	25 00
331	Hill and Drill Phosphate	Bradley, Baltimore, Md.	8.88	2.78	2.11	1.12	3.64	37 65	42 00
332	Pure Bone Phosphate	Bowker Fertilizer Company, Boston, Mass.	4.80	3.73	2.47	2.41	2.54	31 80	40 00
333	Acid Rock Phosphate	H. Cope, Lincoln University, Pa.	4.68	7.14	3.56	1.55	3.08	40 55	40 00
334	Florida Marl	Henry Cope, Oxford, Pa.	8 83	5.68	0.92			29 76	23 00
		J. H. Shireman, York, Pa.			0.15	0.14		29	8 00

335 Complete Bone Phosphate	Allentown Manufacturing Company, Pa.	5.09	5.33	1.60	2.11	1.73	31 35	35 00
336 Pure Raw Bone	Shoemaker & Co., Ebensburg			23.49		1.75	44 82	40 00
337 Acid Phosphate	Henry Cope, Lincoln University, Pa.	6.76	5.66	1.77			32 26	22 00
338 Pure Bone Phosphate	Henry Cope, Lincoln University, Pa.	3.58	6.12	2.96	2.44	2.76	35 54	37 00
339 Dissolved South Carolina Rock	Henry Cope, Lincoln University, Pa.	9.75	5.28	0.91			30 79	22 00
340 Pure Raw Bone	S. R. Diekey & Co., Oxford, Pa.			21.49		5.42	44 76	37 00
341 Dissolved South Carolina Rock	Coe & Richmond, Philadelphia	9.57	3.99	1.61			28 41	20 00
342 Honeybrook Bone Phosphate	E. J. Irwin, Waynesburg, Pa.	5.88	7.22	3.22	0.10	0.82	32 98	30 00
343 Ammoniated Bone Phosphate	H. Weston & Sons, Greenpoint, N. Y.	5.74	3.63	2.35	1.71	2.70	33 06	34 00
344 Unnaued Fertilizer	A natural product			0.08		0.18	32	16 00
345 Tankage	Chicago, Ills.			11.82		6.62	37 35	33 00
346 Excelsior Fertilizer	Carey Bros., Lumberville, Pa.			0.69	1.72	0.11	6 16	45 00
347 Vivorilla Guano	P. de Murquibredo, Baltimore, Md.	0.03	7.11	17.96	0.09	2.66	43 15	30 00
348 Standard Phosphate	Lister Brothers, Newark, N. J.	9.98	1.87	0.81	1.68	3.06	37 60	36 00
349 Ammoniated Dissolved Bone	Lister Brothers, Newark, N. J.	10.06	3.28	0.86	1.35	2.58	38 26	34 00
350 United States Phosphate	Lister Brothers, Newark, N. J.	5.33	1.71	0.65	3.53	1.84	25 51	31 00
351 Pure Bone	Wahl Brothers, Chicago, Ills.			21.44		5.71	45 72	40 00
352 Ammoniated Super-Phosphate	D. D. Hess & Son, Reading, Pa.	7.00	4.45	1.04	1.80	1.77	32 51	35 00
353 Nitro-Phosphate	J. J. Allen's Sons, Philadelphia	5.61	4.64	4.38	0.27	2.11	31 77	38 00
354 Swift-Sure Phosphate	M. L. Shoemaker & Co., Philadelphia, Pa.	7.73	3.85	2.34	4.48	3.29	42 87	36 00
355 Acid Phosphate	D. D. Hess & Son, Reading	9.95	4.74	1.66			39 71	24 00
356 Ammoniated Phosphate	Bowman & Zeigler, Stewartstown, Pa.	2.35	4.23	3.57	1.69	2.07	26 48	38 00
357 Acid Phosphate	N. J. Chemical Company, Philadelphia, Pa.	6.38	7.70	2.65			39 28	21 00
358 Cumberland County Fertilizer "E"	W. T. Brandon, Carlisle, Pa.	1.25	1.04	0.42	6.21	2.25	21 41	25 00
359 Acid Phosphate	Susquehanna Fertilizer Company, Oxford, Pa.	8.75	5.12	1.45			28 96	22 00
360 Pure Bone Phosphate	Susquehanna Fertilizer Company, Oxford, Pa.	4.86	6.75	5.51	1.35	2.99	41 92	36 00
361 Pure Bone	C. H. Dempwolf, York, Pa.			20.11		5.15	42 16	38 00
362 Acid Phosphate	Bowker Manufacturing Company, Boston, Mass.	10.29	5.36	1.39			32 41	24 00
363 Globe Fertilizer	Haller, Beck & Co., Pittsburg			0.12	0.21	0.43	1 90	15 00
364 Pure Bone	James Hathaway, Atglen, Pa.			19.85		4.78	40 55	38 00
365 Tanking	Chicago, Ills.			14.35		7.09	42 04	36 00
366 Acid Phosphate	I. Yearsley, Coatesville, Pa.	7.28	7.91	1.80	0.05		31 88	32 00
367 Export Bone	E. J. Fry, Tamqua, Pa.			14.00		2.94	27 09	24 00
368 Super-Phosphate	Moro Phillips, Philadelphia, Pa.	7.60	3.90	1.51	2.67	2.86	37 48	35 00
369 Twenty-five Dollar Phosphate	W. S. Kenderdine, Lumberville, Pa.	5.48	4.97	2.42	2.38	0.11	25 69	25 00
370 Acid Phosphate	Baugh & Sons, Philadelphia	8.94	6.06	3.24			35 29	25 00
371 Twenty-five Dollar Phosphate	Baugh & Sons, Philadelphia	3.88	7.40	3.38	1.12	2.40	35 16	25 00
372 Knickerbocker Phosphate	J. Ralston, New York	6.78	3.19	1.93	1.03	2.41	31 84	33 00
373 Alkaline Bone	E. Frank Coe, New York	8.42	3.49	1.31	1.36		26 52	28 00

Valuations: Soluble and reverted phosphoric acid, 10 cents per pound; insoluble, when from bone, 6 cents, and if from S. C. rock, 4 cents; potash, 6 cents, and ammonia, 17½ cents.

A COMING WHEAT COUNTRY.

Within the memory of thousands of the readers of the *Ledger*, Lancaster county, in this State, was the banner wheat county of the United States; but the greatest wheat-raising region has since then moved westward through Ohio, Indiana, Illinois to the Kansas-Iowa-Minnesota district; and the last decade has seen the tremendous development of California as a grain-growing State, and the rapid rise of the Northern Pacific wheat fields.

Another great grain field, vast enough to affect the supply and consumption of the world, and to enter into serious competition with the United States and Russia—the two leading wheat-exporting countries of the world—now shows in sight in Mexico, and appears to be coming to the front as part of the great commercial and industrial reconstruction of that land by the American railways. The physical formation of Mexico is simply an extension southward of the great Colorado mountain base plateau. Wheat grows on the plateau of Mexico at from 8,000 to 9,000 feet above sea-level, and between the 18th and 24th parallels of latitude. Corn grows everywhere, except on certain waste districts along the northern frontier, where the soil is the same as the alkali plains of Arizona and New Mexico. The wheat growing area of Mexico, par excellence, extends from, say Puebla nearly to Colima, about 500 miles east and west, and from Southern Michoacan to Zacatecas, about 400 miles north and south. This plateau is broken by mountain ranges into a number of rich districts specially adapted for the growing of wheat, namely, the Lerma Valley, roughly, 200 by 16 miles; the Bajio (Northern Michoacan, Jalisco and Southern Guanajuato), 200 by 200 miles, Aguascalientes 50 by 50 miles; the San Luis Potosi and Queretaro District 150 by 30 miles. Total, say 52,000 square miles. Of this immense field of rich and arable land one-third, it is believed, could be readily put into wheat with due regard to the other agricultural interests of the country.

Under the Mexican plan of cultivation three crops are taken off the land every two years—one crop of wheat and two crops of corn. The

average wheat yield of Mexico now does not exceed 20 bushels to the acre. Corn on irrigated land runs about 50; on dry land about 30 bushels to the acre. The mode of cultivation is similar to that of the Egyptians thousands of years ago. Wooden beam plows are used, with a small iron shoe, which scratches a furrow five inches broad by five deep. Five men are used and five yoke of oxen, where one would be needed in Pennsylvania. Nevertheless, the wheat raised is of the very finest quality. At the Centennial Exposition Mexico took the first prize for wheat. Threshing is done by driving mares around over a circular tile or stone floor, winnowing by men tossing the grain and chaff into the air with scoop shovels, and transportation from the field to the farm house or railway station is on ponderous two-wheeled ox-carts, in which the ox pulls about three pounds of cart to one pound of load.

Apart from the 52,000 square miles spoken of above, which is the choice wheat producing area, there is sufficient outlying wheat, barley and corn land now under actual cultivation to supply the present population of Mexico, ten millions. These people are at present fed on grain raised just where they live, there having been up to this time no organized machinery for transportation of products from one part of the country to the other. Mexico is substantially a corn-fed nation, seven-eighths or more of the people living habitually on *tortillas*. Were this wheat area cultivated to its full capacity namely, 17,333½ square miles, it is estimated that it would yield, under present conditions, 20 bushels of wheat and 40 bushels of corn per acre, as follows:

First year, wheat crop, 221,866,660 bushels.

First year, corn crop, 433,733,320 bushels.

Second year, corn crop, 443,733,320 bushels.

Or say an average of 110,000,000 bushels of wheat and 440,000,000 bushels of corn every year.

But under the modern conditions of agriculture, with improved machinery and systematic feeding of the soil, a much larger yield is anticipated. By the end of 1884 Mexico will probably enjoy a reasonably thorough railway system, viz.: Two trunk lines at least, from the

capital to the United States, having also good branch lines to the Gulf ports of Vera Cruz, Tampico, Matamoras and Corpus Christi. The land of Mexico is largely held in huge estates, often like those of the great land owners of England. The Bustamante estate, for instance, extends over portions of three States, and the line of the National Railway runs through it for fifty miles. These vast estates, with the fact that in the central part of Mexico at least, they are of cleared land, will enable the wheat growing area to be put rapidly under cultivation when once the railways open up a market for wheat.

The Mexican wheat raiser, however, is seriously handicapped in one respect, i. e., by the vicious system of State taxes which prevails all over the Republic. Some States tax the production of wheat, others the importation of it into or through their borders. This tax is uncertain, varies with every State and is burdensome. Men who have lived long in Mexico, and are well acquainted with the country, allege that it is well nigh impossible to codify or keep track of these State imposts, which are laid without system or any broad knowledge of political economy. They compute, however, that they can be roughly estimated at about one per cent. on the value of nearly everything raised or brought into the State. This is one of the things which keeps Mexico so poor, relatively to her large population and immense resources.

THE SCIENCE OF DAIRYING.

All the progress that has been made in the dairy—and it has been very great—is the fruit of thought and hard study; and whatever progress may be made in the future will likely spring from the same conditions. Occasionally people stumble upon success, but as a rule success comes only from hard work. The dairy is a scientific process, and the competent dairyman a scientist. He is familiar with the whys and wherefores. He expects certain results because he creates certain causes, and he is able to explain the details with as much precision as the college professor explains a science which he teaches in his class room. Now if the dairyman cannot do this, he is at work in the dark, and is con-

stantly exposed to the danger of serious loss ; and his interests demand that he shall at once become a close student of the science or sciences that apply to this business. A man who does not understand his business is at a helpless disadvantage. He may be likened to one who is operating a machine about whose construction he knows nothing. The machine fails to work properly. Numerous possibilities of defects suggest themselves to the operator, but in his ignorance he may not even dare to attempt to apply a remedy. A mechanic is called, and thoroughly understanding the matter, restores the machine to perfect usefulness by the simple turning of a screw. No one ought to be content to manage a dairy in ignorance of the necessary conditions. It is a fact that tons of poor butter are made because the butter-making is done on the hit or miss plan. There are well digested works on the dairy giving the results of close study and extended experiment, and the agricultural press gives large space to the dairy interests. Dairymen should avail themselves of the opportunity thus offered to become familiar with the secrets of successful dairying. The age in which we live is eminently a brain age. It is the man who uses his brain that is the successful man. He will achieve success and become rich, while taking life comparatively easy, when the man who thinks little and works like a slave will get poorer and poorer. Better spend two hours in thinking and one in manual labor, than to reverse it.—*Western Rural*.

"WOODMAN, SPARE THAT TREE."

In the August number of *Forestry* appears an important article on the destruction of American forests by Mr. William Little, of Montreal. The constant drain made upon American forests for white pine—a wood that furnished three-fourths of the building timber in the United States and Canada—has at last, he says, occasioned a scarcity which compels economists to point to a time in the very near future when its total exhaustion may be predicted. The entire supply of white pine now growing in the United States does not exceed 80,000,000,000 feet. The annual production of this lumber is not far from 10,000,000,000 feet, and the demand is rapidly increasing.

Fatal inroads have already been made into the great pine forests of the North Atlantic region. Its wealth has been lavished with an unsparing hand ; it has been wantonly and stupidly cut as if its resources were endless ; what has not been sacrificed to the axe has been allowed to perish by fire. The pine of New England and New York has already disappeared. Pennsylvania is nearly stripped of her pine, which only a few years ago appeared inexhaustible. The Great Northwestern pine States—Michigan, Wisconsin and Minnesota—can show only a few scattered remains of the noble forests to which they own their greatest prosperity, and which not even self-interests has saved from needless destruction. Canada is almost in the same deplorable condition as the United States as regards its stock of valuable pine timber.

Notwithstanding the fences of wire, the use of iron in building, the terra cotta and straw lumber, the consumption of wooden lumber increased nearly 50 per cent. in the ten years

from 1870 to 1880, the former being 12,755,543,000, and the latter 18,091,356,000 feet, and though it has always been claimed that iron and lumber keep together—cheap lumber accompanying cheap iron—we now find iron so low that producers claim that they are at the lowest rung of the ladder, while lumber has advanced in America in three years fully 50 per cent., with every prospect of further increase, and yet we are informed that we are within seven years of the time when the supplies of white pine and spruce (which are, in the North, the great stock of this indispensable material) must cease, and this is not the statement of interested parties, which might be open to suspicion, but of those specially employed by the Government of the country to ascertain the true condition of the forests.

OLD MEADOWS.

A correspondent has a meadow which produces about a ton of hay per acre. It has been down eight years, and the clover and timothy have died out, and their place is occupied with June grass. He asks whether top-dressing with barnyard manure and re-seeding will bring it to bear good crops. Top-dressing would improve it very much, but it would doubtless pay better to break it up and reseed fully. It would not be advisable to break it up this spring, as the tenacious roots of the June grass would not be likely to get thoroughly rotted during one summer, if, indeed they were all killed. It would be better to mow it this year and break it up in the fall and next year fallow it, plowing and cultivating often, selecting the driest weather to do the work. This will kill out and rot the June grass roots and enrich the ground for new service. The seeding will best be done about the middle of August or as soon as the summer drought is about over. The loss of a grain crop, while preparing to reseed, will be more than paid for in the improved condition of the soil. Ground which has lain long to grass becomes exhausted of available fertility, and needs thoroughly stirring and aerating to facilitate the solution of undissolved plant food, which lies dormant in the soil, unavailable and useless, until made available by exposure to the air. It is not good policy to let either pasture or meadow lie too long without breaking up and pulverizing the earth anew. Modern science and the best practice agree in maintaining that the quickest and cheapest way to enrich most soils is to thoroughly cultivate and stir them, to hasten the decomposition of mineral matters which serve as plant food. What may be gained by fallowing and the rotting of grass-roots will put the meadow in question in splendid condition for crops for a series of years. We would advise keeping this fact in mind while working the soil. Ashes, leached or unleached, make an excellent fertilizer for either meadow or pasture if sown upon ground which is naturally dry. They are as valuable for the grain-grower as the dairy man. Leached ashes by the load are worth about twice as much as barnyard manure, and unleached twenty-five cents a bushel. The immediate effect of ashes is not equal to that of manures, but it continues much longer. Coal ashes are chiefly useful for their mechanical effect in loosening a compact soil.—*Chicago National Live Stock Journal*.

MORAL INFLUENCES OF THE ORCHARD.

While there is so much of the practical to demand space in a journal wholly or partly devoted to horticulturists, it is by no means useless to give some attention to what are regarded as the lighter, and, perhaps, as the more fanciful features of the subject. To those who have watched the influences of horticultural pursuits, however, their moral aspects are by no means fanciful. Horticulture has a substantial moral influence upon both the horticulturist and the community. If there is a person living who ever saw a well-kept bed of strawberries or a grand orchard about the home of a thoroughly bad man, he has the advantage of us. Fine fruit growing and worthlessness of character do not, and cannot, harmonize ; and we have seen characters that have been polished, and manners that have been improved, and morals that have been strengthened by the preaching and influence of lovely fruit. There is no mistake about this matter. A community is greatly improved by fruit. Go into sections where there is no fruit, and no attempt to grow any, and, unless it is a new community, you will find it anything but pleasant in almost all of its characteristics. But a neighborhood that has fine orchards and fruit gardens will be a superior neighborhood in every respect—intelligent, moral, and public spirited.

There are well defined reasons, too, for some of these results. A fruit eating people are a healthier people than those who are not ; and people will not eat fruit unless it is fit to eat. When it is really fine they cannot resist the temptation to partake. Hence in a neighborhood of fine fruit growing, the people will be large consumers, good health being thus almost assured, increased intelligence and morality result, for a mind unclogged by a sluggish or feeble physical system is necessary to the former, and a stomach unclogged can almost be said to be necessary to the latter. A healthy person has a better chance to be what a human being ought to be, in all respects, than one who is not healthy. No mistake about the matter. Dyspepsia makes some people not only very disagreeable, but it positively makes them wicked. Therefore, in a moral point of view, we believe fruit growing of vast utility to the country.—*Western Rural*.

VALUE OF COTTON-SEED MEAL.

I wish to relate an experiment made by a neighbor in feeding cotton-seed meal to cows, which, although a small one, yet, owing to its having been made with perfect accuracy, just as valuable as if, on ever so large a scale. He has but a little land, and only keeps three cows. He was in the habit of giving one-third of a quart night and morning of cotton-seed meal to each cow. For a few weeks he got out of this, when the cows immediately fell off one and a half pounds of butter per week, and fully one quart per day in milk. He then began feeding cotton-seed meal again, when they immediately came back to their yield of milk and butter. The price he gets for this extra pound and a half, sold in the village near by, is a little more than the cost of the ration of cotton-seed meal he feeds. But this is telling only half the story, for he

gains quite as much in flesh of the cows. It also keeps them in finer general condition, and it enables them to better digest their food. In addition there is the gain of the quart of milk per day. So small a ration of cotton-seed meal does not effect the taste of the butter at all; if it did, my neighbor could not get the families he supplies to take it, for they are very fastidious as to the taste and aroma of their butter. Cotton-seed meal may be safely fed to dairy cows, from a half a pint to a quart night and morning, according to their size and the other food given them. But more than this I would not recommend, as it might affect their becoming pregnant. Steers might be fed twice this quantity without danger of injuring the taste of their beef.—*Cor. National Live Stock Journal.*

RAISING LARGE CROPS OF POTATOES.

Until the present year, I have never succeeded in raising more than two bushels of potatoes to the square rod, or 320 bushels per acre, and that yield has only been reached on small portions of the field, the average for the whole lot never having exceeded 250 bushels per acre. I will confess I could hardly believe reports, which have been published, of yields of four, five and even six hundred bushels per acre. But I shall be more ready to believe such reports in the future, as I have just measured the ground and picked up and measured the potatoes, where they yielded over three bushels of large potatoes to the square rod, or 500 bushels per acre. The small ones, from the size of a hen's egg down, were not picked up. We tried it on several square rods, and in the presence of reliable witnesses, so that we can prove it. This was the very best portion of the field, so far as we could judge from the vines. A measured quarter of an acre, not all of it the best, filled 102 bushels boxes with large potatoes. The secret of the great yield is found in the adjective "large," twice used in connection with potatoes. When there are several potatoes in a hill weighing from half a pound to a pound each, and the hills are as close together as they will bear to be put, one does not have to go over much ground to get a bushel. There are two things that can be done this fall, which will help to make potatoes, and consequently a large yield next year. I will speak of these in particular this time, and other points in due season.

The first thing is to select for seed good sized, perfect shaped, well matured tubers, with large, strong eyes. I know there is a great difference of opinion on this point. A single experiment may not show any decided results in favor of the large, choice seed, particularly if it is a very favorable season, or the trial is made on very rich ground; but any one who will select such seed as I have described, and follow it up for ten years, taking as good care of the crop in every other respect as he does in the selection of seed, will get his reward. Five hundred dollars is a good deal of money for a farmer to get in a lump, but so sure am I that I am right on this point that I would not take that sum in addition to the market price for my seed potatoes this fall, after they are selected, and run the risk of buying new seed. Every one has probably

noticed, when digging potatoes, that some hills, without any apparent cause, perhaps, will have several large, fine potatoes in them, while their neighbors will not yield half as well. My way of selecting seed is to walk along after the diggers with a small basket and pick up the choice potatoes, of perfect shape and with large eyes, from these hills. When the basket is full, it is carefully emptied into a bushel box, and the boxes are kept covered if the sun shines. As soon as a few are filled they are taken to the cellar and set away till the tubers are through sweating, when they are laid (not poured) in barrels and covered up from the air, not to be moved again till planting time.

This is too much trouble, some one may say. Well, my friend, if you are satisfied with an average crop of say 80 or 100 bushels per acre of rather inferior potatoes, do not read any further. If you want to raise a big crop, and have fine potatoes, you will have to go to a good deal of trouble, but if you manage rightly you will get well paid for it. The progressive successful potato raiser makes money. The "average" one will have to figure closely to show any profit. Whether the tubers for seed are kept in pits in the field, or in the cellar, the point is to keep them at a low even temperature, so they will be sound in the spring, and the eyes just beginning to start when you want to plant. We take pains to get them from the cellar into the ground without warming them up any more than we can possibly help. They are brought from the cellar, cut and planted, usually, the same day.—*Country Gentleman.*

BERMUDA ONIONS AND POTATOES.

It has been about twenty years since the first shipment of onions (from Bermuda) in quantities to the United States, and from that time to the present the trade from year to year has increased till the shipment now reaches 300,000 to 400,000 boxes of fifty pounds each per annum. The seed used is grown in the Canary Islands and is imported in the months of August and September, costing then from sixty cents to one dollar per pound. It is the only seed found to answer the purpose, as it matures earlier and produces a mild onion. Italian, Portugal and Madeira seed has been repeatedly tried and found not to answer, being too late to command a remunerative price in the American market. The seed is sown in the months of September, October and November, thickly in beds, the ground having been heavily manured with stable manure two or three months before sowing. The white seed is sown first, and produces the earliest crop, the shipment of which commences in March. When the plants are sufficiently large—about six or eight inches high—they are transplanted into beds four feet wide, the plants being set about seven inches each way. The plants from the white seed can be transplanted as early as they are large enough, and the ground can be made very rich. Those from the red seed should not be transplanted before the 1st of January, and the ground requires to be only moderately manured. If transplanted too early, and the soil is too rich, the bulb is likely to split into several pieces, and is worthless. After transplanting, the soil re-

quires to be lightened once or twice, and the weeds removed before they mature. As soon as the top begins to fall, they can be pulled, and should lie on the ground two or three days, or until the tops are wilted, when they are cut and packed in boxes of fifty pounds each, and sent to market, and sold or delivered to an agent, who ships them on the producers account. The earliest usually command the best prices, and they are frequently pulled before they are ripe, cut, packed, and sent to market the same day.

Such unions, if care is taken in packing, as it usually is, are deceptive in appearance, and after a few days they become slack in the boxes, with long sprouts, and when opened are unsatisfactory. When the crop is large and the market good, a large profit on the outlay is realized—an acre of ground sometimes returning \$600 to \$800, but the business is to a great degree hazardous, particularly when the crop is a large one, as the only market is the United States. Potatoes are more certain of finding a remunerative market than onions, but require more of labor and outlay to produce them. The seed was formerly nearly all imported from the United States, but of late years has come largely from New Brunswick. Nova Scotia and Prince Edward Island, as it can be obtained cheaper from those places, and is found to answer as well. The first crop of Early Rose, which is usually a small one, not averaging over four barrels from one of seed, is planted in October, and is taken off in time for the second or principal crop, which is planted in January or early in February. The seed for this crop is almost wholly the red garnet, and ten from one is considered a good return, although much more is sometimes obtained. The potato requires a deep soil, well manured and sheltered from the high winds, and as a large portion of the ground susceptible of cultivation is too much exposed to the winter gales, and manure in sufficient quantities is too expensive, most of the planters prefer raising onions. The ground for potatoes is usually plowed or spaded and raked, the seed cut in pieces with one or two eyes, and planted by forcing into the ground with the fingers to the depth of about four inches in rows about twenty inches apart and about eight inches in the rows. From six to eight barrels of seed are used to the acre. When the plants are a little above the ground the soil is lightened between the rows with a fork, and when about six inches high the earth from between the rows is hoed around the plants. Only one hoeing is required. The potatoes grown here, if left in the ground until fully ripe, are of a superior quality; but as a few days oftentimes make a great reduction in the market value, there is an incentive to get them to market as early as possible, and a large portion of the crop is shipped before it is ripe, not only injuring the market value, but the reputation as well.—*United States Consul Allen.*

SORGHUM FOR FEED.

The following statement is from the first quarterly report of the Kansas State Board of Agriculture. The writer, Mr. G. E. Hubbard, of Pawnee county, has been growing sorghum for seed, annually, during the past

six years, and has not only met with a single failure. He says: "I plant any time between May 20 and June 20 using a corn-planter, and planting one quart of seed per acre. Cultivate exactly as you would corn, and make thorough work. The plant will be ready to put in shock by september 1, at which time cut and shock the same as corn, letting it remain in the field until it is wanted for feed in winter. It makes excellent feed at any time, and especially when the ground is covered with snow. I only feed sorghum during bad weather, unless I have an unusual supply, when I feed it at all times. It makes a very rich food, and all kinds of stock will eat it with a relish, eating it clean, stalks and leaves.

"Another method of growing sorghum for feed is to prepare your ground by plowing fine and deep immediately after harvest. Plant with a corn-planter as fast as you plow until you have the number of acres you intend to put to this use. About the 1st of August the sorghum is nicely up; then harrow it thoroughly lengthwise of rows. By the 15th of August the sorghum will probably be from six to eight inches high, at which time proceed to seed the field with rye. Drill one and one-half bushels per acre; then, when the cold weather comes, turn your stock in upon it, and you have an excellent pasture. I consider this latter mode one of the best and most profitable ways of cultivating sorghum for winter feed. It does away with the expensive item of harvesting. When planted on or before July 20 the sorghum will mature before the frost sets in, and a field thus planted will secure you a great amount of valuable fodder for all kinds of stock in winter."—*Farm and Fireside*

THE FUTURE OF THE AMERICAN HOG.

The fear is expressed by some of our American papers that the agitation against American pork in Germany and elsewhere will have the effect of both curtailing the demand for our swine product and stimulating the growth of hog-raising beyond the Atlantic, ultimately so crippling our export trade as to necessitate a curtailment of production, and creating a rivalry in other countries which will forestall us in the markets of the world. This is an alarmist view of things, and we believe is wholly unwarranted. It is true that in nearly every country to which our pork has been shipped, influences have developed which are hostile to its admission. It is true that the bulk of our foreign trade is held in the face of bitter opposition, and that in some places our products are narrowly watched to find some pretext for their exclusion. Yet we have the greatest confidence in the future of hog-raising in the United States. For this there are several reasons: 1. We can raise corn and hogs at a less cost and furnish pork to the people of Europe at cheaper rates than it can be done by any rival or by the consuming countries themselves. 2. The peasantry of Europe have had abundant opportunity to test the quality of our pork, and profit by the low prices at which it has for a greater part of the time been furnished, and Governments cannot permanently maintain a policy of exclusion which directly contravenes the

best interests of the masses. 3. After all the howl about it, there is less disease among American swine, proportioned to the number grown, than in those of any other country, and nearly all the pork exported is a high-class article. The opposition to it on sanitary grounds is therefore captious, and controvertible. 4. The late decline in pork values has largely increased exportation, showing high prices have had as much to do as anything else with our restricted trade. For these and other reasons, it is evident that the supremacy of this country in producing swine and marketing pork is in no danger of being lost, nor is there any probability of there being a necessity for lessened production as the country grows older. On the contrary, the business has a grand future before it, and is destined to add vastly to our agricultural wealth in the coming years. Our exporters can do much for hog-raising by seeing that nothing except strictly first-class product is allowed to leave our shores; farmers, by breeding up their stock to a higher average grade of excellence; and the Government, by so improving its sanitary regulations as to furnish the best possible facilities for removing disease wherever it may appear. Without expecting too much, it is reasonable to look for some advance in all of these directions, and every such step tells solidly for the welfare of the business.—*Western Rural*.

ROTATION OF CROPS.

Why does a farmer change the crops of each field every year, growing first clover and grass and then corn, then oats, and lastly, wheat or rye, and again seeding down to clover and grass? It is because he knows that these crops succeed better when thus grown, and that he can not grow the same crop every year on the same ground with profit. There is a good reason for this. It is because the nature of each of these different crops is not the same; that one seems to rest the soil, that clover actually leaves the soil better than it was before, besides adding to it in shape of roots, stems and leaves, a large quantity of valuable plants food for the corn which follows it; that the culture of corn kills a vast quantity of weeds, cleans the ground, and prepares it for the oats and wheat; that after the oats have been grown the soil has given up to that crop all the strength it possessed, and that it then requires help to restore it. This is given by the manure and fertilizers used to prepare for the wheat or rye and the clover and grass after it, and that by this treatment one can go on year after year, for a whole lifetime, growing crops, and then leave his farm still fertile and useful for his children, who may do the same, to be followed again by their children.

This method of culture is called the rotation of crops, and the usual rotation consists of the four crops mentioned, viz.: clover and grass, corn, oats and wheat. This is called the four-course system. Some farmers add other crops and so lengthen the course with great benefit to the soil; because in the four-course system there is too much grain and too little fodder for feeding cattle and making manure, without which good crops can not be grown. There are also not enough of the renovating crops, as those are called in which

either the soil is manured or rested and restored, or in fact renewed in strength and power to produce the other crops which take more from the soil, and are therefore called exhaustive. For the principle at the bottom of this system of rotation is chiefly this: That the farmer must follow an exhaustive crop with a renovating one; that is one that is hard or difficult to grow with one that is easy, and so give the soil an opportunity to recover before its strength is taxed too much.

Much injury has been done to many farms by an unwise neglect of this precaution and crops of wheat and corn have been grown year after year, until the soil has been made unable to produce enough to pay the farmer for his labor, or to support him and his family with comfort. It is in this way that farms have been worn out and people have been forced to go further west to get new land, that the same wasteful practice may be followed. Now that the West is becoming filled up and the best lands are occupied, this can no longer be done, and farmers are obliged to follow a more skillful practice and are forced to study more carefully the nature of their business that they may make their farms more productive.

The feeding of cattle and sheep is the most important part of the farm work, and the growing of feeding crops therefore needs to be made a special study by the young farmer. A rotation then, which can be made to include the largest number of feeding crops, is the best. A seven-course rotation is sometimes practiced in which clover and grass are grown one year for hay and a second year for pasture, followed by corn, oats, roots (either turnips or mangels) barley, clover for hay, and wheat on the clover sods, followed by grass. This rotation has many advantages. It has two cultivated or cleaning crops, corn and roots; two sods plowed under, and four feeding crops, viz: corn, roots and two hay crops. Where it can be followed it enables the farmer to keep a flock of sheep or to keep cows and a dairy which is one of the most profitable and pleasant parts of farming, and gives the girls an agreeable opportunity of adding to the income of the farm and to their own resources, by making butter, as well as finds employment for the boys, which is not so laborious as the constant raising of grain. When the rotation is chosen, the farm is divided into fields, to suit the course, five for the four-course, in which there are two in grass at the same time, and eight for the seven-course rotation.—*Country Gentlemen*.

GROWING CABBAGE.

Late cabbage is a more important crop than that which is early, as it is not required to market them at once, which enables the grower to obtain prices for the crop during the winter season, when most vegetables are scarce. Nor does the late crop require a hot-bed for forcing, nor come in competition with the southern product. The preparation of a field for cabbage should be very thorough, deep plowing and frequent harrowing being necessary to get the soil in proper condition. As the cabbage plant is a gross feeder, any quantity of manure may be used without danger, and it should be well worked in and incorporated with the soil. They should be set in rows of sufficient width to allow a horse

and cultivator to pass through with ease, as it is upon the cultivation of the crop that the grower must depend for success. Too much cultivation cannot be given cabbage, for the oftener the soil is stirred the better, and especially in a dry season. No other plant should be allowed to grow in the field, as nothing succumbs quicker to weeds than cabbage.

The best manure for cabbage, if size without quality is desired, is that from the hog pen; but if good, crisp cabbage, of fair size, is preferred, manure from the stable, that has become fine and well rotted, is sure to give good results. Of fertilizers a mixture of superphosphate, plaster and guano will be found excellent, and it is better to apply the fertilizer at intervals during the growth of the crop than at one operation.

The obstacle in the way of growing cabbages at present is the cabbage-worm. So tenacious of life is this pest that no remedy is known that may be considered entirely effectual. The free use of saltpetre, dissolved in water and sprinkled well over the plants, is recommended by some, and, if it does not prevent the ravages of the worm, is an excellent substitute for the guano as a fertilizer. Paris green, London purple and hellebore should not be used on such plants, as it is dangerous. Professor Sturtevant, in detailing the results of his experiments, found that hot water applied to the cabbage destroyed a portion of the worms, but caused the leaves to turn yellow. The most satisfactory remedy, though not entirely effectual in all cases, consisted of half a pound each of hard soap and kerosene oil in three gallons of water; but as the growing cabbage presents such a mass of leaves, within which the worm may be concealed, the application should be repeated occasionally. The worm will be killed if the solution can only be made to reach it.

In saving seed select, late in the fall, the best heads, and cut off the stalks close to them; then place the heads on the ground (which should be slightly elevated) and cover well with earth to protect during winter. As soon as spring opens remove the covering, cut the cabbage crossways with a sharp knife and it will soon sprout to seed, a single cabbage yielding quite a large quantity. It is necessary to give some kind of support to the seed-stalks, however, and the pods should be picked or carried to the barn and the seeds beaten out on a clean place.

TEA CULTIVATION.

Tea is one of those common things about which some points are not commonly known. In China it has been used for more than a thousand years, but there is nothing that is well authenticated about the discovery of it by the Chinese themselves or of its use prior to its introduction into the civilized world. Before the middle of the 17th century it was not much known in England. Pepys' Diary, under date of September 26, 1661, contains the entry, "I sent for a cup of tea (a China drink) of which I had never drunk before." It was at first pronounced *tay*, as Pope indicates in his lines:

"Here thou, great Anna, whom
Three realms obey,
Dost sometimes counsel take,
And, sometimes, tea."

Two pounds and two ounces of tea were sent, 1661, by the Dutch East India Company as a rare gift to the King of England, and six years later it entered upon its traffic, followed by the British East India Company. The English people at that day used as their common beverages ales, and meads, and wines imported from France. They also imported quantities of sassafras from Virginia, the colonists there having discovered that the bark of the sassafras root made an aromatic tea, to which they attributed great virtues. The East India Company, which embraced several influential members of Parliament, succeeded in having onerous taxes placed on home-brewed ales, imported wines and sassafras, and thus augmented the traffic in Chinese tea. The unpleasantness that resulted from the attempt to connect taxes and tea in Boston and Greenwich, New Jersey, harbors, less than a century later, need not be more than referred to in passing.

The Tea Plant.

Though there are numerous tea plants, the word tea, in its general acceptance, is applied to the shrubs grown in China and Japan, the teas of commerce. These are *Thea Viridis* and *Thea Bohea*, though these are held to be varieties of the same species, *Thea Simensis*. In his "Treasury of Botany," A. Smith objects to the practice of some modern botanists in combining the well-known genera *thea* and *camellia* under the single genus *camellia*. In a paper prepared a few years ago A. C. Jones, of the Department of Agriculture, Washington, after carefully examining this point, expressed the conclusion that the species are essentially identical, "the difference in the article produced depending upon the period of gathering, qualities of soil and the process of manufacture."

In its wild state the tea is scarcely classable as a plant, for, while the ordinary height of the cultivated shrub is from 3 to 6 feet, the "plant," when left to natural growth, attains a height of twenty, and, in some instances, even thirty feet, and a trunk of from 8 to 10 inches in diameter.

The leaf, the valuable part of the plant, does not during life throw out that peculiar aroma or flavor that is its marked characteristic when prepared. This flavor is the result of the judicious application of heat, which develops an essential oil from the resinous matter of the leaf. The process of preparation or manufacture is one requiring time and care. The leaves are first exposed in open-work bamboo trays or baskets to the action of the sun and air for two or three hours, then beaten between the hands gently, this process being repeated three times; they are then placed in the pan, under which a brisk fire is kept up, and as soon as they become hot, being meanwhile rapidly turned with the hands to prevent scorching, they are brushed out on a close-worked bamboo tray; this process is also used three or four times, and is repeated after the leaves have been rolled. Finally, the tea is placed in small bamboo sieves, and dried over a charcoal fire, and then separated and packed.

Shipment of Cargoes and Samples.

Long before the introduction of steamships and the submarine telegraph China was the

only country that exported tea. Then the old-fashioned slow sailing "East Indiamen" were the carriers of the precious cargoes of tea, silk, essential oils and other valuable and luxurious products of the Celestial Empire. In the early history of the trade Canton was the only point of entry to that exclusive country, and the vessels engaged in the trade carried to its peculiar people from this country and Great Britain such cargoes as would find ready and profitable sale among them, and particularly Mexican, six or silver dollars, to pay for their produce. The arrival and departure of an East Indiaman was then quite an event, not only on account of the time consumed in the voyage, but because of the peril such vessels ran of attack by pirates that infested the China Sea and Indian Ocean. In course of time the ports of Shanghai, Foochow, Amoy and Tamsul were opened to foreign trade, and the East Indiaman was superseded by the fast-sailing clipper ship, which in turn has been superseded by the steamship. The result is that a voyage from China to the United States, instead of taking, as it did in former times, from four to six months, is now accomplished by way of the Suez Canal in about 52 days. The changes that have followed rapid transportation have revolutionized the trade. Tea can now be laid down in New York, from Yokohama, Japan, via the Pacific Mail steamers and the Pacific Railroad, in 30 days, while telegrams can be sent to China from this city and replies had in less than 24 hours.

The samples of tea are sent in advance of the cargo direct from China or Japan via San Francisco by mail or express, and reach here ten days or two weeks before the steamer reaches New York. On each of these boxes of tea samples are such legends as "Bengal No. 48," "Nova Scotia No. 10." The words are the names of the steamers on which the tea was shipped, and the number represents a grade of tea. A steamer will bring over from 30,000 to 50,000 packages of tea, the freight on which may amount to \$20,000. When the cargo arrives five or seven chests of tea are taken at random, the tea is emptied out and weighed, and the chests are also weighed. From these five chests, which are marked "muster packages," an average is struck as to the net weight of each chest, and this average serves as the standard for all the rest of the cargo. The above refers to China teas, whereas the net weight of its contents is marked on each chest of Japanese tea. As a rule, tea comes in straw-covered half-chests containing from 50 to 75 pounds, but the variety known as English order tea comes in chests without any covering.

Features of the Trade.

A noteworthy feature of the trade has been the remarkable increase in the consumption of Japanese teas. Previously to about 30 years ago China furnished all the tea consumed in the United States and Great Britain. In 1856 Japan commenced the exportation of teas to this country. The second lot, consisting of 50 packages, consigned to Cary & Co., New York, was sent in 1857; now that country furnishes us with 35,000,000 pounds of our total present annual consumption of 75,000,000 pounds.

Out of the total annual importation of 175,-

000,000 pounds of teas into Great Britain, that country takes some 50,000,000 pounds of India teas, and but a trifling quantity from Japan. This country consumes only about 1,500,000 pounds of the India production while the consumption of Japan tea has reached, as before stated, 35,000,000 pounds, equal to about 600,000½ chests. Comparatively little of the Japanese teas are sold in Philadelphia or its vicinity. The bulk of them is consumed in New England and throughout the Northwest. In Philadelphia, and in most large cities in this section of the country, Oolong is the popular tea. Oolong is a variety of black tea, supposed to possess the flavor of green tea.

The great bulk of the tea imported into this country is by steamer, via the Suez Canal, to New York. The last direct importations (and they had also been the first for thirty years,) into the port of Philadelphia by sailing vessels were made by the firms of John H. Catherwood & Co., and E. C. Knight & Co., per bark Guerini, in 1872, and Kate Caruie, in 1872, each vessel bringing a cargo of about 12,000½ chests. Since then the former firm has imported all its teas into New York, and the latter firm has retired from the business.

Varieties and Qualities of Tea.

The varieties of tea are numberless, and the buyer and broker must become familiar with them. Of the China teas there are the gun-powders, the imperials, Young Hysons, the Hysons, the Twankey and the Oologs. Of the Oologs there are the Formosa, the Foo-chow and the Amoy varieties, named after the localities where they are grown. The Formosa teas are the finest and most expensive. Of the Japan teas there are the colored Jap, the basket fired, an expensive black tea cured in a peculiar manner in baskets, etc. Japan dust is the sweeping from the floors of the tea houses. Pekoe tea, cured in a peculiar manner and flavored by burning flowers beneath it, is used by merchants to mix with and flavor other teas. Besides all these varieties, the buyer or broker has to distinguish between first crop tea, made of the tender leaves that shoot forth in April or May, and low mediums, gathered late in the season from the lower part of the bush. A variety of tea grown on low, marshy land looks as well as some of the more expensive brands, but it is said to be the poorest tea on the market. The general appearance of tea has something to do with its value. Indeed, green tea is colored in order to improve its appearance. A pound of homely black tea of the variety known as basket fired, however, may be worth two pounds of green tea, but it might not sell as well among those who are accustomed to green tea.

Cultivation of Tea.

Tea has been successfully cultivated in various parts of this country, not as a means of profit, but for the sake of having the ornamental and rare shrubs. Some years ago the Department of Agriculture endeavored to have made a systematic series of practical experiments in the culture of tea in Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Alabama, Tennessee, Kentucky, Arkansas, Missouri and a portion of the Pacific Coast. The calculation was that as the sections correspond

geographically with the latitude in which tea is successfully cultivated in China, Japan and Assam, and the conditions of temperature, soil, etc., are about the same this country could engage in an industry that was annually draining some \$20,000,000 from the United States. Propagating plants were distributed, but no practical success towards establishing the industry as such resulted.

The condition of the tea trade is not what may be termed satisfactory to those engaged in it. The consumption has not kept pace with the increase in population, and prices of all grades have struck a lower average than has been known for the past thirty years. Teas have sold (wholesale) as low as 5½ cents per pound recently, and they range from that up to about 80 cents per pound. One fact that may not be generally known is that the finest teas never come to this country, but are sold in China and Japan from \$5 to \$14 per pound. These will not bear transportation across the ocean.

Adulterated Teas.

The law recently enacted by Congress to prevent the importation of adulterated teas into this country is one that interests the trade closely. On this point Mr. Catherwood, head of one of the oldest and most extensive tea-houses in this country, said:

"In the early days of the China trade pure teas only were exported, but the increase of and competition in the business led John Chinaman to learn and practice tricks that have demoralized the trade, by furnishing unprincipled dealers with such large quantities of adulterated and spurious teas that Great Britain a few years ago passed an act excluding from entry for consumption into that country all spurious and adulterated teas. These, in consequence, found their way to this country, to the great detriment of the trade and the injury of the public health. To remedy the evil Congress passed, at its last session, a 'law to prevent the importation of adulterated and spurious teas' and if this law shall be rigidly enforced, as it should be, it cannot fail to prove of great benefit to the trade, and insure a rapid increase in the consumption of tea in the United States, by securing to those who use it a pure and wholesome article instead of the trashy stuff that, in recent years, has been sent here in such wholesome quantities."—*Philadelphia Ledger*.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

A stated meeting of the Lancaster County Agricultural and Horticultural Society was held in their rooms in City Hall on, Monday, September 31. The following named members were in attendance:

Messrs. H. G. Rush, New Danville; Henry M. Engle, Marietta; James Wood, Fulton; Casper Hiller, Conestoga; Calvin Cooper, Bird in Hand; John C. Linville, Salisbury; W. W. Griest, city; F. R. Diefenderffer, city; Levi S. Reist, Warwick; J. G. Rush, West Willow; J. Hoffman Hershey, Salunga; Cyrus H. Neff, Manor; J. M. Johnston, city; Johnson Miller, Warwick; Henry Shifner, Bird in Hand; S. P. Eby, esq., city; Hon. John H. Landis, Manor; C. L. Hunnecker, Manheim; M. L. Greider, Mount Joy; Hebron Herr, Lampeter; Eph. S. Hoover, Manheim township.

Calvin Cooper, of Bird in Hand, reported the apple crop a failure, peaches are fine on healthy trees, potatoes abundant but some little rot, corn very promising, tobacco mostly housed, and of good quality, grapes badly damaged by mildew.

Casper Hiller reported that the condition of the corn had greatly improved since last meeting, late potatoes are a partial failure, caused by wet weather and a subsequent baking of the ground causing them to rot, peaches are fine, but not abundant.

Levi S. Reist said that six of his ten pound apple trees were laden with fine fruit, the Smith Cider apples also bear well, but other varieties are a failure, Concord grapes are doing well.

Henry M. Engle said that grapes with him were a partial failure, being badly affected by mildew and rot; the pear crop is very good; peaches pretty good; corn as good a crop as ever grown; grass holds out well; the clover is better than it has been for years. He believes the bitter-weed which is so annoying to farmers, because it overruns the wheat stubble, might be exterminated by cutting it before it seeds.

James Wood said the corn crop is a very good one; the clover is growing finely but has little seed; the apple crop is a failure; few peaches are grown in this neighborhood; potato bugs have been very numerous, and eaten up the vines; there are grapes enough for family use, but not many to sell.

J. Hoffman Hershey reported the corn crop good; grass plenty; potatoes very abundant; pasture excellent; plums and prunes rot on the trees; pears very fine; apples scarce; peaches ordinary; tomatoes an immense crop; grapes indifferent.

Joseph F. Linville said the rosebuds, early in the season, destroyed one-half of his grapes, the other half are looking well; pasture is very good; he had planted his early potatoes rather late, and they turned out very well; the tops of the late potatoes within two weeks past had blighted, become black and died.

Cyrus H. Neff reports an extraordinary crop of corn; a good crop of grass; a good crop of tobacco, about one-half of which has been housed.

Planting Wheat Like Tobacco.

F. R. Diefenderffer called attention to an article he had read in the *American Miller*, relative to wheat-growing in Belgium. It stated that the Belgians set out their wheat plants much the same way we set out tobacco plants in rows six inches apart, the rows being twelve inches apart. They grow from 100 to 150 bushels per acre. He suggested that some of our Lancaster county farmers give the plan a trial.

Some discussions followed, but none of the members present seemed inclined to adopt the suggestion.

Referred Questions.

The following questions were referred for answer at next meeting:

"When corn is sixty cents per bushel, what is the value of a bushel of potatoes as feed for stock?" Referred to Cyrus H. Neff.

"What is the best method of curing grapes in the cluster for winter use?" Referred to H. M. Engle.

The chair appointed Johnson Miller as essayist for next meeting.

On motion, a committee of three, of which the President shall be Chairman, was appointed to represent the society at the fair of the Lehigh County Agricultural Society, to be held in Allentown, commencing September 25th inst. The chair named H. G. Rush, Johnson Miller and J. H. Landis as said committee.

James Wood, W. H. Brosius and J. C. Linville were appointed a committee to represent the society at the Oxford Agricultural fair, to commence on the 26th of September.

H. M. Engle, Casper Hiller and Calvin Cooper were appointed a committee on nomenclature, to name new varieties of fruits and test fruits exhibited at the meetings of the society.

Calvin Cooper presented a resolution, which was adopted, authorizing the committee on nomenclature to award premiums at their discretion to those who

exhibit fruit at the meetings of the society, provided the premiums do not exceed \$1.

Egyptian Wheat.

M. L. Greider, of Mt. Joy, presented a sample of Egyptian wheat grown by him, which appears to be of superior quality. He says that he grew on two acres in 1881 over 90 bushels, and this year, on an accurately surveyed half acre 21 bushels.

Testing Fruits.

Some very fine specimens of peaches, pears and apples were exhibited before the society by H. M. Engle, Levi S. Reist, Hiller and Resh, and perhaps one or two others.

Cyrus Neff, James Wood and C. L. Hunsecker were appointed a committee to examine it and report to the society. They reported that Hiller and Resh exhibited the largest collection and H. M. Engle the finest of fruit, and they therefore awarded to those gentlemen the premiums provided for under the rules.

POULTRY ASSOCIATION.

The Lancaster Poultry Association held a stated meeting Monday morning, September 3, in the office of J. B. Long, Rhoads's building.

The following members were present: J. A. Stober, president, J. B. Long, F. R. Diffender, Charles Lippold, Wm. Shoemaker, John E. Shaum, John S. Humphreyville, J. S. Witmer, John Sel-domridge, M. L. Greider.

The secretary stated that only two bills, for which the society are responsible, remained unpaid, and that they would shortly be liquidated.

Mr. Long referred to the action taken at last meeting relative to loaning the society's coops to the Independent State Fair, and said that several members of the society thought they ought to have the use of the coops in which to make their own exhibits. On motion it was ordered that members have the free use of as many coops as they may need for their exhibits, provided they take them to the ground, return them and repair any injury done them at their own expense.

The secretary was authorized to take the necessary steps to have printed a catalogue of premiums for the next annual exhibition, with advertisements inserted, provided the same shall not be an expense to the society.

The Board of Directors was directed to prepare a premium list for presentation to the society at its next meeting.

J. B. Long was appointed essayist for the next stated meeting.

Adjourned.

THE FULTON FARMERS' CLUB.

The September meeting of the Fulton Farmers' Club was held at the residence of William King, Little Britain township, on the 1st instant, all the members being present except Lindley King. Visitors present by invitation: Isaac S. Kirk and wife, William Coates and mother, Jonathan Pickering and wife.

Day Wood exhibited three varieties of potatoes and Livingston's Favorite tomato.

Josiah Brown, very fine Mammoth Pearl potatoes, some of which weighed 1 $\frac{3}{4}$ pounds each.

Montillion Brown, two varieties of potatoes.

J. R. Blackburn, Burbank, Victor and another variety of potatoes, and Diana, Telegraph and Concord grapes, and Heiges prolific wheat.

Emeline Cauffman, apples for name.

Winking, Mammoth, Pearl and Burbank potatoes, and several varieties of grapes.

Ed. Gibson, one peck of Peerless potatoes, which had been raised from two; also, Victor potatoes.

Several reported quite a large yield of potatoes, and the samples exhibited were very fine.

Solomon L. Gregg asked if there was any better harrow for all purposes than the old-fashioned A harrow.

Montillion Brown has a double A which he likes better than the single A, but the Aeme beats anything that he has tried as a pulverizer, where it is

cloddy or tough. It is hard on the team if rode upon, but if not it was no harder than the double A.

Josiah Brown: The single A does very well if the teeth are kept sharp; never used any other.

Jonathan Pickering: The double A is better than the single, but the Aeme beats them both.

Joseph P. Greist and Isaac S. Kirk prefer the twin harrow to the A.

C. C. Kanfman asked if fertilizers could not be obtained at a reduced price, if purchased in large quantities. It was generally thought that they could, but that there would not be a sufficient quantity of any one kind subscribed for by members of the club to make it an inducement.

Wm. King: Comparatively, how near do potatoes equal corn in value? Answer: About two bushels of potatoes to one of corn for feeding.

E. H. Haines mentioned that the composition of potatoes was three quarters water. Some feed with corn and think them profitable.

Viewing the Farm.

The criticism on the farm was favorable. A new hen house having been mentioned as a place for dirt and vermin, one member said that, in his opinion, hog and hen houses had not yet been invented. One thought a hen house should be plastered, so that they could be completely cleaned. It was argued that poultry receives less care than hogs and is more profitable.

M. Brown spoke of H. W. Beecher's hen parlor. His hens entirely quit laying; one, however, got out and stole her nest, laid, hatched and raised her brood, being the only chicks he had.

Literary.

William King read a selection. M. Brown, "How much wheatseed per acre?" Will B. Coates, a visitor, recited "Stephen's Dream," in which the listeners were told how strong the bonds existing between the rum seller and Satan were.

An Invitation Accepted.

A communication from the Octoraro Farmers' Club, extending an invitation to the members to meet with them and assist in their programme at a public meeting to be held at Hayesville, September 15, was read. Wm. King, Day Wood and E. H. Haines were appointed to represent the Fulton club, and to carry with them whatever they consider of interest.

The Aeme harrow was on exhibition by Howard Coates, who, in the afternoon, exhibited it at work. The members expressed themselves as well pleased.

Adjourned to meet at C. C. Cauffman's on the first Saturday in October.

AGRICULTURE.

Take Care of Your Tools.

In a majority of cases it is the full intention of the farmer to put away any tool or machine being used, as soon as he is done with it, but when the work is finished, whatever is being used is left until a more convenient time to put it away. Time passes and still it is not done. Many farmers when asked to subscribe for a good agricultural paper will plead poverty, when at the same time plows, harrows, cultivators and other tools are left in the field or piled up in the fence corner, or some other out-of-the-way place, there to remain till wanted next year. The loss by such practices amounts to enough in one year in many cases, to pay for one copy of half the agricultural papers published in the country. It is not an uncommon sight to see in many parts of our country, and especially in the West, wagons, sleighs mowers and reapers, and much other valuable machinery, left to take their chances with other less valuable farm implements. Spring and summer, with all their cares and rush of work, will shortly be here, finding many farmers unprepared for its appearance. Everything used about the farm should be critically examined and wherever a nut is off, a bolt lost, or any deficiency whatever, it should be repaired at once, and then everything carefully stored away in some good, dry place. It costs very little to

prepare a place where everything used about the farm can be stored without danger of rust and decay. If a permanent building can not be made make a temporary one, and use it until something better can be provided. It will pay. System and care will soon enable any one to acquire the habit of putting everything in its place when not in use. As soon as any implement, tool or machine is done with, even if it has to be used again in a few days, take it right to the place prepared for it, and there let it remain, out of the sun and rain, until needed again.—*Indiana Farmer.*

Sweet Corn and Sorghum.

Mr. A. B. Allen writes to the *New York Tribune* as follows about sweet corn and sorghum cane for summer feed for cows:

"I found last season that sorghum cane of the amber variety—the earliest sort I know and as sweet as any I have tried—endured drought better than corn, but that my stock preferred the latter, which was contrary to the experience of a friend, and was doubtless so because of the fact that I choose for feeding green the best sorts of sweet corn, sow it not over-thick in drills three feet apart, and cut the stalks from the time they begin to silk till the grain is in the milk; never let it pass this stage. The stalks do not grow over a half to three-fourths of an inch in diameter at the butt; they are consequently tender and sweet their whole length, and thus are greedily eaten up from one end to the other. There is one advantage of growing amber cane over corn in the latitude of 39° and lower—we can get two crops of it from the same sowing in a season, provided it be a fair average one, no unusual late frost in May or an early one in October. Prepare the land as for corn; strike out shallow drills with the plow three feet apart, and drop the seed sufficiently close to have the stalks stand about an inch apart in the drills. A hand seed-sower may be used for this purpose. Some say that it is not so hardy as corn, and it should not, therefore, be sowed so early. Others say the growth for the first few weeks is very slow. I find, thus far, neither of these assertions true. I sowed at the same time as corn; it came up quickly and grew right off, rapidly. I earnestly advise my fellow-farmers to experiment with this plant forage."

How to Exterminate Sorrel.

Many farmers are greatly troubled with a growth of sorrel upon their lands, which is an indication of neglect and exhausted fertility. The weed, however, appears upon land in good tillth in seasons when extreme drought prevails, or upon silicious dry ridges. The best way to exterminate the pest is to sow bone dust mixed with ashes and plaster. One barrel of raw bone dust, with two of ashes and a half a barrel of plaster will serve to drive out the sorrel on a quarter of an acre of ground, if applied after deep plowing.

THE hay crop of this country ranks next to that of corn in value. In 1881 the value of the hay exceeded that of the cotton crop by \$90,000,000. In 1881, 14,000 earloads of hay, weighing ten tons to the car, were brought into New York city by rail. It was estimated that in 1882 147,000 tons were received there. In the month of December last 144,000 bales arrived there. The transactions in hay in New York city in 1882 are said to have reached the sum of \$23,000,000. The hay crop of 1882 was estimated at \$372,000,000. The shipments by water from New York were about 100,000 bales.

Wild Tobacco in Nevada.

In the vacant lots, ravines, and favorable spots in and about Austin, as also in all parts of the State, native wild tobacco grows profusely. It seems to require little or no water, but the fresh, green looking plant grows vigorously in all its sticky, juicy nastiness everywhere. It is simply a filthy weed, which few respectable animals care to browse upon. Over in Como, where I was twenty years ago, an old Missourian, who knows all about tobacco, headed down and trimmed some of the most vigorous plants

and thus succeeded in making quite a perceptibly recognized substitute for real smoking tobacco. The Piutes and Shoshones smoke it to a small extent, but they much prefer the white man's tobacco. Yet this shows very conclusively that tobacco can be raised in Nevada with the most perfect facility, if not with profit. Tobacco is said to grow in any locality where cabbages can, but in this State it certainly grows in localities where cabbages would perish from thirst or any other nutriment. Perhaps Nevada may become noted as a tobacco producing State, by and by.—*Cor. Virginia Enterprise.*

HORTICULTURE.

Transplanting Celery.

The soil best adapted to the perfect growth of celery is a deep, mellow, sandy loam, rather moist in character, but well drained. The soil, of whatever character, should be rich and thoroughly pulverized. Land manured the fall previous makes an excellent bed, so does ground that has been liberally manured in the Spring for some early vegetable crop, as onions or beets, if replowed and harrowed after the first crop has been harvested. Fresh manure is injurious to the plants; it induces a rough growth and renders the stalk pithy instead of crisp.

In the Northern States celery plants are set during the middle of July and at the South a month or six weeks later. Deep trenches have, for the most part, been abandoned for the less laborious and expensive mode of furrows drawn the same as for beets or mangolds.

Select cloudy or wet weather for transplanting celery when possible. If done in dry weather the plants will require repeated waterings and shading until they are established. The rows may be marked off four or five feet apart and the plants separated eight or ten inches in the row. Many cultivators practice cutting back the tops at transplanting to render the plants stocky.

A mixture recommended by some of our correspondents to incorporate with the manure used in the furrows consists of salt, soot and lime. This, it is believed, not only acts as a preventive to worms, but promotes the growth of the plants.

There is no doubt but that the rust on celery is caused by particles of earth which fall in among the stems during the process of hilling when there is rain or dew on the plants. The remedy is obvious; avoid hilling or earthing up the plants except when they are quite dry, and at the final occasion, neatly slant and smooth the soil so as to throw off the moisture.

Peas in the Fall.

The way to raise the finest quality of peas is, after the first sowing, to plant them deep and mulch them, so that the soil they root in is always cool and moist. In the careless manner in which peas are frequently cultivated they have very little flavor and delicacy. It is so with raising what is called the snapper beans. They are seldom planted deep enough, and as a consequence have no more flavor than a piece of India-rubber and are about as tough, but the beans planted in September, and in due time are for sale in our markets, are really delicious in flavor and fairly melt in the mouth. This is the result of cool soil. But were these beans planted three and four inches deep, as we have more than once suggested, throughout the season, and mulched in the hottest portion of it, we could have, as with the peas, these vegetables at all times up to November in perfection.—*German-town Telegraph.*

Cornell's Fancy Apple.

Among what may be called early apples is one which is not yet well known, because it is not so old a sort as many are. It is, however, one which would give entire satisfaction to its owner. Many of the early sorts are not well colored, but this one, Cornell's Fancy, is an extremely handsome looking fruit. The fruit is fit to eat by the middle of August, but if not needed then it can remain on the tree

for some time later. It belongs to the class of apples known as sweet, but it has not the objection made to some sorts of being too sweet. So far it is best known in our own State and Maryland, though it finds much favor in New York, Michigan, and some of the Southern States. In small gardens apples are not so satisfactory as some other fruits on account of the space they occupy when a few years planted, but where the proper room can be afforded this variety of apple would be very satisfactory.

Calla Lilies.

The calla lily, old as it is, is still a favorite flower, especially with those who grow plants for window decoration. It is a plant requiring but little heat, has leaves of such a deep green color, setting off to so much advantage its pure white blossoms, that no one wonders at the estimation it is held in. Although it will live and thrive in water the whole year round, as often grown in fountains in Europe, it does extremely well in pots. The plants are usually set away without attention in the spring and allowed to wither up, so far as the tops are concerned. In the fall they are repotted, and watered regularly, and on the approach of cold weather taken into the house. They like abundance of water while growing and flowering, but not too much heat, as stated above. A moderately cool room, with the pot set in a saucer of water, is what suits them.

Native Lilies.

Those who are familiar with the growth of our moist woods must have seen and admired the beauties of our native lilies. There are two sorts common here, the *Superbum* and the *Canadense*. It is only the former sort however that may be said to be common, for the latter, perhaps at no time very abundant, is but seldom met with in any woods much visited by the public. The *Superbum* grows to a height of five to six feet in its native woods. The flowers are brilliant scarlet, appearing about the first of August. The *Canadense* does not grow so tall by two feet. Its flowers are yellow, not so large as the former, and bell shaped, the segments barely reflexing at their points, while it is the character of *Superbum* to reflex, the tips of the segments turning back to the stem. There are other old sorts of native lilies, but they are not found about here. There are some very beautiful newer ones from the Pacific States which thrive very well with us, out of doors with our own. Lilies transplanted from the woods to our gardens grow very well, but they do not grow so tall as when wild. The fall is the best time to get them. They can be easily found by their flower stems. They should be planted quite deep, for the bulbs will not thrive unless cool. Cover them for the winter with leaves, and during summer with some material such as short grass, to keep the ground cool and moist. Thus treated they grow and bloom well and soon increase. There is a foreign lily, very common in gardens, called Tiger lily. It is quite distinct from the scarlet one of which we write.

Moore's Early Grape.

Since the advent of the Hartford Prolific grape, there has been no material advance in the production of early ones. The Telegraph ripens at about the same time as the Hartford Prolific does. Both of these are very good sorts. The former is more grown than the latter, yet it does not suit market men very well, because the berries soon drop from the bunches. A shipper would find his returns less than they should be because of this defect in the bunches. There is another grape, yet new to many, which will no doubt, become popular. It is the one whose name heads this article—Moore's Early. Like almost all new productions of late it was sent out with a great deal of merit claimed for it which it does not possess. It is not a better flavored grape than the Concord, yet this was claimed for it. But it undoubtedly is an extra early grape, ripening in this vicinity about August 25th. The writer tasted some on August 16, which were good eating though not ripe then. It seems of very good flavor, bunches

not extra large, but berries large and of firm texture impressing one with the idea that it will make an excellent sort for those who wish to grow grapes for market. It is a black grape. While so much other fruit is to be obtained grapes are not much sought for, but it does not harm to have one sort to come in early, and this one may safely be Moore's Early.

Honeysuckles.

Honeysuckles are old favorites in gardens, and many suppose there is nothing new to be said about them. But there are now more kinds known than there were a few years ago, and some of the newer sorts differ in many respects from the older ones. The Chinese and the Japan sorts are probably the best known of all, with the addition of the Belgian. The two former flower at the same time in spring. Both are desirable, and are often planted together, on account of the contrast in color of the leaves and branches, the Chinese having red stems and leaves of the same tint, while the Japan is of a dark shining green. The Japan is of a very dense growth, and is the more desirable of the two when the object is to form a screen as well as to have bloom. Then too, the Japan is very nearly evergreen, a great portion of the leaves keeping on until spring, especially when not too badly exposed to cutting winds. The Belgian is not a good one for climbing, but for rockwork, or covering an old stump, or similar purpose, where dense growth is not wanted, it is very well suited. It is one of the honeysuckles which has a honey scent to the flowers, and it blooms occasionally throughout the summer. But for a succession of flowers, there are none equal to the newer, one called Halleana, or Hall's honeysuckle. This does not commence to bloom so early as the others named, but then it flowers so profusely, and the blooms continue to come more or less all summer, that it is a sort which cannot be done without, where flowers are an object. It is not alone its overblooming qualities which recommend it. It is beside a very strong power, the best in that respect in fact, of any of the sorts. The leaves are not of such a glossy green as those of the Japan, but they are very persistent in the winter time. It is a sort which pleases all who have it. There are other kinds of honeysuckles valuable in collections and for certain places, such as our native scarlet and yellow sorts, which are yet occasionally met with in the woods herabouts. It will be a long time before any vine is found to supercede the honeysuckle for planting about our homes.

Summer Lettuces.

Every one who has had anything to do with the raising and growing of lettuces knows how difficult it is to get them good during the summer, especially when treated in the ordinary way, that is, by sowing them in seed beds and transplanting, a method of treating them that is far from the best. The system I have always pursued, and it is one I can strongly recommend, is sowing the seed in drill rows where the plants are to stand, by doing which much time and labor are saved, and the young lettuces are left with their tap roots intact. These drive straight down into the earth, and as the plants receive no check they grow very fast and attain a large size, with fine, solid hearts that become well blanched, and, as a natural result, are tender, crisp and juicy when cut up for use in the salad. Transplanted lettuces are generally the reverse of this, the reason of which is that they flag through transplanting; and having lost their mainstay (the tap root) they suffer during dry weather, as, instead of being able to penetrate deeply into the soil and search for food and moisture below, they are entirely dependent on what they find within their reach above, where the supply often fails. Distressed and checked by sun and drought, the tissues become hardened, and the lettuces are in consequence tough and indigestible and unfit to eat. The best place to get good lettuces at this season of the year is on ridges between rows of celery, as there they have great depth of soil, owing to the addition of that thrown out from the trenches, and as it is principally surface material

they have to root in, and as their elevated position affords them plenty of room, light and air, they are able to reach the fullest stage of development. If the land appears to be at all poor, it is a good plan before digging the trenches for the celery to scatter a thin layer of rotten manure between, which manure the lettuces will have to make use of when they begin to turn in.—*London Garden.*

DOMESTIC ECONOMY.

Spilled Ink.

Spilled ink upon a carpet or other woolen article may be entirely removed in the following manner: While the ink is still wet take clean blotting paper or cotton batting and carefully soak up all that is possible; then pour a little sweet milk on the article and sop it up with clean cotton batting. This must be done several times, each time soaking the milk up with fresh batting and using fresh milk. When the milk is removed wash the spot with clean soap suds and rub dry with a clean cloth. If the ink had become dry the milk must remain on longer and used oftener. With perseverance, however, it will all disappear.

Glass Staining.

Glass staining may be done at home by the following process: Spread over the glass a stroug gum water, and when dry lay it over the paper on which the design is sketched, and trace with a fine hair pencil all the outlines. Dip the tube-like pencils in the colors, and let them flow out upon the glass; have a care and not touch the pencil to the glass. The lights and shades are produced in a variety of ways; one of the easiest, and especially to beginners, is to take a goose quill cut in the shape of a pen, without the slit, and with it carefully take out the lights by lines and little dots. This part of glass staining is the most exacting and difficult, as much of the effect depends upon the shading. The glass is then ready for the kiln.

The Troy Pound.

The Troy pound, still used in this country for weighing the precious metals, is believed to have been derived from the Roman weight of 5759.2 grains, the 125th part of the Alexandrian talent; this weight like the Troy pound, having been divided by the Romans into twelve ounces. The earliest statute of this kingdom in which the Troy weight is named, is the 2 Henry V, statute 2, chapter 4, but the Troy weight is universally allowed to have been in general use from the time of King Edward I. The most ancient system of weights in the Kingdom of England, was the moneyer's pound or the money pound of the Anglo-Saxons, which was continued in use for some centuries after the conquest, being then known as the "tower pound," or sometimes the goldsmith's pound. It contained twelve ounces or 450 grains each, or 5,400 grains, and this weight of silver was a pound sterling. The tower pound was abolished in 1527 by a statute of Henry VIII, which first established Troy weight as the only legal weight for gold and silver, and from this time to the present our system of coinage has been based on the Troy weight, the Troy pound containing 5,760 grains.—*Nature.*

Peanut Flour.

No doubt ere long "peanut flour" will be an important produce of the South. Virginia is set down this year for 2,100,000 bushels, Tennessee for 250,000 and North Carolina at 135,000 bushels, these being the chief States engaged in their cultivation, and those in which it was first introduced from Africa. In Virginia they are called "peanuts," in North Carolina "ground-peas," in Tennessee "goobers," and Georgia, Alabama and Mississippi "pinders." Virginians are beginning to turn the peanuts into flour, and say it makes a peculiarly palatable "biscuit." In Georgia there is a custom, now growing old, of grinding or pounding the shelled peanuts and turning them into pastry, which has some resem-

blance, both in looks and taste, to that made of cocconut, but the peanut pastry is more oily and richer, and, we think, healthier and better every way. If, as some people believe, Africa sent a curse to America in slavery, she certainly conferred upon her a blessing in the universally popular peanut, which grows so well throughout the Southern region that we shall soon be able to cut off the now large importation altogether.

ENTOMOLOGICAL.

The Buffalo Moth or Carpet Beetle.

No insect is more despised and hated by the housekeeper than the "Buffalo Moth" or "Carpet Beetle," as it is called by some. It attacks all flannel, woolen and cotton goods, but especially carpets and rugs.

The technical name of this small but offensive insect is *Anthrenus scrophularia*. The "dermestidae," the family to which these moths belong, are noted for their destructiveness. It is only within the past ten years that it has appeared in this country, and it was not until 1876 that this destructive, though to the naturalist interesting beetle, was examined by entomologists. At about that time Dr. Lintner, the well known entomologist of New York, reared some of them, and after watching the different phases of their life, sent specimens to Dr. LeConte, the famous coleopterist, of Philadelphia, who pronounced them identical with the European species, *Anthrenus scrophularia*. About the same time Dr. Fuller had specimens sent him from central New York, and on comparing with the *Anthreni* in the cabinet of Dr. LeConte, named them *A. lepidus*. To prevent a misunderstanding Dr. LeConte explained that the insects labeled *A. lepidus* in his collection, were sent him from California in 1850, where they were found on flowers; and that they differed from *A. scrophularia*, in having the satural line white instead of red, but that they were in all probability but a variety of the former.

It is the larva and *pupa of this insect which is destructive, the imago or perfect form being harmless; it should be destroyed, however, whenever seen, on account of its oviparous propensities. Dr. A. S. Fuller says of this genus: "The Anthreni are well-known pests of museums of natural history the world over. There are numerous species, some half dozen which are found in this country, including the well known *Anthrenus muscorum* Linn., the great enemy of collections of natural history. But the *Anthrenus scrophularia* of LeConte appears to frequent rugs and carpets, and it is particularly destructive to the latter."

The "Carpet Beetle," like all other insects, has three stages of growth. It first emerges from the egg a small white worm, a thick growth of dark brown hair next appears completely covering the naked little body; it now looks like a little buffalo, whence one of its common names. The change to the pupa or second stage, and to the imago or perfect form, is carried on within the skin. On the approach of winter the skin splits down the back, and the little beetle steps forth after disrobing itself of all encumbrances. It is of dark-brown color, with a bright stripe down the centre of the back; the wing-cases are ornamented with dashes of red; the legs are dark brown, and the eyes a brilliant jetty black.

It is but fair to the housekeeper, after this description of the beetle, to give its habitat and some of the methods used for its extermination. They generally live in the crevices between the boards forming the floor. The best thing then to do is to fill these places with some poisonous substance. Paris-green and borax have been tried without much good result; salt, or cotton saturated with kerosene have been used with better success. Some advocate benzine, but as this is so highly inflammable and consequently dangerous, it is not to be thought of. A very effective way of killing them is to pour a mixture of boiling water, strong potash lye and washing soda into the places where they are supposed to be; some, however, are so tenacious of life that even this does not effect them.

The amount of destruction effected by these insects is almost incredible. Dr. Packard, in speaking of an invasion of a dwelling in Cold Springs, N. Y., during the absence of the family for a year, says: "They took complete possession from attic to cellar, in every nook and crevice of the floors, under matting and carpets, behind pictures, and eating everything in their way."

Nearly every housekeeper in the country has suffered more or less from the ravages of this insect. But if all makes war on it, it is to be hoped that it will soon be exterminated.—*E. A. C., Germantown Telegraph.*

*This is very probably "a slip of the pen," at least we know of no *Culeprous* insect, that is destructive in the pupa state. The "museum-beetle"—*Anthrenus varians*—so destructive to the cabinet of the entomologist, generally passes its pupal period within the skin of the larva, but it then is quiescent and certainly not destructive. We have been for some years looking for the advent of this insect in Lancaster county, but so far, have not heard of its presence here. We have not detected it on our premises, and if it exists elsewhere in the city or county of Lancaster, the people must be oblivious of its presence, which, judging from our experience in reference to some other destructive insects, would not be very extraordinary. If any of our readers are cognizant of its presence on their premises, they will confer a favor by sending us specimens of larva, pupa, and imago.

LITERARY AND PERSONAL.

Illustrated New Mexico, by Hon. William G. Ritch, Secretary of the Territory, and President of the Board of Immigration, 3rd edition, revised and enlarged. Published by the Bureau of Immigration, Santa Fe, New Mexico, 1883.

This is an octavo pamphlet of 141 pages, with embellished paper covers, and thirteen full page illustrations, besides forty-three other illustrations and cuts, two folded plates—namely a topographical map of Las Vegas Hot Springs and vicinity, and a birds eye view of the city of Santa Fe, with explanatory references; and lastly, a map of the Territory of New Mexico, and adjacent Territories and States by which it is bounded.

In this work is condensed an immense amount of information on ancient and modern New Mexico, its organic law; its mining districts; its railroads, their stations and distances; its resources and advantages; its business centres; its people and their patriotism; its water courses; mineral and precious stones; smelting works and mining products. Also its agricultural wealth; its vineyards, pomology and horticulture: its cattle, sheep, swine, horses and mules; its domestic manufactures; mountains and their altitudes; timbers and floral productions. Also its hotels, banks, churches, and public buildings. Besides historical sketches of its different counties, their situations, topographies and productions. Also its coal lands; its native grasses; its stock statistics, its ranches and prominent rancheros—in short, nearly every thing that would be interesting and useful to those who are about to leave their old homes and seek new ones in the far south-west.

It will be remembered that only a few weeks ago New Mexico celebrated the three hundred and thirty third anniversary of her first discovery and settlement by the white race; on which occasion, it held an exhibition of its mineral, agricultural, mechanical and manufacturing products, and made a most magnificent display—especially in the mineral department—which was professedly the leading interest.

Long before California was opened up as a gold region, New Mexico had the reputation of an *El dorado* of silver treasure. Time and "grit" will eventually develop the resources of the country, that are still in "the bowels of the earth."

CROP REPORT of the Kansas State Board of Agriculture, for the month ending July 31, 1883; containing area, estimated production, and condition of crops, condition of fruit, the meteorological summary for the month, and a list of district and county agricultural societies, with names of presidents and secretaries, and the times and places of holding their annual fairs for 1883. Wm. Sims, Secretary, Topeka, Kansas; 19 pp. royal octavo. From

this report we learn that the total crop of *wheat* in the State of Kansas, the present year, is 28,382,919 bushels, a decrease of 7,000,000 bushels on the crop of 1882, and that the average is 18.3 bushels per acre. *Oats* estimated at 29,321,862 bushels. *Corn* could, of course, not even be approximated, but there are 4,655,022 acres of corn in the State. The *rye* crop was demoralized, 14,046 acres being winter killed, 36,979 acres used for pasture, and not harvested; 270,480 acres made a yield of 4,832,296 bushels, averaging 17.9 bushels per acre. *Barley*, so far as heard from, 15,615 acres yielded 312,330 bushels. *Millet* and *Hungarian grass*, yielded 980,994 tons, averaging 2.17 tons per acre. *Irish potatoes*—80,545 acres under cultivation, being 21,382 more than in 1882. *Sorghum*—102,042 acres under cultivation, being 35,208 acres more than in 1882. In other crops there was a decrease on last year, especially in *buckwheat* and *tobacco*. The fruit crop was not so promising on the 31st of July, as it had been a month earlier.

FORTY-EIGHT State and County Fairs were proposed to be held the present season, between September 3d and October 20th.

THE GRASSES OF THE UNITED STATES being a synopsis of the Tribes and Genera, with descriptions of the Genera, and a list of species; prepared by Dr. Geo. Vasey, Botanist of the Department of Agriculture. Special report, No. 63, uniform with other members of the series; pp. 47. Whole number of known genera 114, and of species 589.

OBSERVATIONS on the soils and products of Florida, by William Saunders, Superintendent of Gardens and Grounds, etc., Department of Agriculture, Washington, D. C. Special report, No. 62, pp. 30; an interesting bulletin, and very useful, especially to those who may contemplate a settlement in Florida, with a view to cultivate its soil and general products.

REPORT on condition of crops, "American competition," and freight rates of transportation companies, August, 1883; being special report, No. 64, Department of Agriculture; 80 pp., octavo, Washington, D. C.

The general average of cotton crop had fallen from 90 in July to 84 for August. The presence of the caterpillar in the Gulf coast States were numerous and, of course, correspondingly destructive. This perhaps will always be so, somewhere, notwithstanding all the remedies and appliances, and all that *has* been, and *will* be, written and published upon that hackneyed subject. The fact is, like religion, it does not depend so much on what we *know*, as upon what we *do*, in our efforts to effect a regeneration. Taking the whole area together, the condition of corn had advanced from 88 to 89 per cent. of a perfect crop. The general average for spring wheat, August 1, is 97, the same as in 1882. The condition of oats is represented by 100, and barley 95, the same as in 1882. The returns to August 1 indicate a full development of the potato crop, being 101. Buckwheat is 59 and tobacco at least 88. Sorghum promises a fair yield, and the average condition of sugar-cane is 96.

From Maine to Virginia the condition of timothy on August 1, indicated 100, and a heavy growth of clover had been secured. The highest mark for the whole country is West Virginia, 108. These reports contain much valuable information in detail, and ought to be read by all the cultivators of the soil at least; but, have they access to them, and if so, do they read them?

CIRCULAR of the Pennsylvania State College, 1882-83, with a statement of the courses of instruction, conditions of admission, etc., 32 pp., 8 vo. In looking over the calendar of studies one would hardly suppose this to be an Agricultural College—indeed the term "agriculture" does not at all occur on its title page, and very sparsely elsewhere.

PENNSYLVANIA STATE COLLEGE Agricultural Bulletin, No. 5. Results of experiments on the effect of cutting timothy and clover grass at different stages of growth. The experiments show that there was

an increase of more than 18 per cent. by cutting timothy when nearly ripe, over cutting it when in bloom, and that the yield of clover hay when cut in full bloom was over 18 per cent. greater than when cut and cured at any succeeding stage.

THE NEW YORK SUN.—We have received a copy of the *Sun*, dated September 3d, 1883, and also a *fac simile* of the same paper, dated September 3d, 1833, just half a century ago. The latter is a 9 by 11 folio, and was published daily at 122 William street, by Benjamin H. Day, at "one penny" a number. The *Sun* of the former date is just four times as large, and the present price is "two cents" a number. It will thus be perceived that the subscription price has increased just one hundred per cent., whilst in size and quantity of reading matter, the increase has been over three hundred per cent. to say nothing about the quality and scope of the paper. An editorial in the little sheet of 1833 refers to *Rev. Ephraim K. Avery*, who had been acquitted of the murder of a young girl, one of his parishoners in New Jersey, who was on board of a Hartford steamboat, and had to be put on shore at Middletown, as the passengers objected to his presence on the boat. We well remember the Avery excitement; his spectacled picture in a number of the newspapers, his trial and acquittal, and the indignation it created. There is nothing in this little paper to indicate what its circulation was at this embryotic period of its existence, but the regular circulation of the *Sun* for the week ending September 1, 1883, was 1,086,926. We gather from this latter issue that there are 14 daily *Suns* published in the United States, 7 of which are independent in politics, 3 are Democratic, 2 or 3 are Republican, and one is a College paper; in addition to these, there are 66 weekly *Suns* in the United States, 31 of which are independent or neutral in politics, 22 are Democratic, 9 are Republican, 2 are Greenbackers, 1 is religious and 1 is humorous. In other parts of the world there are 16 papers published named the *Sun*, 4 of which are daily, one semi-weekly, and the remainder weekly. The entire first page of the *Sun* of September, 1883, is devoted to a historical sketch of the *Sun*, from its infancy down to the present time, which is very interesting reading. Mr. Day, the Yankee founder of the paper, is still alive, but, like the lady, who was past a certain age, alleged that the eyes of the needles were not as large as they were when *she* was a girl. So *he*, practically, thinks the types are not as large as when he commenced the paper, and therefore he would like to see them as large as "long primer," at least. "Vive le (New York) *Soleil*," vive l'Amérique."

AREA AND PRODUCT OF CEREALS grown in 1879, as returned by the Census of 1880, 97 pp., 8 vo., entirely made up of statistical tables; from which it appears, that the corn product in that year was 1,754,591,676 bushels; Wheat 459,483,137 bushels; and oats 407,858,999 bushels, grown in 48 States and Territories, under the United States Government. The corn was grown on 62,668,676 acres; the oats, 16,144,593 acres, and the wheat 35,430,333 acres. In addition to these, there were 1,997,727 acres in barley, yielding 43,997,495 bushels; 848,389 acres in buckwheat, yielding 11,817,327 bushels, and 1,824,233 acres in rye, yielding 19,831,595 bushels.

INVESTIGATIONS OF SORGHUM, as a sugar producing plant during the season of 1882, by Peter Collier, chemist. Special Report of the Department of Agriculture. 66 pp., 8 vo., and an index, with two large folded tables of experiments, and an explanatory chart, the details of which we have not space to give, and perhaps, would elicit but little interest if they were given. The general conclusion reached is, that the production of over one ton of sorghum sugar from an acre of ground, is far beyond the results, or even the hopes of most of those interested in its cultivation, and yet the averages shown in sundry experiments illustrate that such a result is by no means unreasonable.

ENCOURAGEMENT of the Sorghum and Beet sugar Industry, being a record of practical experiments

conducted under the direction of the Commissioner of Agriculture, 64 pp. 8 vo. This pamphlet goes into the details of sorghum and beet culture, factories and necessary machinery, process of manufacture, profit and loss, expenses and outcome, tests and a hundred matters connected with this industry, throwing that light upon the subject which those intending to engage in the enterprise should avail themselves of before they embark in it.

THE SUGAR BEET, 16 pp. quarto. Fourth year, No. 3, August, 1883, Philadelphia, Pa. This is an able advocate of the beet sugar industry, excellently gotten up, and always interesting and instructive. Wholly and solely devoted to the cultivation and utilization of the sugar beet, it fully believes in its ultimate success.

AMERICAN JOURNALIST.—Published monthly by the *American Journalist Publishing and Printing Company*, at 505 Chestnut street, St. Louis, Mo., at \$2 a year, invariably in advance. R. P. Yorkston, President and Treasurer; C. C. Howard, Vice President; Wm. H. Kerns, Secretary; R. P. Yorkston, Editor. A two columned Royal quarto of 28 pages, in fine tinted covers, and the typography and material of which, "is an honor to the craft." No. 1, vol. 1, of this "brand new" enterprise, has found its way to our sanctum, and none are more welcome. In his initiatory, the editor says: "The journalistic profession is the only one existing at the present time that is without a medium of intercourse between its respective members." "The *Journalist* is therefore sent out to represent the interests of the working writers of the press throughout the land; to bring into communion him who does his work on the Atlantic coast with his contemporary laborer on the shores of the Pacific; and to constitute such a medium as will give to the toilers of the pen just recognition for the services they are devoting to mankind." A very interesting paper on the journalism of Missouri, embellished with fine portraits of George Knapp, William Hyde, Daniel M. Houser, Joseph H. McCullagh, John N. Edwards, and John A. Cockerill—all distinguished journalists of the State—constitutes the initial article in this first number; followed by a paper on *French Journalism*, by E. J. Biddle; *Sporting Journalists*, by David L. Reid, and *Old Ruts in Printing Machinery*, by a Mechanical Engineer. Among "newspaper notes" from Pennsylvania, we find the following interesting paragraph: "The three oldest living compositors in Pennsylvania reside in Harrisburg. They are Gen. Simon Cameron, aged 86 years; George W. Scott, aged 85 years, and Jacob Babb, aged 83 years." A "National Editorial Directory" is established in its columns, in which "only the staffs of daily papers taking press dispatches will appear." Thus far, only eight have reported from Pennsylvania, the nearest to us, of which is Harrisburg; but other towns of less population than Lancaster are represented. This department, of course, is still incomplete, but it will be revised and corrected to date of each monthly issue. This number is the beginning of an important undertaking, and no doubt it will ultimately be a big one. Thus, one by one, the vacuums in the literary world, as they are discovered, are being filled. The world moves.

SPIRIT OF THE FARM.—A weekly journal, devoted to agriculture and live stock, Nashville, Tennessee, September 2, 1883, No. 1, Vol. 1, 16 pp. royal quarto, published by the "Spirit of the Farm Publishing Company," southwest corner Church and College streets, at \$2 a year; B. M. Hord, editor, C. F. Vanderford, assistant. The editor says: "It will be my earnest endeavor to make the *Spirit of the Farm* what its name literally implies—the *spirit of the farm* in every respect. Born of the farmers, it shall be for the farmer, and to the farmer from the farmer, for to them will I look for the results of those lessons learned from the best of all teachers—practical experience in the field. We sincerely wish he may realize all his anticipations, and that his sustainers may "never be weary of well doing." Farmers are the only men, in the main, to make up a reliable and practical agricultural paper. The *Spirit of the Farm* makes a creditable beginning.

LUCKY EXHIBITORS.

PRIZES WON AT THE LANCASTER FAIR

Full List of the Awards of Premiums by the Judges of the Independent State Fair.

Below will be found a list of premiums awarded by the committees in charge of the several departments of the Independent State Fair. The list is copied from the official records, and where not otherwise specified the awards were first premiums:

Cattle.

CLASS 1—HERDS.

Best herd, 1st, M L Greider, Mt Joy.

CLASS 2—DURHAMS.

Cow, 4 years old and over, Dunlap & Bro., Lancaster.

CLASS 3—JERSEYS AND ALDERNEYS.

Bull, 3 years old and over, 1st, Lemuel Zook, West Earl; 2d, B J McGrann, Lancaster; bull, 3 years old, 1st, M L Greider, Mount Joy; bull calf, 1st, M L Greider, Mount Joy; cow, 4 years old and over, 1st, M L Greider, Mount Joy; 2d, B J McGrann, Lancaster; cow, 3 years old, 1st, B J McGrann; 2d, M L Greider; heifer, 2 years old, 1st, B J McGrann; 2d, M L Greider; heifer, 1 year old, 1st, M L Greider; 2d, B J McGrann; heifer calf, 1st, Lemuel Zook.

Horses.

CLASS 7—ROADSTERS.

Stallion 4 years and over: 1st, C H Robinson, Rockville; 2d, A C Mylin, Willow Street; stallion 3 years and over: D D Carter, Woodstock, W Va; stallion 2 years old and over: D D Carter, Woodstock, W Va. Gelding 4 years old and over: Gottlieb Wenninger; gelding 2 years old and over: J L Gingrich, Bainbridge. Mare 4 years old and over: 1st and 2d, D D Carter; mare 3 years old and over: 1st and 2d, J L Gingrich; yearling: Elias Heisey.

CLASS 8—GENERAL USE.

Stallion 3 years old: D D Carter, Woodstock, W Va; stallion 2 years old: D D Carter. Gelding 4 years and over: Joseph Sondheimer, Lancaster. Mare 4 years old and over D D Carter.

CLASS 9—DRAFT.

Stallion 4 years old and over: 1st, John Best, Lancaster; 2d, C A Robinson, Rockville; stallion 2 years old and over: 1st, M H Wenger. Mare 4 years old and over: 1st, John B Keadig; mare 2 years old and over: 1st, John B Keadig; 2d, M H Wenger.

CLASS 10—CARRIAGE HORSES.

Carriage Animal, Joseph Sondheimer; saddle horse, 1st, D D Carter, Woodstock, W. Va.; carriage team, 1st, M Moore, Woodstock, W. Va.

Swine.

CLASS 15—CHESTER WHITES.

Boar, 6 months old; sow 1 year and over; sow, 6 months old; sow under 6 months; brood sow and pigs—M L Greider.

CLASS 21—VEHICLES.

Single top buggy, Norbeck & Miley; phaeton, Ederly & Co.; two horse family carriage, Norbeck & Miley; two horse family stationary top, Ederly & Co.; single top buggy, Ederly & Co.; single top buggy, spiral spring, Norbeck & Miley; farm wagon, dip., Sensenig hardware company; platform wagon, S B Cox; woodwork for buggy, B. F. Skeen; sleigh, H A Diller; display of farm carriages, Ederly & Co.; carriage wheels, diploma, dip., H M Powers, John Laughlin, York; Sulky, H A Diller; bent feloes, diplomas, Jacob Fetter, Philip Lebzelter & Co.; wagon bows, S B Cox; Irish Gilgary gig, Norbeck & Miley; carriage parts, H A Diller; coal wagon, Ritter & Barnhart; table legs, shafts, spokes and hubs, Philip Lebzelter & Co.; carriage seat, hubs, H A Diller.

CLASS 22—FURNITURE, ETC.

Ironing table, J K Worth; breakfast table, extension table, A K Hoffmeier; parlor set, bedroom set, J M Keiper; coal oil stove, J Hiesten Stauffer; display of stoves and tinware, Messrs A C Kepler and George M Steinman & Co.; bed spring, George A Geyer; sideboard, marble top table, J M Keiper; antique furniture, Aug F Reinohl; table and desk legs, library extension table, combined table, sewing table, kitchen dresser, table hinge, table top, table leaf and dowel; sink, A K Hoffmeier; slicing machine, M M Sourbeer;

butter print and box, butter worker, butter machine, John B Shelly; eburn, diplomas, J S Connelly, Manheim; washing machine, Jacob B Herschok; creamer, J S Cornelly; old clock, antique sideboard, Aug F Reinohl.

CLASS 25—COOPERAGE.

Display of cooperage, Benj. Heiliue.

CLASS 24—LEATHER WORK.

Upper leather, calf skin, kip, harness leather, A. M. Redsocker & Son; display of leather, A. A. Myers & Co.; display of boots and shoes, Shaub & Burns; single harness, Geo W Baker & Co; horse collars, Elias Heisey; display of belting and belting leather, Potts, Lecher & Diekey.

CLASS 25—MILLERS' GOODS.

Red wheat flour, D B Landis & Son.

CLASS 28—MISCELLANEOUS.

Case of files, A F Spencer; display of edge tools, Wm Brady & Co; display of wall paper, J B Martin & Co; folding fish net, D D Burkholder; carpets and mats, diploma, H S Shirk and J B Martin & Co; gents' furnishing goods, E J Erisman; millinery goods, Astrich & Co; umbrellas, J Rose & Son; children's cloak, Astrich & Co; China, crockery and glassware, J B Martin & Co; patent medicines and condition powders, B H Kauffman; saw fish, D M Retzer; maps and charts, Morrison J Murray; display of combs, Dana Graham & Son; cedar canoe, Herman Astrich; sail boat, Harry H. Woodman; mantels, Guthrie & Son; sunflower, John Eibel; incubator, Frank Humphreville; combination table, D. H. Ingham; hygienic bread, Thomas Keller and Dr. Weltmar, Lititz.

CLASS 19—POULTRY, PET STOCK, ETC.

Black Bantams, 1st and 2d, Chas Lippold, Lancaster; Seabright Bantams, 1st and 2d, Chas Lippold, Lancaster; Light Brahmas, 1st, Dr I H Mayer, Willow Street; 2d, John Seldomridge, Ephrata; Black Cochins, 1st, Dr E. H Witmer, Neffsville; 2d, W A Schoenberger; Buff Cochins, 1st, — Grosh, Landis Valley; 2d, John Seldomridge; Red Games J B Lichty, Lancaster; Duckwing Games, 1st and 2d, John F Reed; Pile Games, 1st and 2d, W F Schoenberger; Black Hamburgs, 1st, Chas Lippold; White Leghorns, 1st, E Thoma; 2d, Samuel Guntner, Egg Harbor; Brown Leghorns, 1st, Zachariah Weaver, Lancaster; 2d, J B Lichty; Houdans, 1st, C C Baker, Elizabethtown; Plymouth Rocks, 1st, — Grosh; 2d, J B Lichty, Lancaster; Black Spanish, 1st and 2d, — Grosh; Golden Polish, Jacob B Long, Silver Polish, Jacob B Long; White Polish, Mrs Eby Stoehr; W & C B., F H Henessy; Cayuga Ducks, 1st, J C Burrows, Lancaster; Pekin Ducks, 1st, George A Geyer, Florence; 2d, — Grosh; Rouen Ducks, 1st, George A Geyer; Bronze Turkeys, 1st, M L Greider, Mount Joy; Japanese Turkeys, 1st, Dr E H Witmer, Neffsville, B B Red Bantams, 1st, Chas Lippold; Display of Poultry, 1st, Chas Lippold, 2d, Samuel Guntner, Egg Harbor; Canary, 1st, Chas Lippold; 2d, Mrs D W Reineer; Mocking Bird, 1st, Chas Lippold; Parrot, 1st, Mrs D W Reineer; Red Bird, 1st, Chas Lippold; Toulouse Duck, 1st, Geo A Geiger.

Pigeons.

Carriers: 1st and 2d, John E. Shum; Pouters 1st, C S Greider, Mount Joy; 2d, Charles Lippold.

Gantails, 1st, Chas. Lippold; 2d, C S Greider; Jacobins, 1st, C S Greider; 2d, John E Schum; Tumblers, 1st, Chas Lippold; 2d, John E Schum; Turbits, 1st, Chas Lippold; 2d, John E Schum; Trumpeters, 1st, C S Greider; 2d, Chas Lippold; Antwerps, 1st, David Beidle; 2d, Chas Lippold; Swallows, 1st, John E Schum; Magpies, 1st, John E Schum; 2d, C S Greider; Display of pigeons, 2d, John E Schum; Russian Muffles, 1st, John E Schum; Aquarium of fish, 1st, Lancaster Piscatorial Company; Case of birds' eggs, 1st, John B Bastian, Jr, Marietta, Pa.; English pug dogs, 1st, B W Hirsh, Lancaster; Blue Owls, 1st, Chas Lippold; More Caps, 1st, Chas Lippold; White Rabbits, 1st, Dr E H Witmer.

CLASS 34—GRAIN, GRASSES AND VEGETABLES.

Turnip beets, Jacob M. Mayer, Lancaster; yellow corn Christ B Esbenschade.

Potatoes.

Snow Flake, Bliss Triumph, S Lem Fry, Ephrata; Early Rose, Christian B Esbenschade; V'zter, M L Greider; Peerless, Jacob M Mayer; Burbank, M L Greider; Garfield, Jacob M Mayer; White Star, S Lem Fry; White Elephant, Jacob M Mayer; Ephrata Valley Champion, Orange, Superior, American Giant, State of Maine, Early Vermont, Early Sunrise, Boston Market, Magnum Bonum, McCormick, Chicago Market, Dunmore, Conqueror, Mammoth Pearl, Rosy Mern, Buckeye,

S Lem Fry; white wheat, M L Greider; red wheat, M L Greider; winter squash, Herman Wiand; tomatoes, Jacob M Mayer; gourd, Christian B Esbenschade; peppers, Jacob M. Mayer; onions D W Ritzler, Merhanics Grove.

Apples.

CLASS 35—FRUITS.

Fallowater, Hubbardston, Nonsuch, Seck no Further, Red Streak, Netley, Pinneck, Sheepnose, York Imperial, Summer Sweet, Smith's Cider, Maiden Blush, Canislot Pippin, Seedling, Romani, Spoonhower, Pittsburg Pippin, Green Sweet, Fallwine, Levi S. Reist, Rhode Island Greening, Roxbury, Smokehouse, S. Lem Fry.

Grapes.

Concord, Keystone Seedling, Moores Early Sanasqua, Martha, Seedling Nos. 7, 8 and 12, Perkins, John Kready, Salunga; Ives Isabella, Wm. Weidle; Hartford, Lady, Jacob M. Mayer; Clinton, Jacob M Frantz; Telegraph, B F Althouse; Rogers, A H Yeager.

Peaches.

Best Plate, Fanny Kready; Susquachanna, Crawford Late, Sehner, Foster, Limb of Peaches, Stump the World, Seedling, Wm. Weidle.

Pears.

Best plate, Chas Lippold; Buerre de Hiver, Vicar of Wakefield, Angouleme, Buerre Esther, Mt. Vernon, Washington, Buerre Diel, Bonne D'Jersey, Stevens Genissee, Sheldon, Hewell, Belle Lucrative, Buerre Clariga, Buerre Bose, Glout Moreau, Kirtland, Virgalien, Henderson, Quincy, Brocksworth, Buffon, Flemish Beauty, Christini, Winter Nettles, Lawrence, Wm W Weidle; Urbamste, Buerre D'Auyon, Doyeme Bassook, Mrs Chas B Long; Bartlett, Mary Brame; Seckel, Mrs Jacob B Long; Plums, Raspberries, Figs, John Kready.

CLASS 30, 31 AND 32.

Woolen bed spread, Philip Schum, Son & Co.; patchwork quilt, M A Fleming, Salisbury; door mat, Mrs Clara Libbley; pair leggings, Miss J Reinstein; pair socks, pair mittens, Mrs Jacob Earhart; pair coverlids, John Zuerker; satin quilt, Jane Hess; suspenders, Miss H A Martin; pillow shams, Mrs C E High; silk quilt, silk velvet quilt, Mrs J C Detweiler; counterpane, Philip Schum, Son & Co.; silk purse, infant's shirt, stamped napkins, doll's stockings and cap, woolen lace, doll's Jersey, knit coat and cap, stamped satin, Miss J Reinstein; pair cushions, Mary Bachler; dress, Mrs Sue Wolfersberger; knit work, Miss H A Martin; embroidered work, Miss Laura Geiger; tatting, Mary Bachler; organ spread, Mrs J C Detweiler; display of needle work, Mrs. J R Royer; sofa pillow, Mrs Clara Libbley; McCrome work basket, crochet wrap, slippers, emb. table scarf, specimen out-lining, Mrs. Jacob Earhart; chair stripe-carriage afghan, Mary C Bear, Leacock; table spread, Mrs. R A Malone; lamp shade, worked chair seat, embroidered frame, transfer tidy, Mrs C Bear; tufted work, Lizzie B Bear, Rohrerstown; table lambrequin, fire screen, Mrs. J C Detweiler; tidy, Laura E Bucher; mantle lambrequin, Lizzie Stoehr; embroidered towel, Mrs Dr Moore; sofa cover, Mrs Freiderman; flannel shirt, crochet thread tidy, worsted tidy, Mrs Jacob Earhart; set lamp mats, Miss J Reinstein; chair seat, Mrs Jacob Earhart; wax work, embalmed flowers, Mrs A F Spencer; seed wreath, Agnes Single; fancy balloon, Mrs Jacob Earhart; hair flowers, Mrs Clara Libbley; case dyed feathers, E Thoma; preserved flowers, Ella S Bowers, Millersville; worsted picture, Mrs Clara Libbley.

Fine Arts.

Pen drawing, H C Weidler, Lancaster; pencil drawing, Julia Keller; crayon drawing, J P Abraham; India ink drawing, W D Messer; oil portrait, Julia A Keller; water color, B F Saylor; water color landscape, Betz & Richards; pastel picture, Indian ink picture, J P Abraham; display of instantaneous photographs, J E Rote; specimen penmanship, W D Messer; crayon portrait, J W Hubley; blackboard surface, E Bockinger; pastel water color portrait, pastel ink colored portrait, pastel animal painting, J P Abraham.

The judges announce the following discretionary premiums: S S Royer & Son, Mount Joy, shaft tugs; George Flick, Lancaster, a growing pine-apple, the only one on the grounds; Frank Crome, Lancaster, fine oil paintings; Guthrie & Son, for fine graining and favorable mention for water strip; Wm Kuntzman, Nazareth, for grain tools, 1st premium; E W Weaver, Eden nursery, for display of evergreens, etc, 1st premium; H M Ilysis, quinces, 1st premium; William Kirkpatrick, tobacco scrap cutter, favorable mention.

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HEINITSH'S, No. 15 1/2 East King st., (over China Hall) is the cheapest place in Lancaster to buy Furniture. Picture Frames a specialty.

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LANCASTER, PA. OCTOBER, 1883.

JOHN A. HIESTAND, Publisher

Entered at the Post Office at Lancaster as Second Class Matter.

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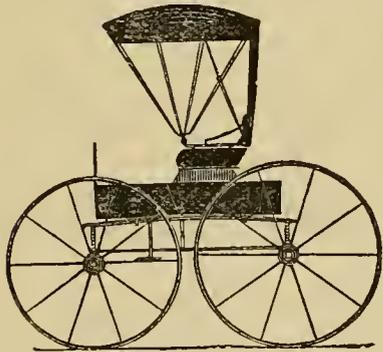
PENNSYLVANIA RAILROAD SCHEDULE.
On and after SUNDAY, JUNE 24, 1883, trains leave the Depot in this city, as follows:

WE TWARD.		Leave	Arrive
Pacific Express*	Lancaster.	1:35 a. m.	Harrisburg. 2:55 a. m.
News Express*		6:25 a. m.	7:30 a. m.
Way Passenger*		6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy*		9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia.*		9:35 a. m.	11:05 a. m.
Niagara Express		9:45 a. m.	10:55 a. m.
Hanover Accommodation..		9:50 a. m.	Col. 10:20 a. m.
Fast Line*		1:35 p. m.	2:55 p. m.
Frederick Accommodation.		1:45 p. m.	Col. 2:15 p. m.
Lancaster Accommod'n.		2:30 p. m.	4:00 p. m.
Harrisburg Accom.		5:20 p. m.	7:20 p. m.
Columbia Accommodation..		7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express		7:40 p. m.	8:50 p. m.
Western Express		11:10 p. m.	12:25 a. m.
EASTWARD.		Lancaster.	Philadelph
Mail Express*		12:42 a. m.	2:55 a. m.
Philadelphia Express		2:27 a. m.	4:25 a. m.
Fast Line*		5:35 a. m.	7:50 a. m.
Harrisburg Express		8:10 a. m.	10:20 a. m.
Columbia Accommodation..		9:00 a. m.	11:45 a. m.
Seashore Express		12:58 p. m.	3:15 p. m.
Johnstown Express		2:20 p. m.	5:05 p. m.
Day Express*		5:25 p. m.	7:25 p. m.
Harrisburg Accom.		6:45 p. m.	9:45 p. m.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 1:35 p. m., and runs to Frederick. Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m. will run through to Hanover daily except Sunday. Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York. The Fast Line, west, on Sunday, when flagged, will stop at Downingtown, Coatesville, Parkesburg, Mount Joy, Elizabethtown and Middletown. The Johnstown Express from the west, will connect at Harrisburg on Sundays with Sunday Mail east, for Philadelphia, via Marietta and Columbia.

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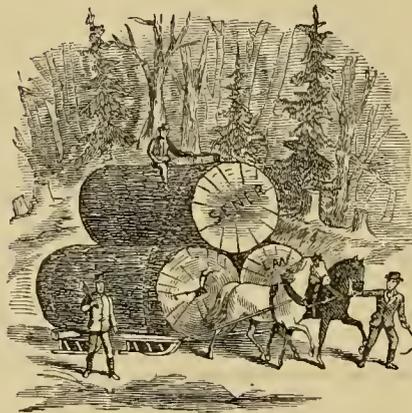
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., OCTOBER, 1883.

Vol. XV. No. 10.

EDITORIAL.

ARTIFICIAL EGGS.

"Mer maned mer mist yousht narrish sic."

The following from the *Manchester (N. H.) Mirror and Farmer*, is certainly a "new wrinkle" in domestic production, and no wonder the staid old Lancaster county dame should give utterance to the above significant expression. She had heard of wooden hams, nutmegs and cucumber seeds, and also of porcelain "nest eggs," but *edible* artificial eggs, approximated the chemical process of producing butter from grass or hay without the intervention of the cow; and here were eggs without the intervention of rooster or hen, goose or gander, duck or drake, enough to shake the powers of human reason to believe, even in this progressive age.

"Parties in Paterson, New Jersey, have an establishment in which artificial eggs are manufactured, and a large amount of business in this line is done. The yolk mixture consists of corn meal, cornstarch and several other ingredients. It is poured into an opening in a thick, mushy state, and is formed by the machine into a ball and frozen. In this condition it passes into another box, where it is surrounded by the white, which is chemically the same as the real egg. This is also frozen, and by a peculiar rotary motion of the machine an oval shape is imparted to it, and it passes into the next receptacle where it receives the thin filmy skin. After this it has only to go into the sheller, where it gets its last coat, in the shape of a Plaster-of-Paris shell, a trifle thicker than the genuine article. Then it goes out in the drying trays, where the shell dries at once, and the inside thaws out gradually. It becomes to all appearances a real egg."

"About a thousand eggs are turned out in an hour, and orders are so numerous that the firm cannot fill half of them. The price charged is \$13 per thousand. By a little flavoring and change of size, it is claimed that the eggs may be made to taste like goose or duck eggs. It is said the eggs never spoil, and, being harder and thicker in their shells, will stand shipment better than real eggs. The firm has just received an order for a lot of different colored Easter eggs."

Good-by "hebiddies" and "shebiddies," good-by the Sonorous crow and the big cackel, good-by the gallic refrain and the motherly cluck, good-by, your "occupation's gone." What next? Oleomargarine butter and cheese supplant the cow. Artificial eggs supplant the hen, the duck, and the goose, and we are still within the last quarter of the nineteenth century. Who knows but that the ingenious inventors of these edible compounds will have monuments erected to their memories before the century closes? There is no cheat in these productions, as there is in wooden hams, horn gunflints, and maple cucumber seeds. They are substances that will satisfy hunger, fill

the stomach, and afford nutriment. We drink flavored dish-water and call it wine, aqua fortis and call it whisky. Why not oleomargarine and sham eggs?

GLASS ROOF-TILES.

"Wonders surely will never cease," for, although glass roof-lights, glass floor lights, and similar applications of glass were very common, yet in these progressive days we are having entire roofs of buildings covered with glass-tiles. Mr. Jacob Rupp, of West Earl township, Lancaster county, has had a large barn entirely covered with glass-tiles. These tiles are made in different colors, similar to those used for church and car purposes, except that they are not so ornamental, being merely corrugated or grooved and ridged crosswise diagonally, allowing all the water to run off immediately. We have specimens of two of these glass tiles, in fragments before us; namely, the green and the brown, and there seems to be no question about their adaptability and durability, always, perhaps, provide the possessors of such roofs observe the old *saw*—"those that live in glass houses never should throw stones." From their texture and appearance, however, we have reason to believe that they will resist a more violent concussion than slate. And as to expansion and contraction from intense heat and cold, they are, perhaps, less liable to injury than metal, the tiles being in small independent sections, and so arranged as to provide for these contingencies. Another advantage, we opine, is in their ability to transmit light, for although in five different colors, yet they are not opaque, but allow a soft translucent light to pass through them. Being in a variety of colors they also allow of a variety of ornamentation, and thus break the sombre monotony of slate, metal, or shingles, besides, they are non-corrosive and need no paint.

THE LATE INDEPENDENT STATE FAIR.

So far as we have been able to learn, the late *Independent State Fair* was, at least, a financial success to the conductor of it, and, on the whole, the display, except in a few essential specialties was about equal to exhibitions of this kind in general. It seems to illustrate one thing very forcibly, and that is, that the people of Lancaster county—at least the young and middle aged portion of them—require an outlet for "fun and frolick" about once a year, if not oftener; and, that they are not very particular who furnishes it, or at what cost. It also illustrates that such an exhibition will be financially encouraged, if not amply remunerated, when the proper attractions are furnished to *draw* the people who patronize it; but just how far it may advance the cause of agriculture, is a question upon which there may be divers and diverse opinions. It is said by those who profess to be "posted" on the subject, that Mr. Snively

realized a profit on his exhibition, of not less than *ten thousand dollars*, which, we opine, is fully nine hundred per cent. more than was ever realized by any agricultural fair held in the county of Lancaster since its first organization, except those held in it by the State Society. Of course, all this profit was carried away from the county of Lancaster, and there was a "balance of trade" of just that amount against her, unless she was compensated in new and advanced ideas in agricultural, mechanical, and domestic uses. It is probable, however, that the great bulk of the sustaining element of such exhibitions has very little regard to *use*, except so far as it may contribute to *amusement*. Seeing that amusement is a fundamental element of humanity, and that its gratification will be sought for, and paid for, it becomes a matter of anxious concern how to cater for and regulate it. It seems impossible to repress it, because it constitutes the very warp and woof of the mental constitution of man, whether a saint or a sinner. The difficulty seems to be in fixing its limits and its quality, because every free-born man or woman, claims the liberty of fixing that for themselves. One thing seems to have been confirmed by experience, and that is, no agricultural exhibition—except perhaps in a large city—can hope to be a financial success, without the elements of amusement.

Another important lesson is involved in the late fair, and that is untiring personal energy. Except until the gates of the exhibition were opened to the public, the press of Lancaster city and county was almost silent upon the subject, therefore, the "writing up" of a fair means nothing, unless it is backed up by enterprise and personal energy; and, it becomes a question whether all such enterprises had not better be carried through by individual contract; because, as a general thing, "too many cooks spoil the broth," or, "What is everybody's business, is nobody's business." Farmers who till their own lands, and who furnish the agricultural material which goes to make up such an exhibition, cannot afford to fritter away a whole week in attending to the details of a fair at a season when they are most needed on their farms, and those who do not personally till their acres, do not feel sufficient interest in the progress of such exhibitions to give their time and attention to them.

Whatever evils may incidentally be attached to these gatherings, it is very certain that the progressive farmer may glean better ideas of stock, implements, machinery, and the various domestic contrivances, from seeing them and witnessing their operation, than he can from the most elaborately written description; and, the inventors, contrivers, and builders of them, cannot advertise them more satisfactorily than they can by a personal and practical elucidation on a fair ground, where they can command an audience. But here comes in the "rub." If an inventor, or manufacturer, may exhibit and illustrate the

quality of his machinery, what is to prevent the stockman from exhibiting the qualities of his stock, whatever it may be? And as discriminating between stock, shall cattle, sheep, and swine be admitted, and horses be interdicted? If it is legitimate, and even praiseworthy, for a locomotive to make its mile, or its ten miles, in the shortest tenure of time, why may not a horse do the same, seeing that there are proportionally as many necks broken by the one as by the other? These are the questions that must first be satisfactorily settled in Lancaster county before she can have a successful home-fair; until then, she may expect to be "bled" by foreign enterprises.

LITERARY PIRACY.

For a pure and unadulterated article of cheek, we are willing to award the persimmon to the scissor editor of the *Lancaster* (Pa.) *Farmer*, who, in his issue for September, transfers our "Horticultural Department," of September 8, without a change or a word of credit, to his columns as original. We employ and pay Mr. Meehan, a skilled horticulturist, to edit our department, and Dr. S. S. Rathvon, or whoever else is responsible, is guilty of an act of piracy unworthy the paper he is supposed to edit. All we desire is proper credit for what costs us money and time. We credit every paragraph from other papers, and if we are not treated with like courtesy, we will show up the journalistic pirate who takes our matter. A single article might be clipped unthinkingly, but when a whole column is taken without credit it is simply theft.—October 6, 1883.

The above *savage* paragraph, from the *Germantown Independent*, was sent to us by mail, and we exceedingly regret that there was a seeming necessity to write in such a strain. Knowing how a man feels under such a castigation, we thank God that we have never written such a paragraph, although we have frequently had provocation to do so; but we argued that the articles must have had some merit or they would not have been appropriated, and knowing that the result would only be a wider diffusion, we have always been content.

In our September number we reprinted articles credited to the *Germantown Telegraph*, *Breeders Gazette*, *Western Rural*, *Philadelphia Ledger*, *Live Stock Journal*, *Country Gentleman*, *Farm and Fireside*, *Indiana Farmer*, *Virginia Enterprise*, *London Garden*, *Nature*, *U. S. Consul Allen* and others, not one of which, perhaps, was taken from the papers in which they originally appeared, and by the same process we also frequently appropriate articles that are not credited to any journal. And in pursuance of this we have been subsequently reminded that we omitted to credit them to their proper sources—sources that we never knew. We cannot say how it occurred that the *Independent's* excellent Horticultural articles were inserted without due credit being given. We acknowledge that we "scissor" all, or nearly all, that goes into the columns of the *FARMER*, and we endeavor to be careful to give every one the credit due them; but, we are an Editor, as it were, by our own sufferance, our *sanctum*, where all our literary and scientific labor is performed by the "midnight lamp," is a mile from the printing office, and very often we have time to read no proof but that of our own articles; and yet, we would scorn to resort to

any subterfuge through which the responsibility for these omissions would be imposed upon the printers.

If we know the intents and purposes of our own heart, we are not, and never have been, a "literary pirate." If any thing in our course and conduct has such a seeming, it is so inadvertently, nor do we believe that those who know us will accord to us any remarkable degree of "cheek." If editing an Agricultural paper were our special avocation, and we had nothing else to do but that, we, perhaps, might avoid these errors and omissions, but it is far otherwise with us, nevertheless we do not claim any special indulgence on that account and are willing to bear the responsibility.

We insert the above paragraph, and the purloined articles may be found on page 142 (September number) of the *FARMER*, willing that the whole may be transmitted to posterity just as they occurred; and we do so without the least hesitation or misgiving; because, so far as we are concerned the act was unintentional, and also because we wish the impartial reader to judge whether such an offense, under all the circumstances, deserved such a punishment. And, to make the thing still more explicit, the articles in our Horticultural department entitled "Cornell's Fancy Apple," "Calla Lilies," "Native Lilies," "Moore's Grape," "Honeysuckles," and perhaps others, were written by Mr. Meehan, for which he was paid, and were inadvertently copied from the *Germantown Independent*, without credit, by the *LANCASTER FARMER*. We don't wish anything to appear in the columns of the *FARMER*, as "original," that is not original, nor does the bare fact that they are found in our Horticultural columns assert any such claim. It is not for us to say whether the *Independent* has done right or wrong in handling us so roughly, it all depends upon which foot the boot is on, or whose ox is gored; but, to us, it would have been more agreeable if reproof had come in a different form. Doubtless, *per se*, there is too much literary theft in these United States, to be morally healthful or honorable, but there surely must be some difference between an intentional and willful theft, and one that is unintentional, or the result of accident. Professional editors, however, look at these things differently. On one occasion we were answered thusly: "Oh, well, your article must have had merit, or it would not have been copied without credit, and that ought to be a sufficient compensation."

"DO HUMMING-BIRDS FLY BACKWARDS?"

[From Science for September, 1883.]

The Duke of Argyll, in his *Reign of Law* (p. 145), lays it down in italics that "*No bird can ever fly backwards.*" He mentions the humming-bird as appearing to do so, but maintains that in reality the bird falls, rather than flies, when, for instance, he comes out of a tubular flower. But this morning, while watching the motions of a humming bird (*Trochilus colubris*), it occurred to me to test this dictum of the Duke; and, unless my eyes were altogether at fault, the bird did actually fly backwards. He was probing one after another the blossoms of a *Petunia* bed, and more than once, when the flower happened to be low down, he plainly rose, rather than fell, as he backed out of and away from it. I

stood within a yard or two of him, and do not believe that I was deceived.

It may not be amiss to add that the Duke of Argyll's objections seem to be purely theoretical, since the "*Reign of Law*" was published in 1866, and it was not till 1879 that the author came to America and saw the first living humming-bird.—*Bradford Torrey*, Boston, September 14, 1883.

Of course this has little or nothing to do with the advance of improved agricultural ideas, but it is nevertheless interesting in point of historical fact, or what has a strong seeming in that direction. We could say, also, if our eyes did not deceive us, that we could not only corroborate Mr. Torrey's observations, but we could go a little farther and suggest that the humming-bird can not only fly backwards, but it can also fly sideways. It does not actually drop out, or back out of a flower, for the simple reason that it never gets into one any farther than the whirring motion of its wings will allow—and that is with the tongue, the bill, or the front portion of the head, according to the size of the flower. On several occasions last summer we noticed humming-birds visiting low flowers, such as petunias, pansies, verbeneas, and on one occasion one of these birds approached so near to us that we might have nearly or quite reached it by the extension of our arm. We were on the spot when it came, and as we stood "stalk still" it probably took us for a statue; at all events it left without a consciousness of a living presence.

We also observed that this bird did not always approach the flower with the body in a horizontal position, as they are usually represented; especially not when they visited low flowers. The body had a sort of oscillating motion, between a horizontal and a vertical plane, with the tail drawn well under, and the head and bill at a right angle from the body; these positions were, however, rapidly changed while the bird was poised on the wing; and in these positions it moved forwards, backwards and sideways without any motion that looked like dropping. In higher and larger flowers, and where there were a number on the same horizontal plane, the bird backed away from one and entered another, evidently flying backward, forward and sideward, and when at length it flew away the wings seemed to cease their rapid, bee-like motion, and it glided off in an ordinary bird flight, but much swifter. Whilst this was so, or seemed to be so, yet when the opening of the flower hung much downward the bird did seem to drop, and there was the faintest and most momentary cessation of the vibrating motion of the wings, but this does not militate against the fact that the bird can back outward and upward when it has occasion to enter flowers above.

The humming-bird, however, is not the only animal that possesses this power, although it may be the only one among the feathered tribes. Certain species of insects possess it, and especially among the *NERUOPTERA* and *DIPTERA*. The *LIBELLULIDE*, or Dragon-flies, for instance, will poise themselves in mid-air, darting backward, forward, or sideward, eluding the attacks of their enemies, or in pursuit of their prey. Some of the two-winged flies will poise themselves in a similar manner for hours, darting after and

cluding each other like children playing "tag." Some of these two-winged flies whilst so poised will rub their feet together, like women engaged in washing, or like children engaged in the old-fashioned play, and seeming to say, "Here I sit and wash my clothes, and nobody comes to see me." More significant than the question, "Do humming-birds fly backwards?" would be the inquiry whether insects and other animals indulge in the delights of "fun and frolic?"

EXCERPTS.

FRUIT men all say the best way to treat trees infested with borers is to remove the earth about the base of the trunk. Fill up the hollow after freezing weather is well under way.

MR. T. B. WALES, JR., of Iowa City, publishes a sworn statement that his Holstein cow Mercedes, 723, made 99 lb. 6½ oz. of butter during the thirty days from May 13 to June 11, being equal to the enormous average of 3 lb. 5 oz. per day for the entire period.

THE *Mark Lane Express*, Monday, August 20, prints reports from 361 districts in England and Wales in regard to the harvest of 1883. In 249 districts the indications are the wheat crop will be under the average; in 89 there will be an average yield, and in 33 the crop will be about the average. Many of the reports state the wheat is thin, blighted and mildewed. The other crops are reported above the average.

THE value of farms, including fences and buildings, in the United States in 1880, was \$10,197,000,000. In 1860 it was \$6,645,000,000, an increase not quite equal to the increase in population. According to the census report, Illinois pays out more money for fences than any other State in the Union. Pennsylvania comes next. There are in the United States 6,000,000 miles of fence, and it has, in all, cost something over \$2,000,000,000. During the census year alone \$78,629,000 was expended for fencing purposes.

AN exchange claims that a full feed of hay to horses, following the feeding of concentrated food, is wasteful, for the reason that it crowds the first out of the stomach before proper digestion has been accomplished. And so, in order to secure best results, hay should be fed at first and the concentrated food afterward, which leaves it to become digested with no danger of being crowded away or out of the performance of its desired purpose.

EXPERIMENTS at the Missouri Agricultural College show that meal-fed steers gained in sixty-one days seventy pounds more on 380 pounds less of fodder than steers on whole corn. The cost of grinding was \$2.50; value of the extra seventy pounds \$3.50—a dollar gained in flesh, and 380 pounds of fodder saved. Wheat straw was fed to the cattle in both cases.

Now that harvest is over, there is a considerable amount of time that can be employed in various ways that will tell to the benefit as well as convenience and comfort of man and beast.

1. Drop a few loads of gravel about your stables, wells, gateways, etc., or in any low places, where it has been muddy heretofore.

2. See that all the fence corners are cleaned of briars, elders, weeds, etc., and look over the pasture fields for any stray thistles or docks that are left to scatter their seeds.

3. Overhaul all tools and repair them, either with wood or iron work, as needed. Some need a coat of paint. Rub all plows over with a greased cloth and see that all are properly housed. The sun, rain and dew spoil more implements than are worn out by actual use.

4. Attend to opening or cleaning out open ditches, fix up all watering places, gates, etc., and look to the fences.

5. Pay special attention to the watering of all stock. Good water and good feed now will tell next spring in the improved salable qualities of anything designed for the shambles.

6. After cutting the corn see that you have a good supply of good, dry wood, or plenty of coal, for all uses, as a nice pile of wood goes a long way toward making a good-natured cook.

7. Shape up the work for winter. Some of your sheds or outhouses need repairing. Also any hauling can be done while the roads are good.

8. Sort up the sheep. Breed only the best and sell or fatten the refuse. Select only first-class rams; even if they cost more, it will repay you in the end.

9. Give pedlers and patent right agents a wide berth.

10. Select good books and plenty of agricultural papers for yourself and family. In fine, be one of nature's wide awake and reliable noblemen.—*Practical Farmer in Pittsburgh Stockman*.

THE average weight of an adult is 140 lbs. 6 oz.

The average weight of a skeleton is about 14 lbs. Number of bones, 240.

The skeleton measures one inch less than the height of the living man.

The average weight of the brain of a man is 3 1-2 pounds; of a woman, 2 lbs. 11 oz.

The brain of a man exceeds twice that of any other animal.

The average height of an Englishman is 5 ft. 9 in.; Frenchman, 5 ft. 4 in., and of a Belgian, 5 ft. 6 3-4 in.

The average number of teeth is 32.

A man breathes about twenty times in a minute, or 1,200 times in an hour.

A man breathes about 18 pints of air in a minute or upwards of 7 hogsheds a day.

A man gives off 4.08 per cent. carbonic gas of the air he respire; respire 10,666 cubic feet of carbonic acid gas in 24 hours; consumes 20,000 cubic feet of oxygen in 24 hours, equal to 125 cubic inches of common air.

A man annually contributes to vegetation 124 lbs. of carbon.

The average of the pulse in infancy is 120 per minute; in manhood 80; at 60 years, 60. The pulse of females is more frequent than that of males.

The weight of the circulating blood is about 28 lbs.

The heart beats 75 times a minute, sends nearly ten pounds of blood through the veins and arteries each beat; makes four beats while we breathe once.

Five hundred and forty pounds, or one

hogshed one and one-fourth pints of blood pass through the heart in one hour.

Twelve thousand pounds, or 24 hogsheds 4 gallons, or 10,782 1-2 pints pass through the heart in two hours.

One thousand ounces of blood pass through the kidneys in one hour.

One hundred and seventy-five million holes or cells are in the lungs; which would cover a surface thirty times greater than the human body.

ABOUT WATER.—A curious fact about water is that it is the rust of the metal known as hydrogenium. When oxygen combines with iron it forms a reddish rust, and the metal becomes in time disintegrated. In this condition it is said to oxidize. Now, water is simply oxidized hydrogenium. This metal is present in the sun and all the planets in enormous quantities. Indeed it is said that the human body is composed of 5½ pails of water, mingled with some lime, iron and certain salts. Chemistry has revealed to us many marvels, but none greater than the composition of common water.

THE AGRICULTURAL FAIR.

(The following is from the pen of Ben. Perley Poore, in "American Cultivator.")

There one sees

The noble horse, "his neck with thunder cloth'd,"
Man's faithful friend, from early morn till eve;

Without his aid, man's greatest effort to
Support himself were frail indeed.

The stately bull, with broad, expansive chest,
That would have stood conspicuous 'mong the folks
Of Og, that graced the landscapes on the slopes
Of Bashan. The tim'd cow, housewife's
Trusty friend, wondering look, seems half
Alarm'd so many stand to praise. The works
Of art, here too, conspicuous shine.

The massive wagon, for the farm with strength
And elegance combin'd. The carriages,
Of varied form, like chariots of the sun,
Which might have graced a Roman conquerer's
Triumph. The plows well fitted for the soil,
With mouldboard, share and bar of polished steel,
Show vast improvement on the days gone by,
And 'neath that canopy the household arts,
In order grand, are seen. There woman rules
Supreme. The most fastidious taste may
Find enjoyment there. From Winter's cozy
Garb to Summer's light attire of many

A form, and many a varied hue,
The "odds and ends" of life attract the gaze.
Come hither, ye who boasts of single bliss,
And learn to prize God's noblest, temporal gift
To helpless man. The roots and fruits of earth,
In order rang'd, man's "daily bread," of size
Enormous, fitted for display, of boasted
Flavor and of beauteous hue. The dairy's
Yellow store, in golden wreaths, to catch the eye,
But more the palate please, awaits the judges'
Scrutinizing skill. Who would not linger here
And taste the sweets of nature, and her handmaid
Art? While woman's smile plays like a sunbeam,
And enlivens all.

CONTRIBUTIONS.

FOR THE LANCASTER FARMER
SOCIETIES AND FAIRS.

Has the Lancaster County Agricultural and Horticultural Society been an injury or a benefit to the community? This question has been asked and referred to some one, but has not been answered yet so far as my knowledge extends. Are agricultural fairs an injury or a benefit to the community? might also be as properly asked. I will only

say, that if our local society has been no benefit to the community I hope it has not been an injury. It has been the means of introducing the best varieties of fruit and fruit trees. Also the best ornamental trees, and the most valuable timber for durability and mechanical purposes. In truck farming, twenty years ago, we had only the mercer and a few indifferent varieties of the potato; now we have the mealy Early Rose, and half a dozen other varieties nearly as good. One man, near the city of Lancaster, raised about seven hundred bushels from two acres of land. The Concord grape was nearly unknown, and only a few vines were cultivated bearing only a few quarts; now we have them by bushels on bushels. The strawberry was scarcely known, except as a sort of fancy garden plant, and hardly appreciated. Now we have the "Agricultural," the "Monarch of the West," and the "Vick," by the bushel. I know men who have realized from \$50 to \$200 from less than an eighth of an acre of ground. The old sour cherries became worthless; the "Early Richmond" was introduced and planted all over the county with great success. The pear was altogether neglected. The Bartlett, Sickel, Burre Clairgan, Dutchess, Lawrence and others were introduced from twelve to fifteen years ago.

A man wanted to plant a pear orchard, and asked a member of our local society what kinds he should plant. He was advised to plant sixty out of a hundred Bartletts. He took from one hundred and fifty to one hundred and seventy-five bushels from his Bartlett trees alone, and got from \$1.00 to \$1.50 premium per bushel.

But of peaches, it is true, we cannot say so much, nor yet of apples, and yet both of these fruits, in certain localities, and in certain seasons, occasionally yield abundantly. If my two hundred apple trees had all been "Smith's Cider," "Seek-no-farther," "York Imperial," and "Pound Apples," I could have sold from \$200 to \$300 worth in each of the last three years. Many other things of value have been introduced into the county of Lancaster through the influence of our society. Tree-planting was urged all the time, and the *Catalpa speciosa* is now being introduced throughout the county. It is said to be the most durable among woods. Our roadsides are now lined in many places with trees, on both sides, mainly through the recommendation of our local society. Shall the society be abandoned because a peculiarly successful fair cannot be held? Has its usefulness ceased? Shall the LANCASTER FARMER, its local representative, which has battled through fifteen years, be permitted to go down? If we were "slow" if we *did* not and *do* not come up to the standard of what is claimed to be a progressive age we, peradventure, may still have been "sure."

Let the society and its literary representative not go down, but let them pass into younger, more vigorous, and more "live" hands. For my part I have done what little I could for the past sixteen years in holding up the hands of the society, and I do not regret it. I have been asked what we get for attending here. I regarded it as a selfishly silly question. It might almost as well be asked what does a man get in sustaining a church, or in living for heaven.—L. S. R.

FOR THE LANCASTER FARMER.

SWEET AND SOUR.

I had heard years ago, that there were apple trees which bore fruit that was sweet on the one side and sour on the other side. It was said that they existed in Canada, and also near Quakertown, Bucks county, Pa.

I obtained a young tree from Mr. Wm. Lehman, of Emaus, Lehigh county, Pa., which was to be of that kind. The tree has now fruited, and in testing it before our local society, I confess I was partly disappointed, as the fruit was wholly either sweet or sour, but in testing the apples at home, I found that it was really so. You will find that in testing the fruit one apple may be a sweet one and the next a sour one, but you will also find a few that are sweet on the one side and sour on the other. How is it done. My apples are yellow in color. The man who brought this about took grafts of a yellow sweet apple and a yellow sour one. The grafts were split through the middle of the bud, or eye, and the two different varieties spliced together; and, if the operator is successful in getting them to grow, the result will be sweet and sour in the same fruit. The fact that some apples are all sweet, and some all sour, may be the effect of imperfect fertilization, or imperfection in the original experiment. I am convinced that my tree bears some apples that are sweet on one side and sour on the other, whatever else it may do.—L. S. R.

SELECTIONS.

WEEDS.

In American farming losses from weeds are beyond computation. There is hardly a single farm crop that is not diminished by weeds. The slightest observation must convince any person acquainted with farming that weed growth saps the whole industry, reduces its profits and threatens farther damage as weeds gain the ascendancy, and to this they are coming in many of the most fertile districts of the country. The time is approaching when organized warfare will be made against the intruders, or, in the older portions of the country, farming will cease to be a profitable industry. It is time now to institute such warfare. There comes a period after harvest and fall seeding when well-directed efforts toward weed destruction are reasonably sure to be rewarded by a fair measure of success. The custom of sowing grass seed with grain crops interferes, it is true, with the destruction of weeds because the grass seeding is of too much value to be wasted, and it is, therefore, suffered to take its chances with hardier growth much to the detriment of the more valuable crop.

What can be done with weeds in the autumn months applies mainly to stubble fields not seeded. It is true something may be accomplished in meadows where fall growth permits the use of a scythe, but nothing like thorough work can be done except in fields where plowing is permitted. Efforts should be directed principally toward the vegetation of seeds and subsequent destruction. To effect this, stubble fields should be plowed as soon as possible after the crops are removed and every encouragement given to the growth of weeds; then with the harrow, or any of

the improved cultivators, complete destruction of all the weeds that appear above the surface is possible. After this is effected another plowing will make the work more thorough, because seeds that in the first place had not the requisite conditions of germination may have them provided, and the growth destroyed by freezing, or spring growth by the harrow. It is true this plan will not cleanse the ground thoroughly, but it will reduce crops of weeds materially.

The only means of thorough and complete destruction is the summer-fallow, and this, unfortunately, is not in favor with farmers, because, as they allege, it withdraws the ground too long from use. At this season it is not worth while to enter into argument to prove that summer-fallowing is the best means of weed destruction, because this means is not now available. The nearest approach to it, however, is the best method that may be employed now. This plowing and harrowing, the process repeated so long as it brings results, that is to say, so long as the seeds of weeds germinate, is the best way to direct operations in autumn.

The main question for consideration is the importance of destroying weeds in order that their interference with more profitable crops may be prevented. In some cases it will help materially to drag the ground raw to induce vegetation of seeds, then drag to destroy growth. Any way, no matter what, anything that effects the object is commendable, but that which will do the most work at least cost is best.

When we reflect upon the abstracted fertility lost in production of weeds, the space occupied by pernicious growth, the reduction of yield in all grain crops through interference of weeds, the necessity of destruction appears clearly. This is the first thing by which the mind must be impressed before organized warfare begins. Perhaps it is within the truth to say that in the older States, where weeds have obtained ascendancy, the profits of farming are reduced one-half through their prevalence. If this be true the importance of effecting their destruction is very great. In any case weedy ground ceases to be valuable in farming in exactly the proportion that weeds take up plant food and occupy space that should be taken by more profitable crops. When American farmers apply thought to this question they will see the importance of beginning efforts for weed destruction and continuing them until their farms are practically clear from weed growth.

CONCERNING LEAVES.

Leaves have a peculiar and special share in the work of vegetation; every leaf is constructed of an intricate network of "veins," running through a soft, pulpy substance. This framework is composed of woody fiber, its purpose being to support and distend the softer parts of the leaf. Accompanying these fibers through all their branchings, and usually running a little beyond their extremities into the green tissue, are minute tubes or vessels. Follow these back to the midrib of the leaf, and we find that they continue still farther, connecting with the circulatory system of the stem, which in turn extends down to the roots. This line of vessels, therefore,

provides a direct course for the passage of the fluids absorbed by the roots, to the most remote portion of the leaves. One of the most important functions of the leaves is the collecting of carbonic acid gas from the air, and by the action of their green coloring matter, to combine it with the elements of the sap to form the constituents of growth. These compounds containing carbon form about fifty per cent. of the bulk of the plant, so we see that the leaves are really the most active portions of the vegetable organism, collecting fully one-half the food, and combining it with that furnished by the roots into the complex constituents of the perfectly developed plant. The chemical processes, which occur in the leaf are too complicated for discussion here, but its anatomy, the utility of all its parts and the harmony with which they perform their work, are easily understood, and furnish us one of the best examples of the detailed perfection of nature's work.—*W. E. Stone, in American Agriculturalist.*

THE FEEDING VALUE OF FOODS.

The feeding of animals with foods containing the proper proportions of substances necessary to promote growth or fat is a very important branch of knowledge, and those who fully understand how to procure the largest supply of available matter from the several kinds of feed allowed to stock will derive more satisfactory results than those who feed as a routine, without having any special purpose to accomplish by so doing. Although animals are not confined to any particular diet exclusively where they can be obtained from the feed, whether it be concentrated or bulky, is classed under the heads of protein, cross-hydrates, fat and ash. Protein is that substance which is principally found in lean meat, the white of eggs and in the blood, being nitrogenous, while the carbohydrates include starch, woody fibre, sugar, etc., and derive the name from the fact that they are composed (no matter in what form we possess them) of carbon, hydrogen and oxygen. Fat exists in plants, also, but in small quantities. Ash relates to the mineral substances, which supplies the bones and tissues.

As the matter which is appropriated by the animal is composed of these four substances—protein, carbo-hydrates, fat and ash—it is at once apparent that, in order to feed to the best advantage, some consideration must be given the character of the food allowed, and instead of feeding indiscriminately, certain quantities and proportions must be used. Many valuable experiments have been made for the purpose of testing grains and fodders, in order to estimate their value for feeding, and we are gradually arriving to that point at which the aid of investigations will be used in order to feed animals according to age, period of growth and weight of carcass. For instance, by the use of 100 pounds of ordinary hay the supply of digestible nutriment will be a fraction over five pounds of protein, forty-three pounds of carbo-hydrates and about a pound of fat. While only a pound of protein can be extracted from the same quantity of digestible material in mangolds, with ten pounds of carbo-hydrates and no fat. The difference between the nutritious matter of hay and mangolds at once enables the stock-

breeder to discard the mangolds altogether or use a less quantity of hay and supply the deficiency with mangolds. Any number of substances can be used, provided they are fed proportionately to value, the object being to neither have an excess nor deficit of any substance that enters into composition of the body.

What is given in shape of bulky material, such as hay and straw, can also be found in grains, which possess nutriment in a more concentrated form. Using wheat straw as compared with corn, the straw contains about three pounds of protein to the 100 pounds, while corn contains over ten. It is necessary, therefore, to lessen the supply of straw and add corn to complete the proportion of protein; and as the straw contains about 40 per cent of crude fibre, which is almost useless, while corn contains less than 2 per cent. the waste in the system is much less from the corn. The straw, though containing less fat, contains a larger amount of ash, and there is no kind of material used that is deficient in one direction but what is overabundant in other respects.

By directing attention to the study of food composition there is another object to impress on the stock-breeder, which is that by feeding a variety of food the animal will grow faster, fatten more readily and keep in a healthier condition than by using a single article of diet. Although it is not every farmer who makes it a duty to feed for nutritive value only, yet they know by experience that certain foods give certain results; but the field is still open for more knowledge in that direction, and every farmer should avail himself of the privilege of obtaining it.—*Philadelphia Record.*

PENNSYLVANIA LANDS.

The *Bradford Era* is authority for the statement that there are in Bradford county alone 100,000 acres of land, regarded as barren by most who see them, but which can, nevertheless, by means of careful farming, such as is given to lands here in Lancaster county, be made to produce more wheat, corn, vegetables and all other crops than twice the number of acres of those lands which western railroads have to sell. We haven't the least doubt about it. In northern, central and north-western Pennsylvania there are hundreds of thousands of acres of virgin soil that can be converted into the most productive farming lands in the State. These lands are to be had very cheap, so cheap, in fact, that there seems to be no inducement to the farmer who proposes to migrate to a country of cheap lands to do so. All that is needed is careful methods and plenty of work. The two things will not only bring large crops of all kinds, but the lands themselves will rapidly grow in value. To these strong inducements may be added many others. The man who goes there can hardly be said to have sought a new home. He remains in his own State. He does not go among strangers; he knows the class of people among whom he casts his lot; he is virtually among his friends, men who feel and think as he does; he goes to a climate as healthy as any in the world perhaps; he is not far removed from the great markets of the country; half a day's ride will take him either to New

York or Philadelphia; he goes to a place where schools and churches and all the luxuries of life are at his command, where, in fact, he possesses a thousand advantages and very few drawbacks.

We have often wondered why the men who literally bury themselves in the remote West, simply because they can get lands at a few dollars per acre, do not cast their thoughts to the advantages their own State offers them. They evidently are unacquainted with the opportunities that lie almost at their own doors, and of which they can avail themselves far more easily than they can of those offered by distant States. The farmer who believes he can better his condition by going elsewhere should, before he makes up his mind to leave this State, take a run into the north-western and northern counties. A few weeks leisurely spent there in spying out the land and examining into its capabilities and he will find himself confronted by such a favorable array of circumstances that he will be likely to conclude the advantages he is in search of are nearly all to be found at home.

Pennsylvania is by no means a finished or completed State. There is room for a large addition to her agricultural population. It might be increased fifty per cent. without taking up all lands that yet lie untilled. She has plenty of inducements to offer to energetic men who are not afraid of work. It don't require much capital to begin farming there. The same money that will buy a farm in Kansas or Minnesota will buy one in the region we have indicated. Stock can be had nearly as cheaply; agricultural implements more cheaply; in short, the man with limited means may find he can do as well here as anywhere else. The time and money it will cost him to travel into distant regions in search of a new home may be profitably invested in one near by. In short, we believe it will pay men to investigate the advantages of Pennsylvania before they strike into distant regions in search of homes and fortune.—*New Era.*

HOW SWEET POTATOES SHOULD BE KEPT.

As this matter is now to be considered, and as the farmers outside of sweet potato regions find much difficulty in saving the few that they raise for their own consumption, as well also when they wish to put up enough for winter of other people's raising, we have to say that we have seen a number of methods recommended, and have some experience ourselves. The following looks as though it might answer very well, and it is adopted by an experienced Jersey grower, and we think that there is little risk run in following it: The potatoes are dug after the first sharp frost, and left to lay as dug until near evening, when they are covered with the vines. In the morning the vines are removed and the sun goes on with the drying process. This is pursued for four or five days, when they become thoroughly dry. They are then carefully carried into the cellar, where they are put on shelves in single layers, *standing on their ends*, by which any rotten ones can be easily seen and removed, and the air has free circulation. Warmth has a great deal to do with preserving the sweet potatoes; hence, if the cellar is not naturally warm, they should be put into a

cellar in which there is a heater. They bear considerable heat without sprouting, but it should not get beyond fifty nor below forty degrees.

We have also known them to be packed in boxes, each potato being wrapped up in paper, and the boxes placed in cellars where there is no danger of freezing, as this potato is very susceptible of being nipped, and when once touched they decay rapidly. Yet the temperature should not be warmer than is mentioned above. We have ourselves tried them packed in paper and put in barrels, also with fine shavings and placed in a cellar well ventilated, but they would not keep. We have found—residing we may say at the headquarters of the sweet potato region—that the surest way to obtain good, sound potatoes, was to buy them in the market from Jersey growers just as we need them—say a peck or half a bushel at a time. But this system can be adopted only where the conveniences are at hand.

Forking-Up the Garden.

Gardeners understand the good effect of turning up the soil late in the fall has upon the next year's crops; but there are many others—those who have small gardens, and in this class are many of our well-to-do farmers—who, by neglecting this work only raise half a crop of vegetables, and these of an inferior quality, and then they wonder why their more-knowing neighbors do so much better. Hence, we cannot too often repeat the advice that if they will use the *garden fork*, and turn the soil up full fork deep late in November, allowing it to remain in lumps all winter exposed to the frost, it will have much to do in putting the ground in excellent condition, and tend greatly to add to next year's crops. This is especially the case where the ground is not so treated at all; but we would mention that to do this once in two or three years, instead of every year, as some gardeners do, will produce equally good effect. Gardens—and especially old ones—should be *limed* about once in five years, though but lightly, say at about the rate of thirty bushels per acre, and lightly *salted* every other year at the rate of from six to eight bushels per acre, applying it evenly to avoid injury. Keep the salt from coming in contact with box edging and all other evergreens, very small trees, &c. Such a course will recuperate your old gardens in a surprising manner.—*Ger. Telegraph.*

FARMERS' ORGANIZATION.

Organization is one of the salient marks of the civilization of the past two centuries. By it the grandest achievements have been accomplished. To it we owe the birth of American constitutional liberty and free government. It is by the united effort of labor and capital that our great railway system have been built, canals dug, ships constructed, and the wild wastes of the unsettled wilderness made to bloom and blossom as the rose. Truly, in organization and co-operation there is strength. The trade-guilds of Europe were efforts of men combined together to improve their social condition and advance the standard of their workmanship. The trades-unions of this country are similar illustrations, and have left their impress upon the social life of their members, advanced their wages, and created

a spirit of emulation that results in better and improved workmanship.

But these are facts apparent to every reader of *Southern Industries*. Now, if such great results arise from organization, why is it that the farmers are not more thoroughly organized into societies for their mutual improvement and protection, for the dissemination of practical agricultural knowledge, and for the discussion of questions that enter into the practice of every-day life? There is no profession, business, or calling, where so much is neglected of vital importance, where more is to learn and be learned. Seventy-two per cent. of the people of this country are farmers. The interests depending upon farming are more important than upon any other calling that make up the aggregate of our national life. Farmers are the great wealth-producers, in fact, the bed-rock, the foundation and source of all wealth, all power, all business, all professions, and every calling in life. The products of their labor feed and clothe the world; and yet they are nowhere recognized except as the hewers of wood and drawers of water for the unprincipled political scheming demagogue who rides into power by their votes, and the mighty corporations that feed, and fatten and gloat over the ill-gotten gain wrung from their hard earnings. The owners of the vast machinery propelled by the mighty water-power at Lowell are not more defiant in their mastery of that power than the politician, the ring-master, and the monopolist, who reap their rich harvests of wealth from the submissive indifference of the farmers, who unconsciously do their bidding. And who but the farmer is to blame for all this? He is the power. He holds the majority in every rural district, and with his co-laborers, the artisan and the mechanic, in every other legislative and Congressional district in the United States. No legislator, State or national, can be elected without his vote, and yet our legislative halls are seldom graced with his presence, or by a representative true to his interests. We say this in no spirit to array the farmer, as a class, against any other class, but to remind him of his power, and for him to act in obedience to that God-given right of striking a blow for self-preservation.—*Southern Industries.*

WHAT ONE COW WILL DO.

A garden of one acre may be kept richly manured by the droppings of one cow. For five years past I have reserved one pet Jersey cow for the use of the house and have kept her up in a stable near the house and fed her upon the lawn-mowings and a small plot of grass, with the vegetable waste of the house and garden. The produce of the acre is more than sufficient to feed the cow the year round with the help of four quarts daily of feed. This amounts to about one ton per year, costing about \$25. I estimate the milk, cream, and butter of a good cow to be worth to a family \$100 a year. That is, it would cost that sum to purchase the amount of these used in a family. There will be a surplus of milk or butter to be sold equivalent to a further sum of \$50. The manure for one acre of garden will pay well for the labor of attending to the cow, and in 10 years will pay for the cow besides. So that a good cow, when

well cared for, will produce in 10 years the actual sum of \$1,000, besides paying for herself, her feed, and attention. Then there will be eight calves besides, and skimmed milk and buttermilk to partly feed a pig or a flock of poultry. And then the comfort and pleasure of it!

I am already feeding down a small piece of orchard grass under some apple trees the third time, by tethering the cow upon it. Some of the grass I have just cut the second time and some will give a third cutting. Fifty rows of sweet corn are now beginning to yield boiling ears and the stalks and husks go to the cow. There are pea-vines, bean-vines, beet-tops, small potatoes, and other wastes to help feed the cow luxuriously, and in this way the family cow may be kept in abundance throughout the year, while her manure will keep the whole acre growing richer every year and will provide a liberal quantity for the flower-beds and the shrubs and dwarf pears on the lawn. A very large quantity of the best manure is made by throwing the weeds with all the soil attached to them, the leaves that are raked up, and the wood ashes from the house, together with as much soil as may be needed into a shallow pit in the cowyard and leading the drainage from the manure gutter into it. If a farm were only managed as one manages the garden, every acre might easily pay a hundred dollars; but the labor is not to be had, and one pair of hands cannot do it for more than five or six acres. But the time will come when it must be done; when the land becomes fully occupied and this great country has its 500,000,000 of inhabitants, a number which it can sustain with the greatest ease with a thorough system of cultivation.—*Cor. N. Y. Times.*

OSTRICH FARMING IN CALIFORNIA

I have thought that an account of a visit to an ostrich farm near Anaheim, California, might interest some of your readers and give some information that would be useful. My attention was called to the profits as well as practicability of ostrich breeding in this country some years ago by a young gentleman fresh from college, who has since taken orders in the Episcopal Church, and who prepared for me a statement of the case as it then stood, showing conclusively enough to warrant the experiment that a new industry of importance might easily be built up in various parts of the United States. Having therefore recommended the business and tried without avail to have the General Government do something to promote ostrich raising, it may be understood that I felt interest enough in the ostrich to go out of my way to visit him in his new home near Anaheim, California.

Leaving Los Angeles on the 10 A.M. train, I arrived at Anaheim at 11:30, having passed through a flat, well-cultivated country largely planted to citrus fruits and vines. Noticeable among the improvements is the very large new vineyard of Mr. Nedeau, who has three thousand acres newly planted to vines mostly, and who has shown his faith in the old Mission variety by putting out most of his cuttings of this kind. Anaheim is one of the oldest American agricultural colonies in Southern California, and was founded in the year 1854 by a colony of naturalized Germans from San

Francisco. The town has water rights for 1,150 acres, and is laid out in twenty acre lots—all in the highest state of cultivation. Here I left the rail and hired a carriage—a four-spring gypsy-top wagon—which gives free chance for observation and shade from the sun. No rain need be guarded against, for none will fall until next October or November. The cold wind from the Pacific Ocean is here, twenty miles inland, pleasant and exhilarating, blows steadily from the west by north every day; and now it tempers the heat of the sun as we drive westward over a level plain of light soil well adapted to the growth of small grains and the delight of alfalfa, the roots of which will find water if there is any within fifteen or twenty feet in such soil. Water of good quality is obtained in moderate quantity at a depth of from four to twelve feet, and flowing wells are obtained at a depth of sixty feet. The farms are generally small, and the division lines and roadsides are planted with eucalyptus and poplar and the beautiful Monterey cypress and graceful pepper trees.

As I drive toward the new unpainted buildings in view a half mile away I see sign boards with notice that all dogs found on these premises will be shot. And this emphatic notice is strictly enforced, much to the surprise of confiding sight seeing people who have not yet learned that the notice means death to any and all dogs which may come within range of the shot gun or pistol of the guardians of the precious feathered bipeds. Only a short time before a dog was shot at the side of his bucolic master, who could not comprehend the necessity of guarding the breeding birds from the sight of any animal of the dog kind. As I approach the house I see that it is one of the San Francisco "ready-mades," built of red-wood. Ordered by telegraph from San Francisco, it was shipped by rail and set up ready for occupancy within four days from the giving of the order. It is a unique and tasteful rectangular structure one-story high; shingle roof with gables; a perch along the entire front; ornamental brackets and cornice; a passage-way six feet wide through the centre; two rooms on each side, each twelve feet square; and the whole building set up on the ground cost \$400! One is used for a reception-room, one for sleeping, one for kitchen and one for the incubator and egg-room. On the work done in this room depends the success of the ostrich farm.

The Incubator.

A broad shelf on one side contains about fifty ostrich eggs and any number of eggs of the brown leghorn chicken. The incubator has been used for hatching these eggs prior to trusting the more valuable ostrich eggs to its maternal care. These ostrich eggs are a wonder to all who see them for the first time. They are regularly elliptical in form, weighing about three and one-half pounds, measuring in circumference 18x16 inches, and with holding capacity equal to a full quart measure. The color is a creamy white and the shell is equally pitted all over and porous in appearance. Sixteen eggs have been put in the incubator up to the time of this visit, June 29, and the remaining eggs, and what more may come, will wait for the Halstead ostrich incubator, which has made a favorable reputation

in Cape Colony in the specialty of hatching ostrich eggs and which is daily expected.

The sixteen eggs were placed in the incubator on May 14th, 15th and 16th, and their period of incubation has nearly passed, for the chickens are moving in their shells ready for advent in California life. One came as *avant courier* yesterday, and to-day is a beauty of its kind. He is covered with speckled brown downy feathers except on the head and neck and legs; he is as wild, shy and active as the young antelope fawn, and only a day old, is as large as a full-grown Leghorn hen. Uneasy and restless, in constant motion, and with inquiring eyes, he no doubt waits impatiently the companions who are to join him in his feather-producing career.

Preparatory to any nourishing food he had placed before him when about twenty-four hours old a tray of small gravel stones and crushed sea shell; subsequent to this tonic, he had a handful of chopped alfalfa. This lays the foundation for a meal of cracked corn and water, and when this has been eaten the bird is considered on the straight road to distinction as the first ostrich hatched in America. The bird will no doubt conduct himself or herself as the case may be (for the sex is not distinguishable for some months) in accordance with the rules and regulations prescribed and enforced here for the successful promotion of the honor and profit properly due the enterprising gentlemen who have initiated this new industry.

Paddock and Farm.

Leaving the front door looking east I turned to the south, and before me was an inclosure of four acres in L form, made by a post and board fence only four and a-half feet high. But this fence is made of three good sound inch-thick, twelve inches wide redwood boards, well nailed on. A kick from an irritated ostrich would break an ordinary fence board in splinters. These parallelograms making the L are divided into twelve paddocks in which the stock of twenty-one ostriches, eleven hens and ten cocks are placed. Each paddock contains a pair of birds, one having two hens and one cock. The paddocks are bare and sandy, but surrounding the breeding grounds is an excellent growth of alfalfa, turnips, cabbages, onions, maize and beets, all of which have been planted and grown since March 25th, and are on time for the voracious chickens which are expected to rally round their exemplary parents in an all-summer campaign against the fifty-four acres of green food provided for them.

In close proximity to the paddocks is an artesian well 300 feet deep, which discharges four feet above the surface 12,000 gallons of water each hour—sufficient to irrigate in this locality from two to three hundred acres of land planted to ordinary crops and with the average rainfall. The entire farm is a mile square, or 640 acres, and is a level plain.

A Successful Enterprise.

It may be as well to remind you that these are the ostriches the arrival of which in New York last November attracted so much attention, and which Dr. Protheroe, of Buenos Ayres, and Dr. C. J. Sketchley, both formerly of the Transvaal, Africa, brought to this country with the hope of forming a stock

company to engage in the business of breeding fowls and raising feathers. A company was formed at once in San Francisco with a paid-up capital of \$30,000, Drs. Protheroe and Sketchley retaining an interest and Dr. Sketchley giving the benefit of his experience as superintendent of the farm for the present.

This enterprise may be fairly pronounced a success, for the company has more orders for birds than it can promise to fill this season, and at its own prices, which are \$100 to \$120 for a healthy chick four months old. These chickens will yield their first feathers when eight months old, which picking should bring at present market prices from \$7 to \$10. The next picking, eight months after the first, should bring from \$40 to \$50, and in two years the bird, if well cared for, is expected to be in full plumage and to yield annually \$200 worth of feathers. Ostriches breed when four years old, and from a pair is expected an average of fifty healthy chickens every year for twenty years.—*William G. LeDuc, San Diego, Cal., July 28, 1883.*

LOW GRADES AND THE CANNING BUSINESS.

It is no doubt a fact that the canning of meats, which has been carried on so extensively during some years past, has furnished a market for a large proportion of the inferior stock that has been raised. This business has indirectly, then, encouraged the production of low-grade meats, because it is only the lower class of stock that is used for canning purposes, this being bought at low figures. The process of cooking and mincing, salt and other seasoning being added, combine to obliterate traces of the low quality, though upon the taste of those who have learned what flavor goes with the higher classes of meat, no successful deception can be practiced by any process of seasoning whatever. The insipid taste, always found in the canned meats, is an exposure of it to those who are accustomed to eating meats of the higher grades.

It is the common belief that anything is good enough for making soup. No mistake could be greater than this. No soup is first-class except it be made from the carcass of a beast whose lean flesh is full of rich meat juices. The inferior portions of a well-bred, well-fattened beast will make better soup or a better stew than the choicest cut from the skinnny carcasses generally bought for canning, for even the neck of the superior beast affords cuts having the peculiar flavor and odor of high-class meat. No part of it can escape this, while no portion of the low grade can possess it. Yet the canning process makes the market, as stated, for inferior cattle, and in so far as it does this it, of course, encourages their production, and probably, in a degree, helps to keep up the price of inferior stock, directly an apparent benefit, but indirectly a bar to improvement. The eye is a guide when looking at a work of art, but the senses of smell and taste are alone able to make apparent the difference that exists between high-class and low-class meat. Chemists who prepare extract of beef, now kept by druggists for making beef tea, and for preparation in other forms for use by the sick, are

presumed to understand how wide a range there is in the qualities of the materials they use. They are certainly far behind if they do not understand this. The advantage of using the highest quality of beef for making beef extract would be doubly apparent; first, in the quantity of extract secured from a given amount; and, second, in its flavor, odor and nutritiousness. Yet, when we read that one pound only of pure extract is obtained from thirty-four pounds of lean muscle, we are forced to think that this cannot be a fair test. In other words, that if the flesh were well charged with osmazome and rich meat juices, as it is in high-bred, well-fatted animals only, the product would be larger.

There are, then, three tests which, taken together, settle the question of quality in beef. These tests are the odor, the amount of pure extract obtainable, and the palate of the epicure. It is not extravagant to say that there is naturally as wide a difference discoverable in the quality of canned meats as in the fruits and vegetables put up by the same process. A peach of the highest quality, and ripe, will come out of the can showing the same quality possessed when it went in. The same is true of sweet corn. Like the peach or the plum, if beef or inferior grade and unripe be put into the can, it will come out as it went in, the skinny, insipid stuff that no cultivated taste will tolerate.—*National Live Stock Journal*.

THE INFLUENCE OF FORESTS UPON RAINFALL.

There is a great deal of crude opinion about the influence of forests on rainfall. The truth is, we have too little definite knowledge, hence this crudity of opinion on a subject that excites more and more attention. Observations have not been made over such extended periods of time as must necessarily be required to establish the truth or falsity of the various theories entertained concerning the influence of trees upon rainfall. The common assumption is that large tracts of forests promote rainfall, and there are many evidences that, in a greater or less degree, go to establish the truth of this theory. But whatever effect forests may have upon precipitation of moisture, there is one known fact hardly less in importance than their assumed influence upon rainfall. It is a fact that forests retard the flow of water, and so extends it over longer periods of time; thus continuing sources from which; through evaporation, rain is produced. This tends, indirectly, to establish the theory that trees really do increase the rainfall. There can be no doubt that they equalize it to some extent. There are few neighborhoods in which some old citizen can not report great changes in the flow of water, since his first observations were made. Streams that fifty years ago furnished water a greater portion of the year, in amount sufficient to turn water-wheels and supply power for mechanical uses are now dry, except during the melting of snows and a short period after, or during times when heavy rains occur in other portions of the year, and this, too, in localities where considerable areas of land were cleared a half century or more ago. Taking away the rem-

nants, or detached forests tracts, has wrought the change partly.

Another cause is the heavier character of lands kept in cultivation, over which the water has unretarded flow to natural channels. One result of this change is enlarged area from which evaporation can go on with rapidity, that is to say, supplies are seen exhausted. Any acre of land, long used in cropping, holds but a small proportion of water as compared with another acre in the same locality covered with forests, except during storms, and for a short time afterwards. The cultivated acre is dried out by the rays of the sun forcing out moisture. But this cause does not operate directly on the land covered by forests, where there is not only retardation of flow, but also retarded evaporation the area in forest, and to some extent, equalization of moisture with reference to time as compared with fields used for cultivation. The whole question is one that deserves extended study. Observations should be made by men employed for that purpose. The Government is doing something in this direction, but much more remains to be done. Forestry conventions exert wholesome influence. By every available means it is extremely desirable that we gather greater store of facts bearing upon this very important matter.—*Husbandman, Elmira, New York*.

DAIRY SCHOOLS.

American dairying will never be a fine art or a successful business until we have a large number of dairy schools, and we shall never have these until dairymen have learned how much they need to know. Everything learned of foreign dairying and dairy schools may tend to hasten this time. In an interesting account of a Danish dairy in the *Royal Agricultural Society Journal*, (England,) the following, in regard to a dairy school, is given:

"In consequence of Mrs. Neilson's extended reputation as a first-rate dairy woman, she generally has about a dozen farmers' daughters as working pupils, who are boarded and lodged in the farm-house, remaining for various periods, extending from six weeks to two years. The pupils who remain only for a short time pay for their instructions a considerable amount relatively, but they will work as hard as an ordinary dairymaid could be expected to. Their usual length of stay is six months, and vacancies in their ranks are always immediately filled up. I inquired the position of the parents of these girls, and learned that most of them were peasant farmers, keeping from ten to fifteen cows; but some have large farms. One girl was indicated to me whose father kept forty cows, she was about to be married, and her parents thought her fortunate in being able to learn under Mrs. Neilson how the dairy of her future home could be turned to the most profitable account.

"Each pupil has five cows allotted to her in rotation, and the results of the several milkings are carefully noted, the produce of each cow being entered separately morning and evening, together with the name of the milker. Mrs. Neilson thus has a practical means of knowing whether her pupils can perform satisfactorily one of the most important, as well as one of the most fundamen-

tal and most neglected operations connected with dairy farming. The knowledge that the results of their milkings are 'booked' also produces a spirit of emulation among the girls, which gives far better results than any system of supervision."

What a vast scope there is for such a spirit of enterprise among the million of small dairies in America!—*The Dairy*.

SOME THINGS I HAVE LEARNED THIS YEAR.

That tomato plants in the same hill with squashes, cucumbers, and pumpkins will not keep off the bugs.

That an application of air-slacked lime will not keep bugs away from vines, cabbage plants, radishes, turnips or egg plants. That saltpetre water will not accomplish anything in that line. That coal oil for that purpose is also a failure.

That good application, repeated three times, of reasonably strong liquid manure does well, and that an application of fine sulphur sprinkled over the plants and vines will greatly help in getting rid of these pests.

That a reasonable application of wood ashes is very beneficial in a garden. But that it is comparatively an easy matter to make the application too strong, especially if the ashes are unleached.

That it is useless to plant sweet corn before the ground gets warm as well as the weather, as corn planted three weeks later will come to maturity just as quick with the same soil and cultivation.

That there is a very decided advantage in good, sound, quick germinating seed corn, and this will be evident from the time the corn begins to sprout until it matures.

That peas will not do as well on new, rich ground as on old.

That I can raise more and better Lima beans by planting in a row, the plants six inches, than in hills with three or four beans in a hill.

That it pays to soak sorghum seed twenty-four hours in water before planting.

That tomato vines will grow faster and blossom quicker if a little manure is worked into the hills than if set out without.—*N. J. Shepherd, in Farm and Garden*.

THE SEED TEST.

Prof. W. Carruthers, consulting botanist to the Royal Agricultural Society of England, gives this plan for determining the germinating power of a sample of seeds, together with an illustrative example of the importance of such tests. We quote from the summary of *The Mark Lane Express*:

"Let 200, or 100, or 50, as may be thought best, of the seeds be counted out and placed one deep on the surface of a plate. This plate should then be placed in a larger plate or in a shallow pan, containing about a quarter of an inch in depth of water, and over all there should be inverted another pan, sufficiently large to entirely inclose the vessel containing the water. The depth of water should not be sufficient to allow of its overflowing into the plate containing the seeds. The whole arrangement should then be set in a moderately warm place, and thus the seeds will be subjected to all the conditions favorable to

germination, namely, air, moisture, darkness and warmth. The air will circulate freely beneath the edges of the inverted pan; the atmosphere inside the pan will be quite saturated with moisture, for evaporation will continually go on from the surface of the inclosed water; light will be excluded by the inverted pan, and the temperature of a regularly used kitchen will very well suffice to induce germination.

"A little fresh water should be poured in now and then to replace that which evaporates, the cover-pan being momentarily removed for this purpose. Even in one and the same sample some of the seeds will always germinate before others; but when the young shoots of the first to germinate have attained a length of from half an inch to one inch, it may be fairly concluded that all the seeds capable of germinating have done so, and then it is only necessary to count the number of seeds which have not germinated, and to estimate the percentage of failures. An exact number of seeds need not necessarily be taken, and, indeed, it is fairer to take a spoonful haphazard out of the sample, count these, and place them all in the germinating apparatus. Suppose 143 seeds have thus been taken, and that 102 of these are found to germinate; then out of 143 there are 41 failures; so that we should infer that about 28 per cent. of the seeds in the sample would not germinate when sown. A more correct result is obtained by conducting two, or even three, distinct sets of experiments simultaneously, and striking a mean between the several results, which, by the way, should not show much variation.

"The report states that in several samples of seeds of *Alopecurus pratensis*, the common and useful meadow foxtail grass, a very small percentage—sometimes only one or two—of the seeds were able to germinate. This is attributed to the fact that the seeds were gathered unripe, and in many cases the sample consisted only of empty glumes, so that it was like chaff without any grain. Possibly, however, there are still some traders who adopt the pernicious practice of working off their old stock by mixing old seeds with new ones, just as grocers mix their old Barcelona nuts with the new season's arrivals; and if the old seeds have lost their vitality the sample is, of course, seriously depreciated. If the practice of determining the germinating power of seeds before sowing were more generally followed we should probably hear less of the plowing up of land on which sown seeds had failed to 'strike.'"

A LESSON IN HORSE MANAGEMENT

Young man, I see you are about to take a drive this morning, and will offer you some advice. Your horse is restive and wants to be off before you are ready; you may as well break him of this now as at any time, and hereafter you will find that it has been a half hour well spent. Just give me the reins, while you put your foot on the step, as if to get in; the horse makes a move to go; I tighten the reins and say "whoa." Now put your foot on the step again; the horse makes another move; I hold the reins and speak to him again. The horse is getting excited. Pat him a little on the neck and talk to him

soothingly. Put your foot on the step again and repeat this process until the horse will stand still for you to get in and adjust yourself in your seat and tell him to go. A few such lessons will train him so that he will always wait for orders before starting.

Now, as your horse has just been fed, drive him a very gentle pace for the first two or three miles, until he warms up and his body becomes lighter. But, before you start, let me show you how to hold the reins. Take them in your left hand, have them of equal length from the bit, and to cross each other in your hand, the off side resting on your first finger, the other on the fourth finger, the back of the hand upward. Now, in guiding the horse, you have only to use the wrist joint, which will direct him either right or left, as you wish. Keep your hand steady, with a gentle pressure, on the bit—no jerking or switching of the rein. If more speed is wanted, take the whip in your right hand, to be gently used for that purpose; be careful not to apply it any harder than necessary to bring him up to the required speed.

Speak to him soothingly, and intimate in the most gentle manner what you want him to do, and he will try to do it. So noble an animal should not be handled so roughly or over-driven.

When you return have the harness removed at once, and the horse rubbed down with a wisp of straw or hay. Give him a bite of straw or hay, and let him cool off before being watered or fed. Every one who handles a horse, or has anything to do with one, should in the first place cultivate his acquaintance; let him know that you are his friend, and prove it to him by your kind treatment; he needs this to inspire confidence, and when that is gained he is your humble servant.

If your horse gets frightened at any unusual sight or noise, do not whip him, for if you do he will connect the whipping with the object that alarmed him, and be afraid of it ever after. If he merely shies at an object, give him time to examine it, which, with some encouraging words from the driver, will persuade him to pass it. You get frightened, too, sometimes, and would not like to be whipped for it.—*Stock Journal*.

THE CREDIT SYSTEM.

Since the first issue of the *Farmer* it has not failed to impress upon the minds of its readers the ruinous and bankrupting tendency of the credit and mortgage systems. There is nothing fraught with such damaging results to farmers as buying on credit. It encourages extravagance, frequently destroys confidence and lowers moral worth in men who would otherwise be our best citizens. The man who owes a just debt feels it to be his duty to promise to pay at a certain time. The rust takes his wheat, the drought reduces the yield of corn and cotton; he contracted debts with the expectation of a full crop. He fails to keep faith with creditors, they become dissatisfied and exacting, and the poor farmer thus burdened, is humiliated by the fact that he is unable to meet his obligations with his fellow-men. He becomes dissatisfied with himself, out of humor with his creditor, sour with his wife, and cross with his children, and unless he has a full share of moral courage is on the

road to a life of dependence and serfdom, enslaving his wife and children when all might be made happy and independent by a due regard to economical expenditures. A young man starting out in life should avoid debt as he would avoid a venomous reptile. It will enslave your bodies, destroy your peace of mind, degrade your morals, your wife, your children, and bring a reproach upon the mother that bore you. It will weaken your influence as a neighbor and make you less useful as a citizen; it will tax the very air you breathe, the love you have for your home, your time, your energies, the clothes you wear, the food you eat. It will tax your health, and the medicine that is administered to your disease. It levies a tax upon the chair that supports you at your own table and upon the bed on which you languish and die, and will leave your home, your wife, your children burdened with taxes after you have been laid under the sod. Young man keep out of debt.—*Texas Farmer*.

OUR GARDENS.

One little realizes the nationality of some of the most familiar things in our daily fare! Who would have said that beans blossomed first within sight of the Sphinx, or that the egg plant, with its purple and white fruit, was found under the African sun, or who ever thought that celery, once known as smallage, so useful as a winter vegetable, was munched by many an ancient Druid? From China and Japan the first radishes were introduced in Europe, and Arabia gave us the spinach, while parsley, the prettiest of greens calls Sardinia its native home. Egypt claims the onion for her own! Asparagus comes from Russia and Poland, while carrots, beets, parsnips and turnips, are all natives of Europe, the former especially growing by the hedge-rows as common weeds. Horseradish, with its little white flowers, like candytuft, which in Old England is such an accompaniment to roast-beef, may be found by the sides of dishes and other waste places all over Southern Europe.

Corn and potatoes can claim no foreign pedigree. They have been ours from time immemorial. Very many of the vegetables we grow for our tables are to be found wild. Not so well flavored or so large, to be sure, but the same in all other respects. Along the sea-shore may be seen on many a cliff a small, cabbage-like plant, with a cluster of yellow flowers, but one could not for a moment imagine it was the parent plant of all the different kinds of cabbage—kale, cauliflower and sprouts—that have so prominent a place in our gardens! It only shows what cultivation will do. It is not more than a hundred years since this sea-kale was first introduced into the garden from its home in the sand. What you see on the table is only the tender shoot which has been bleached white by keeping the plants covered up from the light.

Turning to the herb-bed, we find there many foreigners growing side by side with the plants. Sweet marjoram is a common flower in a country bouquet in the fall of the year; and, though we had to bring our peas from abroad, yet the mint, so often cooked with them, may be gathered from many a marsh or river-side, where, in company with

the well-known peppermint, it flourishes well.

Another wild plant is the tansy, with its yellow blossoms and strong odor, so used by our ancestors for pudding and tarts, and which may now be found in some old-fashioned gardens. But tastes change as well as fashions; and, perhaps, our ancestors might not like many things we approve of now, as we should object to tansy puddings, saffron cakes, pickled ash-reed, "locks and keys," as the children used to call them.

And as for trees, from the wild crab-apple, with its lovely blossoms and hard, acrid fruit, have sprung, by grafting and cultivation, all the many kinds of apples so much prized, and so we might go on with trees innumerable. If we cannot boast of some of the grand trees and flowers of foreign lands, we can show a very good list of useful ones, all of very great benefit to man, and all by him taken into the garden from their homes in foreign soil.—*N. Y. Observer.*

GRASS OR CULTIVATED GROUND FOR PEARS.

Nothing seems more surprising than the rapid movement which seems to have been made the last fifteen to twenty years in favor of growing pear trees in grass. We well remember, when the subject was first mooted, what a storm the suggestion made. It was looked on as the height of absurdity, and those who recommended it were thought to be lunatics of the most confirmed description. We never took any sides on this question until our own experience proved its value, and when we had successful instances of pear culture in grass, as we often have. We do not deny that there are many good cultivators who have excellent success in what is called clean culture of pear orchards. Their error has been in regarding it as the only successful plan. As we have said, it is rather remarkable how great is the change the other way; and we should not be surprised one of these days to find the public running to the opposite extreme, and insisting that in grass only can pears be grown. We are confident that the crops are more regular, the fruit more perfect, and the trees are better protected against blight. We do not, in fact, ever remember having a pear tree to die of blight—not that we believe that grass is a perfect protection, only that such is the fact. The ground is uniformly cooler in grass than in cultivated land, and generally is more moist, and then, too, the roots are never disturbed. We have lost several standard and a number of dwarf trees by blight; in fact, latterly not a year passes that there is not a diminution of our trees in this way; while in grass nothing but old age seems to cause them to succumb. When we say that we have three trees on our premises said to be full 150 years old, in good bearing condition, one of them apparently as good as ever it was, we think there is good ground for our opinion.—*Germantown Tel.*

BRING OUT THE DEPOSITS.

All good housewives are now submitting the "camphorated" chests and presses to the annual autumn examination. It is necessary, before the fall and winter purchases are entered into, to know "what is in the house," and to what use it may be put in the way of

saving new outlays. The great majority of the civilized world find economy a necessity and a duty, and nobody, however large the income he enjoys, should permit anything useful to be lost or wasted.

With the approach of winter, the needs of the poor will be pressed upon the attention of the public. Thought in time may not only prevent spasmodic and lavish donations, but may also double the value of what is given. And not only so, but the deserving and the industrious, who never appeal for charity, may be remembered on the ground of friendship; and seasonable and grateful assistance may enrol persons this winter among givers, who would else be among sufferers. Every head of a large household knows how one article of clothing may be made to serve successive children as they come forward, and to look neat and feel comfortable upon each. "In the course of human events" small children go out of fashion in the household, and there is nobody with a "reversionary right" to the articles which the grown folks must lay aside. But children are always in order somewhere; and every manager knows that an adult garment will sit "as good as new," if abridged for a juvenile. In the overhauling of ward-ropes many things capable of such a "conversion" as this will turn up; and everybody knows somebody's children who would be well-suited with the useless garments of their elders.

There is a wide field for choice and discretion in the application of such superfluous things to a useful purpose. The little nephew who is ashamed to wear uncle's coat reproduced, or the little niece who rebels aunts' turned frock, is not born to "good luck," unless, indeed there is such a competence of fortune as to make such economy unnecessary. But if one has no connections to whom such things would be acceptable, then think of somebody not a relative, who would appreciate as *friendship* what could not be accepted as charity.

Even for articles which are too much defaced to be disposed of in this way there is demand. If the householder knows of no family whose necessities would make such donations acceptable, there are societies which include in their charitable operations the clothing of poor children. Such organizations can make good use of anything in the shape of partially worn garments. There is no discarded fabric in any comfortable home which would not be of utility somewhere, and while it is unquestionably a poor charity which gives away only what it cannot use, it is a wise economy to find a use among others for what to the giver is useless. By so much as is saved will the charitable be able to give in addition. The utilization of waste products in arts and manufactures is considered justly to be the creation of wealth. And so in an economical view is the utilization of the discarded or superfluous clothing, furniture, fuel and food of the rich and the comfortable a creation of wealth. Waste (wherever it can be avoided) is a sin, and none of the appliances for comfort should be permitted to remain useless while there are fellow creatures who need. An outcome of the useless contents of chests and ward-ropes would be quite as great an event to some people as the release

of "greenbacks" from their hiding places would be to general business.

COMMON AND THOROUGHbred CATTLE.

No one with half an eye can fail to be favorably impressed with the ponderous weight of some blooded cattle, the beautiful forms and fine flesh of others, while others still are valued and admired for the extraordinary quantity or quality of their milk, or for usefulness as beasts of burden. All this is the direct result of persistent application of a course of treatment devised from a knowledge of the laws of life, and intelligently and skillfully executed. Put into the hands of unskilful men, these fine creatures will be sure to run down, and in a few generations revert to the level of indifferent treatment. This has been the lamentable fate of a vast number of the improved animals distributed through the country, and it constitutes the most formidable obstacle to their successful introduction. There has been thoroughbred stock enough, it is believed, imported into and bred in the State of New York to have stocked every farm in the State by this time, had it been kept up to its high standard with an average fruitfulness; whereas, it has so rapidly degenerated under mismanagement that it is now supposed to constitute only about 1 per cent. of the stock of the State.

Until disposed to bestow upon it the thought, observation and care indispensable to success, the average farmer may as well let thoroughbred stock alone. The common stock fills a place in his farming for which there is no substitute. It is just on the level where his rough, inconsiderable and indifferent management compels it to remain. With better treatment it would immediately improve; with worse, it would sink lower. The experience of thousands has proved this. The cattle have the elements of progress within them, and are not at fault for what they are, and are not to be despised as bad or worthless so long as they are only held down by their breeders. The most efficient way to improve the stock of the State, whether for milk or beef, is to improve the men who grow it. Until they can be educated to give more consistent attention and treatment, there is no use of selfishly seeking to thrust upon them breeding animals whose progeny would be sure to depreciate till it could not be distinguished from the native stock. The most efficient way to inspire the needed education is not by despising the men or their animals, but by arousing their attention by a fair statement of facts.—*Professor L. B. Arnold.*

SHALL WE PRUNE IN AUTUMN?

To the above question, which comes from several subscribers, we say decidedly, yes, provided the question applies to newly planted trees, those set last spring, or within a few years. The sooner such trees have their final shape given to them the better. This should have been done when they were planted, but between the hurry of spring work and the timidity of the inexperienced, who are afraid to cut trees, are quite too often set out just as they come from the nursery. Such trees must sooner or later be put into their final shape for bearing, and the sooner this is done, the

better. Some books on fruit culture, the French especially, give diagrams to show how the tree should be shaped. These are well enough as suggestions, but as no two trees grow precisely alike, the only guides in such matters are, a general idea of the laws which regulate tree growth, and common sense in their application. Working to pattern can not be followed. If one has a young orchard, the first point to be considered is the height at which he will make the heads of his trees. In localities where the summer is long and hot, it is claimed that low heads shade the trunk, and thus are a benefit. Others wish to have the heads high enough to allow of the passage of teams beneath them, if need be. While there is no objection to cultivating crops in a young orchard, and indeed it is better to do this than to neglect the soil entirely, the practice is becoming more general of seeding the bearing orchard to clover, and using it as a pasture for swine, to the mutual benefit of pigs and trees. The height of the heads being decided upon, all branches that start below this should be removed. The next point should be to secure an open and well-balanced head, with the main branches evenly disposed. Beyond this, all branches that crowd, or cross one another, all "water shoots," vigorous growths, that sometimes start up in the growing season, should be cut away. The season's growth being completed, the removal of branches at this time will cause no check, and as the branches to be cut away are all small, no large wounds will be exposed. Hence we say, by all means do such pruning in autumn, while the weather is mild, and other farm work is not pressing.—*American Agriculturist for August.*

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

A stated meeting of the Lancaster County Agricultural and Horticultural Society was held in their room in city hall Monday afternoon, October 1st.

The following named members were present: John C. Linville, Gap; Henry M. Engle, Marietta; M. D. Kendig, Cresswell; Wm. H. Brosius, Drumore; John Wood, Little Britain; W. W. Griest, city; F. R. Diffenderfer, city; S. P. Eby, city; John H. Landis, Millersville; P. S. Reist, C. L. Hunseker, Manheim township; Dr. W. H. Bollinger, city; Ephraim S. Hoover, Manheim township.

In the absence of the President, Henry M. Engle was called to the chair.

The Lehigh County Fair.

Johnson Miller, from the committee appointed to represent the society at the Lehigh county annual fair, sent in a paper which was read. It states that the committee, consisting of Messrs. Miller, Landis and Brosius, visited the fair and found 25,000 persons in attendance. The fair was in every respect a great success. The floral department was magnificent; the horticultural department showed 977 plates of fine fruit; there were 222 stalls filled with fine cattle and 100 stables of superb horses; the cereal and vegetable departments were very well represented, as were also the household, machinery and other departments; the grounds and buildings are complete in every respect, and are valued at \$3,800. The society numbered 700 active members and is in a flourishing condition.

Mr. Landis, from the same committee, read a supplementary in which it was stated that notwithstanding the immense crowds in attendance the order and decorum on the ground was of a most marked character, and conduct of the people being

unexceptionable, and the presence of the rowdy element scarcely observable. In answer to a question Mr. Landis said that there were trials of speed of horses at the fair, and there were the customary sideshows on the grounds.

The Oxford Fair.

James Wood, from the committee appointed to attend the Oxford fair, reported that he had been there, found a very creditable display of stock, a rather small exhibit of farm machinery, a poor representation of household manufactures, and other articles usually seen at fairs. The order upon the grounds was good.

Crop Reports.

M. D. Kendig reported that in Manor township the corn crop was a fair average and had escaped any serious damage by the frost; the farmers are now busy seeding, this work having been put off later than usual on account of the late frequent rains. The pear crop is abundant, there are a few peaches, but scarcely any apples. The pasture is excellent; potatoes are very plentiful and of good quality; nearly all the tobacco has been safely housed and is curing well—a few frost bitten patches being yet uncut. Unusual interest is manifested among farmers in the matter of feeding cattle, the object being to obtain stable manure for the tobacco fields. The rainfall for September, (not including the heavy rain of Sunday night) was four and seven tenths inches.

James Wood said the corn crop in Little Britain was on the whole very fair; in some fields the yield was extraordinary, though it was rather slow in ripening, and not more than one half of it has been as yet cut off; it received but little injury from the frost; the sweet potatoes, however, were badly nipped; tomatoes, of which there is an immense crop, escaped injury thus far.

Levi S. Reist reported the corn to be generally very good, but owing to the lateness of the season he thought there would be a great deal of soft corn, and advised farmers to be careful in selecting their seed next spring.

Wm. H. Brosius said the corn in Drumore was very fine and had not been hurt by the frost; the grass and the clover are excellent; the fall wheat is yet too young to say much about.

John C. Linville said the corn was a fair average in Salisbury, but some of it was frost bitten. Taking the farm crops altogether, he would say that all were good and none very extra.

S. P. Eby said he was more fortunate than some others in that he had a good crop of peaches. In regard to other crops he endorsed what other members had said. He added that the corn crop, which is not often referred to, was a very large one.

Henry M. Engle reported the corn crop along the river in the vicinity of Marietta as unusually good, and some of it suffered a little from frost. He never saw the grass and clover more luxuriant, from young clover sown in the spring he had cut two good crops of green feed for his cattle. The seeding of fall grain has been late, on account of rains. The rainfall for the past month was three inches.

Darwinism in the Cornfield.

John C. Linville read the following paper:

"We often hear the remark that the "weeds grow faster than the corn" or the "weeds grow but the beans do not," and surprise is manifested that such should be the case. We need not go far to ascertain the cause. It is a striking example of the "survival of the fittest," in the "struggle for existence" among plants.

Most of the weeds are native, although many of them have been imported, and finding a congenial home here have become adapted to their environments and are widely disseminated. The hardy and prolific plants crowd out the less vigorous ones whether they be "weeds or not. A weed has been defined as "a plant of place." Tobacco is very properly called a "vile weed," but if left to struggle with rag weed, toad flax and Canada thistle would soon cease to exist.

Another reason why cultivated plants so soon

succumb to the encroachments of weeds is that by artificial selection and careful culture an enormous development of fruit has been obtained partly at the expense of the hardness of the plant. The environment of the plant has been so changed by high fertilization of the soil and thorough culture that there is no longer any necessity for that vigor of constitution found in the plant in its wild state. If the wheat plant were left to fight its way with the many weeds found in our fields it would rapidly deteriorate into a condition similar to the wild wheat from which it is said to have been obtained. The plant in this struggle would, if it did not become extinct, develop a fruit probably utterly unfit for human food, and yet it would be a survival of the fittest. In that sense, the fittest is the plant which is best adapted to its environment, and can best reproduce its species, without this the surface of the globe would soon become a "howling wilderness," and as destitute of animate beings as the moon.

A Free Discussion.

At a former meeting of the society a question was referred for answer to W. H. Brosius as to whether the meetings of the Lancaster County Agricultural Society were of any benefit to the community, and if so why they were not more largely attended. Mr. Brosius, not having been present to answer the question at last meeting, Levi S. Reist prepared a paper which he read at this meeting. He showed at some length that the society had been of great advantage to the community, having introduced among our farmers many valuable varieties of fruits, grains, trees and vegetables unknown to them before the society was organized; and further that many valuable suggestions had been made and essays read before the society which had been published in the newspapers and spread broadcast among the people. He thought the society and the public owed much to the newspapers for the full reports which they published of its proceedings. And yet this was, perhaps, one reason why the meetings were not more largely attended by farmers; they all take the papers and expect to see the proceedings of the meetings published in them. Another reason for the slim attendance may be that younger and more vigorous men are needed at the head of society than the old members who organize and have thus far carried it along. For one, he had done what he could during the past twenty years to help it along, but he was ready at any time to give place to younger and more vigorous leaders; but he would not like to see the old society go down, even if it could not get up great fairs like those of Lehigh and other counties.

Mr. Brosius, after apologizing for his absence at the former meeting, said that it does not argue because Lancaster county is behind Lehigh and Chester and Lebanon in getting up big fairs that we are behind them in agriculture. On the contrary we are in this respect ahead of any county in the State. While it may not be true that our precedence in this respect is due to this society, he felt sure that the society exercised great influence in this direction. A large proportion of our farmers are plain people, who dislike parade and show, who keep themselves well informed on all matters pertaining to agriculture, but take no interest in fairs, horse races and side-shows.

S. P. Eby, Esq., said the local society was doing good work, and its members need not be ashamed because they had not organized great shows like their neighbors in Lehigh and other counties. These fairs are no true test of excellence. The markets are a far better test, and he was quite willing to compare the products of the farm brought to our markets two, three or four times a week, with the products of any other farmers carried to any other markets. He had attended the fair lately given in this city and regarded it in most respects as a show. He had seen nothing worth seeing except the agricultural implements and the live stock, and he would be very sorry to see this society attempt to get up such a fair with its side-shows and horse races and pool-gaming. It would be below the dignity of this

society to get up such a fair. He is sure he is more edified and he believes the community receive more benefit from reading the reports of the proceedings of this little society than they could possibly receive from attending fairs, like that lately held here.

The discussion was further continued by Messrs. Brosius, C. L. Hunsecker, Levi S. Reist, James Wood and Henry M. Engle, all of whom agreed that the true sphere of the society was not to get up fairs, but to meet for mutual improvement, and the dissemination of useful knowledge among the farming community.

Henry M. Engle read the following paper in answer to the question "What is the best method of curing grapes in the cluster for winter use?"

"The question should have been put: How can we grow grapes that will keep? The fact is, we can keep no grapes satisfactorily that are not well ripened, and even when grown to perfection, there are only some varieties that possess good keeping qualities.

"At present there is no grape that will succeed and mature better than Concord, but it is no good keeper; on the other hand, there has thus far no grape been thoroughly tested that will keep better than Catawba where it will grow to perfection, and scarcely one of better quality. Any grape of good keeping qualities may be kept until midwinter when well matured by placing the bunches in shallow boxes with fresh grape leaves between each layer, and placing them in a cool room that is neither too dry nor too moist.

"The new method of bagging the bunches early on the vine is an excellent one, as it prevents birds from injuring them, and although they will not mature quite so early as when not bagged, they will be in better condition for keeping. They may be left on the vine later and an ordinary frost will not affect them, and I have found no method to keep them longer than by butting the bunch and bag placing them in boxes as above, except without the foliage. Even that would do no harm and might keep them fresh longer."

Mr. D. Kendig said he had kept grapes till after the holidays by packing the clusters in kegs and burying the keg in ground beneath the reach of frost, in the same manner that apples are sometimes buried.

Mr. Linville said the best keeping grape is the old Diana, a seedling from the Catawba. The Catawba is also much better for keeping than the Concord. His plan is to box them and set them in a cool place.

Dr. Bollinger said that he had read that the Chinese method of preserving grapes for winter use was to cut a hole in the side of a pumpkin with a thin rind, scoop out the seeds and place the clusters of grapes inside setting them in a cool place. Thus prepared, it is said they will keep till after mid-winter.

Other County Fairs.

The secretary read a communication from the Berks county agricultural society enclosing tickets of admission to its annual fair being held this week, and requesting the society to send representatives to the fair. The invitation was accepted and the chair appointed C. L. Hunsecker, Levi S. Reist and E. S. Hoover as representatives.

Messrs. M. D. Kendig, James wood and H. M. Engle were appointed to represent the society at the York county fair.

Messrs. J. H. Landis, Wm. H. Brosius, and E. S. Hoover, were appointed to represent the society at the Lebanon county fair.

Considerable merriment was caused by reason of these gentlemen asking to be excused, as they had important legislative duties to attend to at Harrisburg! Of course they were not excused.

A Sweet-Sour Apple.

Levi S. Reist presented to the society an apple, one-half of which was sour and the other half sweet. The apple was tasted by several members of the society and a representative of the *Intelligencer* and there was certainly a marked difference in the taste of the two halves—the one being a dead sweet and the other decidedly acid. Mr. Reist said he got the

graft from which the apple was grown from Quakertown, Pa.

James Wood presented for name a fine apple resembling the Bellemont.

Henry M. Engle presented several chestnuts from a grafted chestnut growing on his premises. The fruit is three or four times as large as the common chestnut and of equally good flavor.

Referred Questions.

The question, "Are our farm houses properly ventilated?" was referred to M. D. Kendig for answer at next meeting.

A resolution was adopted to pay first, second and third premium of \$5, \$4 and \$3, respectively, for three essays on "The best method of wintering horned cattle." H. M. Engle, M. D. Kendig and W. H. Brosius were announced as the essayists.

Adjourned.

THE FULTON FARMERS' CLUB.

The Farmers' Club of Fulton township met at the residence of Christopher C. Cauffman, on Saturday, October 6. The members were all present together with a large number of visitors.

The minutes of last meeting were read and approved.

Robert Scott, a visitor, exhibited a plate of very fine large pears for name, stating they were great bearers and did not ripen until winter. They were much admired by the club, but none were able to give them a name at present.

William King, on behalf of the committee appointed to attend the woods meeting of the Octoraro Farmers' Club on the 15th of last month, reported that they had a very pleasant time and that the meeting was entertaining and instructive.

Wm. King asked if there was any danger of getting sorrel on our farm from using fertilizers having acid in them.

Josiah Brown said that he has been using S. C. Rock for six or seven years and has no more sorrel than when he started to use these fertilizers.

Sol Gregg has been using fertilizers for ten years; has very little sorrel, but has seen land very full of sorrel, which was attributed to fertilizers.

Lizzie Wood asked which wears out the stockings—the boots or feet? This question raised quite a talk. The causes spoken of were varied and many, such as boots too loose or too tight, carelessness, wash board and uncleanness.

Josiah Brown wanted to know the cause of weeds coming up where grass has not taken.

D. Wood—Where there is no grass on the ground the weeds have full chance to grow and develop, where the grass gets the start and covers the ground and is in full possession of the field the weeds are held in check.

Rebecca King asked what is the best way to keep apples in winter.

Lindley King recommended keeping on shelves in the cellar.

Josiah Brown has kept apples on the garret floor successfully; good chance to look over them and pick out the rotten ones.

William King: I think there is no better way than keeping in barrels. There is no advantage with shelves; would keep them in a cool place; better not disturb them if they are not rotten too much. He stated—which is a very singular fact—that apples placed on shelves are exposed to all the air possible, while the idea of packing in barrels is directly opposite, the object being to exclude the air, and by the experience just given, goes to show that apples will keep by both of these ways.

Sol Gregg said that he sees no difference in keeping in boxes, barrels or shelves; has trouble to keep them any way.

Montillon Brown asked if it will pay the mass of farmers in general to buy the self-binding harvester.

Lindley King thinks they will not pay on small farms.

Sol Gregg; Where harvest hands can be had at \$1.50 per day, it is cheaper than to buy a bluder. The first cost, the expenses of repairing, interest on

money, the cost of twine, storage room, not adapted to hilly farms—taking all these things in consideration he is of the opinion that self-binding harvesters are more expensive than the old way.

Club then adjourned for dinner. After enjoying a splendid repast, it being stormy, the usual after dinner walk over the host's farm was limited to that portion about the buildings.

Afternoon Session.

The minutes of the last meeting held here were then read and the criticisms were all of a favorable character. Some improvements was noticed since the last meeting. The host's stock was favorably spoken of. The house has been newly painted and a substantial new fence erected around his barn-yard.

In place of an essay the host had read a selection entitled "The New Agricultural Editor."

Carrie Blackburn favored the club with a very fine recitation, "Why Not Save Mother?"

Esther Haines read from the *Practical Farmer*, "Education of Girls."

Lizzie Wood read from the *Lancaster Examiner* "Housekeeping."

Rebecca King, read "Spike That Gun."

Wm. King read "Mark Twain's Bad Little Boy."

The Old Woman, whom we had all thought had not survived the last summer's cares and hardships, again favored us with a long communication describing what she and the old man saw in the Oxford Agricultural Fair. She says this fair was gotten up by some of the smartest men of Oxford and some of the best farmers in that section. She objected to the small size of the cows they called Jerseys. She had always heard Jersey was a poor place, and she expected they brought the best they had. She saw where the boys and even the men were paying five cents to throw balls at a monkey, tied to a stake. She thought this was very cruel, but considering this fair was gotten up by the smartest men of Oxford for advancing agriculture—she said it was for the best. She was astonished at the many novel ways these smart men of Oxford had invented to amuse the boys and interest them in farming, and thought these smart men of Oxford deserve great credit in doing so much for the rising generations of farmers.

Club then adjourned to meet at the residence of Day Wood, November 3, 1883.

THE LINNÆAN SOCIETY.

The Linnæan Society met on Saturday afternoon, September 29, 1883, at 2½ o'clock, in the Museum room, after a recess of three months, the President, J. P. Wickersham, in chair. Dues collected and minutes of previous meeting read and approved.

Donations to the Library.

Proceedings of the Academy of Natural Sciences, Part 1 from January to May, 1883.

Official Gazette of the United States Patent Office, completion of Vol. 23 and 13 numbers Vol. 24.

Isothermal lines of the United States, No. 2, from 1871 to 1880 quarto with 12 maps, United States Signal Bureau.

LANCASTER FARMER for July, August and September, 1883.

Prospectus, title page and contents of "Mines, Miners and Mining Interests of the United States." Inaugural address of Chas. D. Thompson, delivered before the Rose Polytechnic Institute, March 7, 1883.

Circular of Information from the Bureau of Education, United States, No. 2, 1883.

Lippencott's classified catalogue of publications. Lippencott's bulletins for August and September, 1883.

Sundry book circulars and minor catalogues.

Four newspapers of historical value, namely: The New York *Sun* of September 3, 1883, and fac simile of its first issue, September 3, 1833. The Baltimore *American* of August 20, 1883, its 110th birthday, and a historical sketch of the paper and the city. Also No. 1, of a new paper (initial number) called *The Father Columbia's Paper*.

Catalogue of "Rare Americana," issued by S. H. Zahm & Co., Lancaster, Pa.

Report of Chief Signal office 1881, Department of Interior.

Report of "Commissioner of Fish and Fisheries of Pennsylvania," for 1881-82, illustrated by 32 plates of fish, from E. G. Snyder, II. R., per S. M. Scuer.

American Philosophical Society proceedings from January to April, 1883.

Index and annual report of Commissioner of Patents for 1882.

A stereoscopic view of an Indian altar at McCall's Ferry, taken by W. L. Gill for the society, was then donated by Mr. Gill.

Donations to the Museum.

A remarkably fine specimen of the "Hoary Bat," donated by Mr. Mayer, of Manheim township, who found it one morning about two weeks ago, near his house, in the yard. This is the *Vespertilio prinosus*, and was originally described by Thomas Say. This animal is sometimes confounded with the Hoary or "Particolored Bat" of Europe. (*Vespertilio discolor*), but there is a great difference between them, especially in size. The body of our species measures over $4\frac{1}{2}$ inches in length, and in spread over 15 inches, whilst the body of the European species measures only $3\frac{3}{4}$ inches in length, and $10\frac{1}{2}$ inches in spread. Among the other distinctions is the fawn colored transverse band on the throat of our species, and the dark color of the hair generally. Dr. Godman describes the hoary bat of the United States with tolerable minuteness, but he makes no reference to the fawn-colored band on the throat, nor yet to the similarly colored spots on the wings near the anterior margin. These marks may, however, pertain to sex or age.

In connection with this subject I would mention that I donated a specimen of the Hoary Bat to this society about sixteen years ago, which was subsequently entirely destroyed by the "Museum Beetle" (*Anthrenus varians*), and so far as I can recall its appearance, at the present time, both the band on throat, and the spots on the wings, were absent; nor was the color of the hair as dark as it is in this specimen, but the size was about the same. These two are the only specimens of this bat I have ever seen or handled, and, from the fact that during the long interval of sixteen years more than a score of bats were brought to me or sent to me, but none of this species, we may infer that it is by no means common in Lancaster county although it may not be rare, if we knew just where to look for it.

Mr. Mayer informed me that he fed this animal about a week on "bread and milk," and that it devoured it readily. Bats generally are insectivorous animals, although there are large foreign species which are frugivorous. This appropriation of bread and milk seems to indicate a step towards domestication.

A bottle containing a specimen of the "golden carp"—*Cyprinus auratus*—from "our aquarium," where it very suddenly died about a month ago. It probably died of old age, for we had it a long time, and it is no larger now than when we obtained it. Its death could not have been caused by the unhealthy condition of the water, because other specimens in the same tank still survive. The color is so completely destroyed by the alcohol that "silver carp" would be a more appropriate name.

Seven bottles of insects in alcohol, collected at "York Furnace Spring" during the Tuccan encampment, in July, 1883. No. 1 contains 3 specimens of *Calosoma Seruator*, one of the handsomest species in the whole coleopterous order, and this, combined with its symmetrical proportions, its cursorial powers, its predaceous character, and hence its usefulness places it far in advance of any other known species. No. 2 contains 16 specimens of *Chrysochus Auratus*. This is also a very pretty insect, but is a vegetarian, confining itself to the "Dogbane." This insect could be easily set in jewelry, and allied species are extensively so employed in Brazil. No. 3 contains *Prionus laticollis*, *Lucanus dama*, and *Cicada canicularis*, from the same locality. Nos. 4

and 5 contain various species of Coleoptera, Hymenoptera, Hemiptera and Arachnida, conspicuous among which is *Pimpla lunator*. No. 7 contains two specimens of *Spirobolus* and one of *Scolopendra*, belonging to the class Myriapoda, representing two families commonly known as "Millepedes" and "Centipedes."

Four bottles of insects and others, collected in the vicinity of Lancaster city, in July, 1883. No. 8 contains 50 specimens of *Galeruca xanthomelana*, or "Elm leaf Beetle." Some of these, however, were taken on a small beach bush, and others on various species of vegetation in the vicinity. This insect was very destructive to the foliage of the Elm trees in Lancaster city the present season, notably those in front of the residence of Mr. Frank Schroder, on East Orange street. All the leaves of those trees were perfectly skeletonized, and now they are developing a new crop of leaves. No. 9 contains 50 specimens of *Tetraopis tornator* obtained on the *Asclepius*; several "centipedes," about 20 specimens of *Oniscus* and *Armadillo*, commonly called "Sow-bug" and "Pill-bug." These latter animals, which had formerly been classed with the Myriapoda, are now classed with the Crustacea, and are referred to the order Tetracapoda, containing 3 groups, our subjects belonging to the Isopods. No. 10 contains a miscellaneous collection, mainly small chrysomelans. No. 11, Arachnids, female specimens, with their cocoons, or egg bags, attached to them. No. 12, small specimens of the larva of *Elateridæ* detected depredating on the roots of cereals. No. 13, containing "scale" or "scab" insects, belonging to the *Coccus* family. These were found on small oak twigs, by Mr. Sm'l. Auxer, in June last. They are species of *Pulvinaria*. A few days after I received them (about June 25) these globular scales evolved millions upon millions of minute whitish animals—too minute to be detected by the naked eye—which, under a strong magnifier exhibited considerable activity. They had a dark longitudinal line on the back, slightly bristled legs and antennæ, and two longer seta or bristles projecting from the caudal segment.

The late J. Duncan Putnam, of Davenport, Iowa, in his "Notes on Coccidæ," states that Dr. V. Signoret has brought together descriptions of eighteen species of *Pulvinaria* from different parts of the world, and among them, Gmelin described a species that infests the oaks of Europe, namely *P. lanatus*. I propose for this subject, if it proves to be new, *Pulvinaria quercina*, and yet it may be Gmelin's *lanatus* introduced into this country. These scales are a chestnut brown in color, and very much convexed in form—indeed almost spherical—flattened only a little on the side that adheres to the branch, and so thickly crowded together that in some places the branch or twig is entirely concealed. Whilst the branch was standing erect on a small shelf, S. M. Sener and myself noticed at its base, what appeared to be a small accumulating pile of dust, and on a closer view we found this apparent dust animated and spreading itself over a rapidly increasing area.

Two bottles containing insects taken in the county of Lancaster, and brought to me by different persons.

No. 13 contains eggs and young larva (one day old) of *Attacus cecropia*, eggs of "narrow-winged katydid," *Phylloptera oblongifolia*; one specimen of *Balanus nasutus*, or "chestnut weevil"; one of *Orchelimum*, and one of *Reduvius raptorius*.

No. 14 contains the larva of *Phyllampelis satellitia*, infested by *Microgaster congregata*, a specimen of the "wheel-bug"; *Reduvius novenarius* in the act of moulting, being of a brilliant pink color. A specimen of *Mydas fiata* and one of *Tabanus atrata*, usually called black "Horse-flies."

A large half-gallon bottle from H. A. Rathvon, of Carson, Texas, containing four or five reptiles belonging to the family *Coluberidæ*, and one apparently immature specimen of *Phrynosoma* or "Horned Toad." A fine large specimen of the "Texas centipede" (*Scolopendra heros*); three "Tarantulas" (*Mygale hentzii*) and two very large Hymenoptera, commonly called the "Tarantula Killers—*Pompilus*

formosa—and many are the contests which have been witnessed between these two formidable insects, the "Killer" usually coming off conqueror.* One specimen of *Stenopalmata talpa*, in parts of California called the "Potato Cricket," two fine long-horned beetles belonging to the family *Prionidæ*. Two "Camel Crickets"—*Mantis Carolina*? One large specimen of the "Luber Grasshopper" (*Romalea microptera*?) said to be destructive to the foliage of the orange. A large whitish spider with dark banded legs, probably *Dolomedes albicans* of Heutz. Two specimens of *Assillus*, and sundry other animals which cannot be examined for want of time, the bottle being hermetically sealed and the liquid in which they are immersed being cloudy. The collection is of scientific value and it came safely through by express.

A bottle of calcareous sand containing granules of iron, being the borings of an artesian well over sixty feet below the surface of the earth, from the farm of Washington L. Hershey, and donated by him. It effervesces freely under muriatic acid, the residue being black sand, and the whole is very heavy, indicating that it contains a large quantity of metal.

A large specimen of *Menopoma Allegheniensis* was donated by Mr. John J. Breneiser, of Rock Hill, Lancaster county, Pa. This animal is known by different names in different localities, as "alligator," "mud-puppy," "hell-bender," "mud-devil," "black-lizard," etc., etc. Its place in animal classification is among the *Batrachians* (which includes the toads, frogs, newts, salamanders, tritons), and not among the lizards, which are *Saurians*. "Black Salamander," or "Great Salamander," or "Allegheny Salamander" would be a better common name than any it has received. Mr. Breneiser captured this reptile on an outline set in the Conestoga, about eight miles from the city of Lancaster, immediately below the first lock from Safe Harbor. If it were not for the dams in the Conestoga, we doubtless would have the animal within the city limits by this time, for specimens have been taken in the Susquehanna river very frequently within the past ten years, between Harrisburg and Harbor, and for a much longer period above Harrisburg. Forty years ago a specimen about six inches long was found dead in a small puddle of water after the subsidence of an overflow of the Susquehanna at Marietta. But, fifty years ago it was not known to exist in the Susquehanna, although it was very common in the Allegheny long prior to that date, and was specifically named after that river by the French naturalist Latreille, who first described it. This specimen is 17 inches in length, but the society is in possession of one that measured 23 inches, although the limit is usually

*In explanation, I would remark that the contest between the "Tarantula" and the "Tarantula-killer" is not characterized by the motives which stimulate human, or even many other animal belligerents. The latter is the aggressor, and the former acts purely on the defensive. Acting under a provident maternal impulse, the *Pompilus*, or wasp, is in the effort of inflicting a paralyzing wound upon the Tarantula, in order to make its body a nidus for the reception of one or more of its eggs, and sustenance for the young grub or grubs that are developed from them. The male wasp takes no part in the contest; it is solely the business of the female, and after she succeeds in inflicting the wound, she seizes the now helpless spider and crams it into her earth-cell, where it is appropriated by her young as soon as they are excluded from the eggs. If she killed the spider it would putrify, her young would starve, and the perpetuation of her race would be defeated. The young itself refrains from attacking the vital parts of the spider, until near its mature development as a larva or grub. These wasps belong to the fossorial Hymenoptera, of which there are many species.

We have in Lancaster county a large fossorial wasp—*Stysus speciosus*—of habits similar to the above, but it confines itself to the "Dog-day Locust"—*Cicada canicularis*—which it also paralyzes and crams into its earth-cell, and sometimes is compelled to enlarge the orifice leading to it in order to get its victim in. Species belonging to the genus *Odynerus* secure naked caterpillars for the same purpose, whilst the "mud wasps," *Sphex eruleus*, appropriates spiders for the same end. The *Stysus* sometimes captures a cicada that is too large and heavy to be raised up from the ground, and she has been known to drag it to an eminence, or even up to the branch of a tree, and then by the shortest and most direct line to aim for, or near her cell, from whence she disposes of it accordingly. No motive of anger or revenge enters into the contest. So far as the aggressors are concerned, but merely that provident instinct which characterizes all female animals in behalf of their young. Even those that are vegetarian in their feeding habits, by their peculiar instincts, when not interfered with, make the same provident provision.

given in books as 15 inches. The class Batrachia is subdivided into three conspicuous orders—namely, Anoura, or tailless; Urodela, or tailed, and the Apoda, or snakeshaped, being entirely destitute of limbs, and are confined mainly to the tropics. This subject then belongs to the tailed order of Batrachians, and to the family Amphiumidae, or gillless, breathing through a branchial orifice instead of gills, at all periods of their existence. They are most "unwelcome guests" in the Susquehanna, or any other streams, for they are voracious devourers of fish, mollusks, and other small water animals. They live entirely in the water, and have a very defective locomotion out of it, and yet it is conjectured that they must have somehow passed from the head waters of the Allegheny to those of the Susquehanna.

Skeleton of the anterior limb of *Cervus Virginianis*, donated by Geo. Flick. Two birds nests collected in Lancaster county, in July, 1883, and four mounted specimens of Exotic Ferns donated by S. M. Sener. Specimens of *Dodocathean Mædia* and seed stem of same from Perry county, per Mrs. Gibbons. Specimens of *Juncus Balticus*, found in Dillerville swamps, per Dr. S. S. Rathvon. Specimens of "*Thrydopterix ephemeriformis*," by Prof. Stahr. Piece of coal and splinters of a mast from wrecked vessels on Atlantic coast from C. A. Heinitch. Two old style fire hats, one old fire bag, and a fire horn (which was presented to the Union Hose Company by Thos. E. Franklin, in 1840) purchased for and donated to the Linnæan by C. A. Heinitch. A paper entitled Linnæan Notes was then read by Mrs. Gibbons, and an article on the picture of the Indian altar was read by W. L. Gill. Robert C. Bair, of York Furnace, was proposed as a correspondent, and Walter P. King, of Lancaster, as a regular member. Laid over for one month according to constitution. Two communications from the Department of the Interior in reference to exchange of publications were then read and acted upon. Secretary ordered to send them a copy of LANCASTRE FARMER monthly. Action on amendments to constitution deferred until next month. Action of curators in purchasing some Indian relics was approved and bill for same, and also bill of \$1.35 for taxidermy and alcohol, etc., ordered to be paid. Treasurer reported that since last meeting he had 29 serial volumes bound, and would present bill for same at next meeting. The Society then adjourned to meet on Saturday, October 27, at 2½ P. M.

STATE ORGANIZATIONS.

PENNSYLVANIA WOOL-GROWERS.

At a meeting, August 13th, 1883, at the Fulton House, Washington, Pa., of the Executive Committee of the Pennsylvania Wool-Growers' and Sheep Breeders' Association, it was

Resolved, 1st, That thorough organization of the Pennsylvania wool growers can only be attained by united effort to assist organization in the different counties represented through the State Association, and that the State Executive Committee have posters adapted to the use of the different counties of the State, which to furnish Vice Presidents or others desiring to organize auxiliary associations to the State Association, through the Secretary of the State Association.

2d, That the time and place of meeting be arranged by Vice Presidents of districts, or in counties having no Vice President by some person corresponding with the Secretary of the State Association.

3d, That the Executive Committee, or some member thereof, will meet and assist counties to organize auxiliary associations.

JOHN McDOWELL, Pres.
J. C. McNARY,
WM. A. HERRIOTT,
Executive Committee.

STATE BOARD OF AGRICULTURE.

The following from the *Erie Gazette* of August 12th is of interest to all Agriculturists.

The State Board of Agriculture was in session in this city last week, and with much routine business, many valuable papers were read. On Wednesday the board visited W. L. Scott's farm and inspected it generally, pronouncing it one of the best farms in the

country. We make a few extracts from their doings as being of both general and local interest.

At the discussion of "birds vs. Insects," by Professor W. A. Buckhout, entomologist of the board there was considerable interest excited when the English sparrow came up for comment. Of all that august body, representing 67 counties of Pennsylvania, there was not a soul had the hardihood to say a good word for the foreigner, even for argument's sake. He was denounced in general terms of contempt on account of pugnaciousness, lack of tidy habits, keen appetite for grain fields and general uselessness, except as a terrorizer to all the bird creation. One member in the course of his rejecting over the law which provides for the birds' destruction, said that he had seen a sparrow give battle and vanquish a crow. The Board of Agriculture as a body "go agin" the sparrow.

Potato culture was discussed at length after the reading of M. W. Oliver's paper. Mr. Oliver was able to give the convention considerable information in regard to this important industry in this section of the State.

Mr. Reeder, of Bucks, who read the report on dairy and dairy products, furnished the following important information secured by him in answer to printed forms sent out.

The whole number of horned cattle in the State was thus found to be as follows:

Milk cows, 854,156, at \$40 a head, valued at \$34,166,240. Other cattle, \$61,019, at \$20, \$12,203,800. Oxen, 15,062, at \$40, \$602,480, making the total value of horned cattle \$51,839,100.

Dairy Products.

Butter, 79,336,012 lbs. at 25c., \$19,834,003; milk, 36,540,540 gallons, at 15c., \$5,481,081; cheese, 1,008,686 lbs. at 12c., \$121,042.32. Total, \$25,436,126.32.

The average annual price of butter per lb. in the State was found to be 25 cents, cheese, 10 cents, milk 4 cents per quart, and the average price of dairy cows \$40.

Regarding the cost of production it had been ascertained that for butter it is 20 cents per pound in 55 counties. In 24 counties the cost of producing cheese is to put at 8 cents per pound, and 55 counties reported the cost of producing milk at 3 cents per quart. The average cost of raising dairy cows until three years old is \$30 in 60 counties, the highest figures being given from Erie, \$35 to \$40, and the lowest, Clarion county, \$10.

The profit upon these products was given to be 5 cents per pound on butter, 2 cents on cheese, 1 cent on milk per quart, and \$10 per head on dairy cows.

Regarding the principal market for dairy products, 52 counties report that they are mainly engaged in supplying their home markets with dairy products, the remaining 15 only supply a portion and send more or less to other States.

Statistics as to the number of creameries in the State show that there are 194 in full operation in the State. The introduction of creameries into this State is considered a great blessing and relief to overworked housewives.

There were 6 creameries in Erie county in 1870 and there are 28 at the present time. The average price of butter per pound in Erie is given by two correspondents as 25 and 27 cents per pound; cheese at 12 and 14 cents; milk at 5 cents.

David Wilson, of Union, volunteered an exceedingly well written paper on the agriculture of Erie county.

The paper by G. Heister, of Dauphin, upon grapes in eastern Pennsylvania, varieties of profit, etc, elicited considerable argument, in which Calvin Leet, of Harborecreek, spoke intelligently. Mr. Beebe, from Venango county, reported that his vines had been attacked by the "black knot." Nothing of the kind had been heard of before and no remedy was suggested nor cause assigned. Professor W. A. Buckhout, entomologist to the board, discussed the matter at some length.

The question "How shall a farmer spend his winter evenings so as to promote his general inter-

ests?" was ably written upon at length by Hon. A. N. Perrin, of Crawford county.

Place for Next Meeting.

The board at the morning session fixed the time and place for the next meeting. Lock Haven and Bloomsburg, Columbia county, were named, but finally the board selected West Chester and fixed the time for the third Wednesday in October, with privilege to the advisory board to change date.

AGRICULTURE.

Corn Fodder.

When the farmer has stored up the ears of corn in his bins he has laid by only two-thirds of the feeding value of his crop. The stalks that bore his corn hold another third. Yes, the stalks or corn fodder, as it is called, is worth nearly or quite one-half the grain for feeding stock. Governor Boutwell estimates the value of his fodder at one-half the value of his hay; that is, if hay sold at \$20, fodder was worth \$10, and for every ton of fodder used he sold one ton of hay. Dr. Sturtevant estimates his fodder at six-tenths the value of his hay; that is, when he sold his hay at \$23 his corn fodder brought him in cash \$13.20 a ton. Yet so many farmers ignorant of its true value regard it only as a necessary evil, and waste it or even burn it. It should be cared for when husking time comes with as much certainty as the grain. The few who have large barns and only moderate fields of corn can stow it away loosely in their barns, but this method is not generally feasible. To handle it easily bind it near the middle into small, compact bundles, tying with rye straw or tarred twine. After a dozen or so are tied set them up carefully in shocks. As soon as possible after husking carry them under sheds or into barns, have them ricked or stacked convenient to the barn or cattle-yards. The great essential is to keep them from being washed and bleached by the rains. By exposure, the carbo-hydrates, the nutritious parts, are changed to fibre. Dr. Lawes is authority for the statement that dried fodder loses nothing but the water in the drying. Therefore, its value is equal to that of green fodder, and it can be restored to its original condition by soaking in water.—*Vaughn's Manual*.

How Much Wheat Seed Per Acre?

Where wheat is not at all crowded, in a rich, mel-low soil, and the tillering is not impeded, the average number of stems for each plant is about sixteen. Each one produces a head or ear, containing on an average, under reasonably favorable conditions, fifty grains. Thus one grain yields eight hundred grains. At this rate, the man who sows two bushels to the acre, would harvest sixteen hundred bushels per acre, or else much of the seed is lost. The average yield of the country, however, is less than fifteen bushels per acre. A bushel of wheat contains, ordinarily, seven hundred and fifty thousand grains; two bushels, one million five hundred thousand grains. An acre of land contains slightly above six million square inches. So that each plant has four square inches from which to derive sustenance. Measure that on the ground, and see how small it is. Can you expect the plant to make a vigorous growth on four square inches? Can you expect it to tiller and produce sixteen stems? Can you expect it to mature sixteen full heads? The result of this crowding is plain. The plants cannot gain nutriment when growing so densely. Some must die that the others may live. The strong triumph and the weak succumb. This struggle for life begins as soon as the plants appear above ground. As the plants grow larger, they require more room, and others must give way, and very few, if any, attain a full growth. All are cramped and starved. Tillering is impeded; many plants do not tiller at all, and those that do, tiller imperfectly. The same is true of earing. Full ears cannot be expected. An acre of wheat contains about eight hundred thousand heads. It is safe to say that, on account of tillering, these

are produced by three hundred thousand plants. Consequently, only one-fifth of the grain sown produces mature plants; these plants produce less than one fifth of the proper number of stems by tillering, and these produce imperfect heads. This is almost entirely caused by crowding.

Two quarts of seed sown on an acre have produced fifty bushels of wheat. Where all the conditions are favorable, the American farmer should not sow more than a half a bushel per acre. But agricultural reforms are never sweeping; therefore let the wheat-grower try one bushel per acre.—*American Agriculturist*.

California Chicory Farming.

Chicory farming promises to be one of the coming industries of California farming. Chicory was first planted in that State about fifteen years ago, but since that time it has been extensively raised on the San Joaquin and Sacramento rivers. Chicory is cultivated on a small scale in some of the Eastern States, and in some places in that section grows wild in abandoned fields and orchards. It grows very luxuriantly on the bottom lands of Louisiana and Texas. The root of the plant, when being prepared for use, is cut by a machine into small square blocks; then placed in the sun to dry, afterward roasted, and finally ground in a mill. Chicory possesses few elements in common with coffee, and yet it imparts a taste to it greatly fancied by certain coffee drinkers in Europe. In France and Belgium the common people have been so accustomed to mix chicory with the coffee they drink that they prefer it so prepared to the beverage in its pure state. Travelers in those countries, even when they purchase pure coffee for their private consumption, find that the cooks will mix chicory with it, even after having received strict orders to the contrary.—*San Francisco Chronicle*.

How to Destroy the Germs of Rust and Smut.

No farmer should omit to steep his seed wheat in some caustic solution that will destroy the germs of rust and smut. It is not yet known fully how the seed is impregnated with smut, or if the smut infect the seed within as well as without. But in any case it is positively known that some substances destroy the spores or seeds of the minute plant that produces the rust and smut. A solution of four ounces of blue vitrol—sulphate of copper—dissolved in a gallon of water for each five bushels of seed, which is steeped in it until it is absorbed, has been found the most effective. Strong lime-water, salt brine and old chamber-lye, which contains a large quantity of ammonia, have all been used with benefit. Smut is rapidly increasing. Few grain crops are free from it, and all we can do to help ourselves to prevent it is to use these precautions.—*New York Weekly Times*.

The Best Rotation Crops.

The following is from the prize essay of T. O. Nourse, written for the Massachusetts Agricultural College:

There was an old practice of fallowing to give the land rest and thereby enrich it. This, however, is going out of practice, from the fact that it gives so great a chance for loss by draining. Now a general farm does not offer the same chance for losses, for it is very easy to adopt a system so that a crop may be kept growing all the time; for if a crop comes off early in the season, but not early enough to allow another crop to ripen, it is very easy to sow rye, and either feed it off in the fall or spring, or plow under for green manure. It has been found from repeated experiment that one crop will not grow on a piece of land for a long series of years and give good results. This is probably due to the fact that a large proportion of the particular elements needed by the plant are exhausted, while if these are rotated with those of another nature the former will again soon grow as well as ever. For a rotation of crops, the following may be a good one in many locations:

First year, corn; second, roots; third, oats; fourth, wheat; fifth, clover, and sixth, clover. This is for a six-year rotation, and can, of course, be modified to admit it to their circumstances and location, as, for instance, in Canada, peas may take the place of corn, for there a large crop of peas may be grown, and make a very valuable one, too, while further south this would not be possible on account of the pea weevil. The Norfolk rotation, which is theoretically a perfect rotation, is as follows: First, wheat; second, turnips; third, oats or barley; fourth, clover. This is, however, hardly admissible in most locations, for so large a proportion of turnips would not be fed to advantage, and might well be modified by placing the barley before the roots and inserting a wheat crop between the roots and clover.

A Big Clover Yield.

Mr. A. Devereux, Deposit, N. Y., communicates to the *Orange County Farmer* notes of "a remarkable yield of clover"—no less than 75 tons 300 pounds, by actual weight, from seven acres. The weather was unfavorable at mowing time, and so the crop was hauled green to a silo, with exception of one load which, thoroughly cured, dried away nearly 56 per cent., leaving 680 pounds, or at the rate of 33 tons of hay for the whole field. The weighting, with the 45,000 pounds of stone, cost \$5 and caused the ensilage to settle $8\frac{1}{2}$ feet, "so that it now occupies a space equal to 4,675 cubic feet. He estimates that the same clover in hay would have filled two barn bays each 30x19x20 feet.

HORTICULTURE.

The Profits on Small Fruits.

In illustrations of the profits in cultivating small fruits we note in the *Santa Barbara, California, Independent*, a statement that in a garden at that place, L. A. Hemenway is raising strawberries at a lusty profit. The paper says: "Upon the three-fourths of an acre, which are now ripening, the weekly yield is one thousand boxes. These are of the choicest variety, the Monarch of the West. Mr. Hemenway has sold already this season over \$750 worth of berries, and the vines promise to yield as much more before their annual period of rest. Almost the whole work of preparing the land, constructing water ditches and flumes for irrigation, setting and irrigating the plants and attending to them when growing, has been done by Mr. Hemenway alone. Since the berries commenced ripening they have required the help of one man. Besides this, Mr. Hemenway has attended to his other crops, doing the whole work connected with ten acres of hay, three acres of corn, one acre of vineyard, four acres of pumpkins, and five or six acres of apricot and walnut trees, which are now beginning to bear most bountifully. In this way, upon a small piece of land, he is making more clear profit than many of the so-called large farmers who are sowing two or three hundred or one thousand acres of wheat or barley and paying out almost the entire receipts for hired help, harvesting, threshing, sacking, transportation, commission, etc.

Shooting Worms.

The increasing prevalence of "worms nests" or tent Caterpillars in fruit trees is bringing out various suggestions, from those who have had experience, as to the best mode of destroying them. A writer in the *Pittsburg Stockman* comes to the front with the shot gun method, as follows:

"An ordinary shot gun loaded with a small charge of powder, a little experience will determine the amount, with a little or no wadding (if any, a little paper is best), held from one to three feet from the tent and fired, will completely destroy the tent and all the caterpillars therein at the time, without injury to the tree. The result is a sudden column of fire, accompanied by an explosion, too short to burn, and too weak to injure the tree, and yet strong enough to destroy utterly and completely the worms."

The writer quoted above describes the process quite clearly, but fails to mention one important

feature, the proper time to do the shooting. Our own experience in that business in our boyhood days, proved that the best time was during a drizzling rain preceded by a damp, foggy night. The fog and dampness of the atmosphere drives all the worms into the nest, and the rain keeps them there. Thus a well-directed shot effectually exterminates the entire nest.

Experiments in Cultivating.

W. W. Higbee of Vermont, writes to the *Practical Farmer*, giving some of the results of his experiments in cultivating orchards, which, although according with the experiments of others, may be useful if briefly stated in enforcing their teaching. Sowing wheat in an orchard always seriously checks the growth of the trees, even if the ground is manured. Oats are exhausting, but less so than wheat. Corn and potatoes both answer well, and the cultivation they receive benefits the trees. In one instance, half of an orchard was sown with wheat, and the consequence was it was put back two years as compared with the other half. Wheat in a thrifty young plum orchard ruined it. To these statements we may add the following: A neighbor set out 100 peach trees, cultivating a part of the ground in potatoes, and the remainder was in wheat. None of the trees in the potatoes grew less than a foot and a half, and some sent up shoots two feet and a half. None of those which stood in the wheat ground grew more than three inches.

HOUSEHOLD RECIPES.

POOR MAN'S CAKE.—To one-half cupful of butter beaten to a cream add two cupfuls of granulated sugar, the yolks of two eggs, one cupful of sweet milk, and three cupfuls of flour. To each cupful of flour, as it is sifted, add a teaspoonful of baking powder, scant measure. The whites of the two eggs, well beaten, should be added last. This recipe is especially nice for any kind of layer cake, or when baked in large square pans and thickly iced.

MAYONNAISE DRESSING FOR TOMATOES.—To the yolks of three hard-boiled eggs, smoothed to a paste, add the yolk of one raw egg, three tablespoonfuls of vinegar, one of melted butter or oil, and salt, pepper and mustard to taste. Mix thoroughly and place over the tea kettle until heated, stirring all the time. The whites of the hard-boiled eggs should be chopped fine and piled upon the slices of raw tomatoes. When the dressing is added, the result is not only an appetizing but an ornamental dish, the mixture of brilliant red, yellow and white being, in itself, almost sufficient decoration for a tea-table.

TO CLEAN AND FRESHEN OLD MATTING rub it with a cloth wet in salt water, being careful not to allow any drops of water to dry in the matting, as they will leave spots difficult to remove. Heavy, varnished furniture should never rest directly upon the matting, for even good varnish, becoming soft in warm weather will stain the straw. Matting may be turned if the loose ends of the cords are threaded in a large needle and drawn through to the other side.

HARD BOILED EGGS, when placed in water just below the boiling point for three-quarters of an hour, are much more tender and palatable than when cooked in the ordinary way, and also more digestible.

TAKE large, ripe tomatoes, cut them in half, and with a spoon scoop out the centre. Chop any kind of cold meat very fine, and mix with it a teaspoonful of chopped onions, some crumbs of bread, a little salt and pepper, and a well-beaten egg. Fill up each half of a tomato with this mixture; scatter bread crumbs over the top of it; put a small piece of butter in the centre, and bake in a slow oven for forty minutes. Put the tomatoes in a buttered baking tin. Serve on a hot platter, garnished with sprigs of parsley or water cresses. This makes a delicious breakfast dish or a side dish.

HOW TO MAKE A PEACH PIE.—If your peaches are juicy, do not put a drop of water in a pie. Scatter at least one teaspoonful of sugar over the peaches in a medium-sized pie; wet the edges of the crust so that no juice will escape; have the oven hot when the pie is put in, and let it cool gradually. When you can see the juice bubble through the openings in the top of the crust you may feel reasonably sure that the fruit is cooked enough; to be absolutely certain, let the pie stand in the oven with the door wide open for five minutes, after you have noticed the bubbles; and after the crust looks done.

COLE-SLAW.—To the cabbage properly sliced, add pepper, salt, vinegar and the leaves of young celery plants, cut fine. Although so easily prepared, this is one of the best of cole-slaws. Every kitchen should be provided with a celery bed, if it be only a box on the windowsill. Celery seed, sown in rich earth, will in a few weeks produce plants three or four inches high, the tender leaves of which are invaluable to a cook. In seasoning many dishes they may be substituted for parsley with the best results, and as a garnish for cold meals young celery leaves are unequalled.

CORN-PUDDING.—Grate seven ears of corn, ordinary size, and not too young. Add two beaten eggs and a piece of butter the size of an egg, and two tablespoonfuls, and no more, of cream or rich milk, and a little salt. This quantity will make one pudding, to be baked in a tin pie-plate from a half to three-quarters of an hour, nice and brown. It requires no flour or anything else, except good butter when done, and served hot for breakfast or supper.

EGG PLANTS (STUFFED).—Take half a dozen egg-plants; split them in two, lengthwise, and scoop out the interior until only a mere shell is left; salt these and let them drain. Chop the interior of the egg-plants with three onions; then render them with butter; add some chopped mushrooms and parsley and a few crumbs of fresh bread; season well with salt, pepper and nutmeg; then bind with yolks of half a dozen eggs. Fill the body of the egg-plants with this stuffing; cover them with a few bread crumbs; put them into a roasting-pan and wet them with a little sweet oil; then into a quick oven for about ten or fifteen minutes, to give them a nice color.

LEMON WHEY.—Take milk and water, a pint of each; add to it the juice of two lemons, and let the mixture boil for five minutes; strain and sugar to taste. Recommended for a cold.

POTTED CHICKEN.—This is an agreeable relish and makes a pleasant luncheon when traveling. Take a roast fowl and carve off all the meat. Take two slices of cold ham and chop it with chicken; add to this one-quarter pound of best butter; add salt and pepper to taste; now pound this altogether to a paste; put the mixture in a jam pot; cover closely. It will keep in a cool place ten days, or long enough for any moderate journey.

EVE'S PUDDING.—Pare, core and chop half a dozen apples, take six ounces of finely-grated bread-crumbs, six ounces of washed and picked Zante currants, six ounces of pulverized sugar, a saltspoonful of salt, and a quarter of a nutmeg finely grated, half a dozen eggs beaten up, a tablespoonful of the thin, yellow rind of lemons cut up very fine, and two wineglasses of brandy. Mix all these ingredients well together; tie them up in a wetted or floured cloth, and plunge them into a vessel containing plenty of boiling water. Boil briskly for three hours. When about to serve pour melted butter over the pudding and send to table piping hot.

CHILI SAUCE.—Which we know to be good.—Take one peck of tomatoes (peeled), six large onions, three red peppers, one pound of sugar and one quart of vinegar. Cook all together slowly for a long time and add two tablespoonfuls each of three kinds of spices—cloves, cinnamon and allspice, or any others as preferred, salt to suit the taste. Ground mace is a nice spice for those who like the taste of it.

BOSTON BROWN BREAD.—Two cups each corn meal, graham flour and sour milk, 1 of molasses, 1 teaspoon soda, steam four hours.

AN EXCELLENT PUDDING is made of tart apples stewed, and then put in layers with fine cracker or bread crumbs. While the apples are still hot stir sugar and a little butter in with them. This should be baked for half an hour. A little sweet cream is a great addition, but it is good without any sauce.

CORN BREAD.—One pint meal, 3 tablespoons flour, 1 egg, piece of butter size of an egg, 3 teaspoons baking powder sifted with the meal and flour, and and not quite 1 pint sweet milk.

SEASONING SAUSAGE MEAT.—For one hundred pounds meat use salt twelve ounces, pepper six ounces, sage four ounces.

LIVE STOCK.

Thrifty Pigs.

Pure air helps to make pure blood, which, in the course of nature, builds up healthful bodies. Out-of-door pigs would not show so well at the fairs, and would probably be passed over by the judges and people who have been taught to admire only fat and helpless things, which get the prizes. Such pigs are well adapted to fill lard kegs, whereas the standard of perfection should be a pig which will make the most ham with the least waste of fat, the longest and deepest sides, with the most lean meat. It should have bone enough to stand up and help itself to food, and carry with it the evidences of health and natural development in all of its parts. Pigs which run on a range of pasture have good appetites—the fresh air and exercise gives them this—hence they will eat a great variety of food, and much coarser than when confined in pens. Nothing need go to waste on a farm for need of a market. They will consume all the refuse fruit, roots, pumpkins and all kinds of vegetables, which will make them grow. By extending the root patch and planting the fodder corn thinner, so that nubbins will form on it, by putting in a sweet variety, the number of pigs may be increased in proportion. The pig pasture will be ready the next year for any crop, and ten times the advantages accrue to the farmer than if the pigs are confined to close pens, for, as pigs are usually managed on a farm, but little manure is ever made from them.—*Swine Breeders' Journal.*

Handling Young Stock.

I have read with much interest your remarks in the February number, page 63, upon "Winter Education in the Stable," a heading, by the by, which made me turn over to see whether I had not got into the horse department, as we, in England, call only the horse stalls the stable, and the dwellings of our cows, heifers and calves the byre, shigon or cow house and the loose box. As a practical manager of stock I can testify that the handling you advocate is most important, and I would add to your suggestions about the heifer's udder just this: That the milkmaid or herdsman who attends to the heifer about the time of calving, and milks her constantly afterward, should devote special care to the fore quarters of the udder. This being a little more difficult to milk than the hind quarters, the milk not running so freely as from the latter, are often neglected; the milker does that which he finds easiest to do and encouraged the flow of milk to the hinder parts of the udder. From this cause we see so many unshapely udders, deep behind, shrunk in front, and the yield of milk is absolutely less than when the fore-parts are trained to contribute their fair share. The fore-quarters should be milked first and "stripped" last, especially in a young heifer, although it is well not to neglect the matronly cow in this respect. I have known serious accidents happen to heifers in traveling, from neglect of handling and haltering at an early age, and bulls to become permanently and ungovernably vicious from want of attention and the herdsman's frequent companionship. But in all these very necessary "handlings," I would forbid the use of the stick. Both heifers and bulls are amenable to kindness judiciously exer-

cised. I never knew it fail, even with animals neglected until they were half grown, and consequently very excitable and wild. Cautious approaches, with firmness and gentleness, will enable a man to get perfect control over the most shy, provided that the stick or, still worse, the boot, has not already caused a lifelong dread of all mankind.—*Live Stock Journal.*

Salt.

"Salt is good," no doubt, and a grain of it should be taken with the statement which is widely circulating that "Prof. Joseph E. Johnson says 57 per cent. of the blood of an animal consists of common salt, which is partially discharged every day through the kidneys and the skin." As an ordinary man has about 12 pounds of blood, and an ox or a horse about 80 pounds in the veins, if 57 per cent. of this consists of salt an animal would be a sort of living salt spring. The truth is that blood contains only 1 per cent. of solid matter, of which less than one-seventh part is chloride of sodium or salt. But while salt is indispensable to supply even this small quantity, without which an animal would become diseased and die, it is also requisite to a greater extent to enable the stomach to digest food. For salt not only assists in the solution of food, but it contributes to the hydrochloric acid which it contains to the gastric juice, which is in part composed of this acid, and also contributes its soda in part to the bile. And as the bile is an important agent in digestion it is seen that salt is indispensably necessary to the welfare of an animal.

Vaccinating Live-Stock.

M. Pasteur tells the Academie des Sciences at Paris that wonderful results are being obtained in the work of vaccinating live-stock as a preventive against disease. During the past year 80,000 sheep, about 4,000 head of cattle, and 500 horses have been vaccinated. Before this system was introduced the annual loss from liver rot in one department was 9 per cent., while the loss since then has been reduced over one-half. Among flocks partially vaccinated even the loss is one to ten between the vaccinated and unvaccinated. The experiment was fairly tried, the cattle receiving in care and food the same treatment. Among the 4,562 head of cattle vaccinated during the year there were but 11 deaths, the rate of mortality being reduced from 7.03 per cent. to 24 per cent.

Water for Stock.

Animals need good water as well as men do. We all know more or less about the effects of filthy water on the human system. Many and dangerous diseases come from its use, perhaps more than from any other cause. It is precisely the same with animals. We believe, says the *Kansas Farmer*, and our belief is founded on many years' observation, that most of the fevers in cattle, sheep, horses and hogs are caused by the drinking of impure water. We have lost cattle that we believe died from that cause alone. Only four years ago we lost a good cow, and no cause could we find that could have possibly produced the fever of which she died, except the standing water she drank out on the open prairie. We have seen many instances of supposed Texas fever in places where no Texas cattle had been for years.

LITERARY AND PERSONAL.

PHILADELPHIA STORE NEWS, edited by John Wanamaker; a royal quarto of eight pages, highly illustrated. From the title of this paper it might be supposed that it was devoted to the stores, or the mercantile interests of Philadelphia in general, but, in reality, if this initial number (vol. 1, No. 1, September, 1883) may be taken as a true reflex of its future, it is wholly and solely devoted to the interests of John Wanamaker's "great store," corner of Market and Thirteenth streets, in the city of Philadelphia, and hence only an advertising sheet. It does not say so, but we presume it is issued for gratuitous circulation, and well it might, for we cannot conceive of anything more useful and conve-

nient to consult by those who desire to patronize Mr. Wanamaker.

We cannot believe, however, that it adds a single atom to the *moral* weight of any man, whose only ambition is to have the *largest* store and the *greatest* amount of business in the world; nevertheless, Mr. Wanamaker may be doing more good than he is receiving credit for, or than he himself ever intended. It is almost, or quite impossible, to determine accurately the inner motives of a man by his external actions alone, and it is the former that will fix his status in eternity.

Having the interests of the different other mercantile dealers in view, Mr. Wanamaker's *omnibus* establishment *does* seem like an invasion of their legitimate domain; but *that* we have no desire now to make the subject of our criticism; it is *permitted*, and, in God's intelligent providence, we cannot believe that He permits anything to exist which cannot be overruled for some good. Amongst enterprising mercantile retailers Wanamaker is a giant, and his name may go down to posterity as such: "But should posterity applaud his deeds, thinkest thou his mouldering bones would rattle then with transport in the tomb?" A store covering eight superficial acres, with three thousand operatives to run it, with ninety six horses and forty-three wagons to deliver goods to its patrons, seems to be a "big thing," and ought to satisfy the worldly ambition of any man. Is there anything in heaven which is the antitype of such a mercantile Babel? If not, where will John Wanamaker be? if this store is the outbirth of his ruling affections. So long as the present social and moral condition of the world continues, doubtless, so long such gigantic stores will exist.

CONTAGIOUS DISEASES OF DOMESTICATED ANIMALS.—Investigations by the Department of Agriculture, 271 pp. octavo, in paper covers, with copious index and map, and ten full page plates, illustrating tissues of animals afflicted with Texas cattle fever, and *strongylus contortus* in Texas sheep. This work includes the reports of investigations and experiments made by Dr. H. J. Detmers, and D. V. Mc. Salmon, Hines, Moffat, Hunt and Miller, on the Southern Cattle fever, fowl cholera, sheep disease, foot and mouth disease of Great Britain, and contagious disease in general. Published by the Department of Agriculture, Washington, D. C., 1883.

REPORT ON CONDITIONS OF CROPS, and on freight-rates of transportation companies for September, 1883. 55 pages uniform with the above and by the same.

ABRIDGED CATALOGUE of optical instruments, mathematical instruments, meteorological instruments, physical apparatus, etc. James W. Queen & Co., opticians, 924 Chestnut street, Philadelphia. We notice this finely illustrated catalogue for the benefit of our patrons, as those instruments are now more frequently brought to use than in times past, and it is a satisfaction to know just where they may be obtained when wanted.

REPORT OF THE STATE COMMISSIONERS OF FISHERIES, for the years 1879 and 1880, 151 pp. royal 8 Vo, with appropriations and expenditures, and a list of all the Commissioners on Fisheries in the United States, and their residences; from which we learn that there are 97, representing 33 States and Territories, including Canada. Published in 1881. It seems a dreadful long time in getting this work before the public, but perhaps not longer than is customary in Pennsylvania, in relation to public documents. The State need not be ashamed of this work, for it is the most creditable one she has ever issued. It has five full page illustrations of buildings and grounds; twenty-five plates illustrating forty-three of the best and most popular fishes, and all cleverly executed; also seventeen tabulated pages, and a list of scientific and popular names of 370 species of fishes described or referred to in the work. We are under obligations to our City Representative, E. G. Snyder, Esq., for a copy of this desirable work.

GREEN'S FRUIT-GROWER.—A very handsome demi-folio of 8 pages, published quarterly, at 50

cents a year, and devoted to the orchard, garden and nursery; Charles A. Green, editor, and horticultural correspondent of the *New York Tribune*; Rochester, N. Y., October, 1883. This is a remarkable paper for its size, every thing in it seems to be not only good, but also practicable, whether original or selected, including even the advertisements. Our readers will remember that Messrs. Green & Co., have a nursery at Rochester, and are doing a successful business, and moreover have established a most worthy reputation as nurserymen.

THE FARM AND GARDEN for October, 1883, published by Child, Bros. & Co., 125 South Fourth street, Philadelphia, monthly, at 50 cents a year, is a most excellent number, and perhaps we might also say, "and well it may be," for we observe in this number at least twelve original contributions from as many contributors. It has also beautifully illustrated editorials, besides any number of "odds, ends," &c., &c., and lastly, not leastly, a multitude of advertisements interspersed throughout the whole number from beginning to end, and that is perhaps its sustaining element; for even an addition of 100,000 copies at 50 cents a year, would hardly pay, unless there is a "knack" about it that we wot not of. The covers alone contain 50 advertisements at from 40 to 50 cents per agate line, and throughout the number are nearly one hundred advertisements at 30 cents per agate line. In January they propose to issue an edition of 250,000 at \$1.25 per agate line, except the first page of the cover which will be \$2.00 per line. We presume the object in marring all the pages with advertisements, instead of placing them all at the end of the number, as is usually done—or *was* usually done—is to secure the reading of them, which otherwise might not be the case; and this, of course, must enhance the value of the journal as an advertising medium, although it might detract from it as a bound volume. But the object mainly is revenue, because revenue alone can sustain such a journal. We commit these "dottings down" for the benefit of country publishers, whose publications hang heavily on their hands.

THE SWINE BREEDERS' MANUAL, or how to breed and manage swine; published by the American Berkshire Association; price 25 cents; address Phil. Springer, Springfield, Ill. A 12-mo pamphlet of 40 pages, with an excellently executed figure of a Berkshire Boar for a vignette on its title page. All that is essential in reference to selection, breeding, treatment and feeding of swine, may be found compressed between the covers of this little volume, and that it is practical reliable and useful, is amply attested by the agricultural press, and the leading breeders of the country. That the hog is "some pumpkins," the following from its introductory will fully illustrate. "The revelations of the late United States census from the rearing of hogs to be one of the foremost of our rural industries. The number reported in 1880 was nearly 48,000,000; the rate of increase in ten years being 90 per cent. while that of horses was 45, of milch cows 39, of oxen 25, of other cattle 66, and of sheep only 24 per cent."

ANSWERS TO CORRESPONDENTS.—Mr. W. W. B., your insect is what is usually called the "Spectre insect," or "Walking Stick" or "Walking Twig;" the *Spectrum fementatus*, of say. It belongs to the order ORTHOPTERA, and feeds on vegetation, usually the leaves of trees; it possesses the possibilities of distinctiveness. Mr. —, of Paradise township, your little black reptile with the whitish ring around its neck, is a young "Black-snake"—*Bascanion contractor*—this ring, however, only pertains to the young; it is not present in the adult. There is, however, a real "Ring-necked Snake" in Lancaster county—*Diadophis punctatus*—but it is more rare than this one. Mr. G., the insect you found burrowing in the ground, is the "Mole cricket"—*Gryllotalpa brevipennis*—it feeds on the roots of vegetation. Mr. O., the large orange colored spider you sent us by mail is a species of *Epeira*, or "Garden Spider." We are not certain of the species; it approximates the southern *insularis*, of Hentz. Our literature on the subject is very scant, and our knowledge perhaps less.

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EDITED BY DR. S. S. RATHVON.

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ONE DOLLAR PER ANNUM,

POSTAGE PREPAID BY THE PROPRIETOR.

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

Dr. S. S. Rathvon, who has so ably managed the editorial department in the past, will continue in the position of editor. His contributions 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. He is determined to make "The Farmer" a necessity to all households.

A county that has so wide a reputation as Lancaster county for its agricultural products should certainly be able to support an agricultural paper of its own, for the exchange of the opinions of farmers interested in this matter. We ask the co-operation of all farmers interested in this matter. Work among your friends. The "Farmer" is only one dollar per year. Show them your copy. Try and induce them to subscribe. It is not much for each subscriber to do but it will greatly assist us.

All communications in regard to the editorial management should be addressed to Dr. S. S. Rathvon, Lancaster, Pa., and all business letters in regard to subscriptions and advertising should be addressed to the publisher. Rates of advertising can be had on application at the office.

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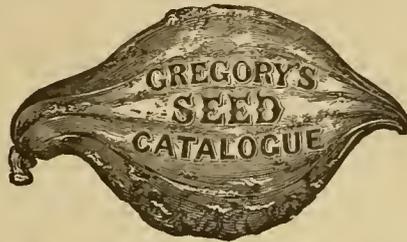
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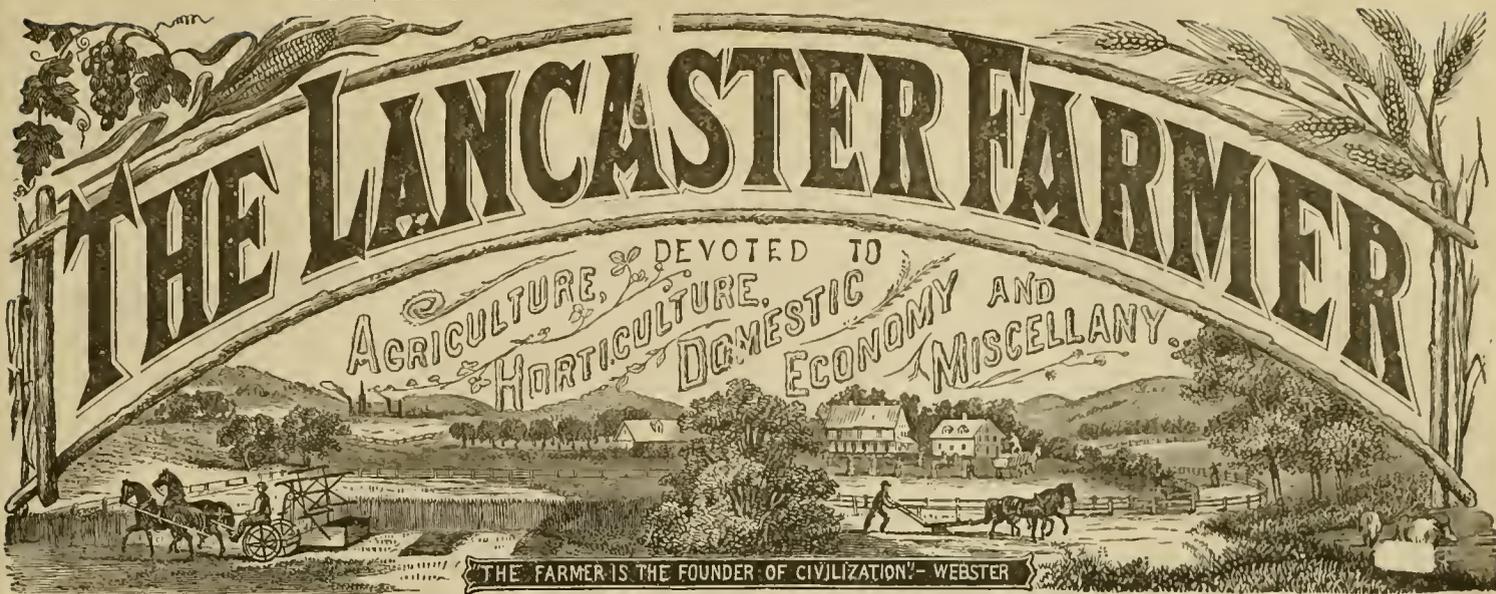
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Dr. S. S. RATHVON, Editor.

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JOHN A. HIBSTAND, Publisher

Entered at the Post Office at Lancaster as Second Class Matter.

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On and after SUNDAY, JUNE 24, 1883, trains leave the Depot in this city, as follows:

WE TWARD.		Leave	Arrive
Pacific Express*	Lancaster.	1:35 a. m.	Harrisburg, 2:55 a. m.
News Express*	Lancaster.	6:25 a. m.	7:30 a. m.
Way Passenger*	Lancaster.	6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy*	Lancaster.	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia*	Lancaster.	9:35 a. m.	11:05 a. m.
Niagara Express	Lancaster.	9:45 a. m.	10:55 a. m.
Hanover Accommodation.	Lancaster.	9:50 a. m.	Col. 10:20 a. m.
Fast Line*	Lancaster.	1:35 p. m.	2:55 p. m.
Frederick Accommodation.	Lancaster.	1:45 p. m.	Col. 2:15 p. m.
Lancaster Accommod'n.	Lancaster.	2:30 p. m.	4:00 p. m.
Harrisburg Accom.	Lancaster.	5:20 p. m.	7:20 p. m.
Columbia Accommodation.	Lancaster.	7:40 p. m.	8:50 p. m.
Harrisburg Express	Lancaster.	7:40 p. m.	8:50 p. m.
Western Express	Lancaster.	11:10 p. m.	12:25 a. m.

EASTWARD.		Lancaster.	Philadelphia
Mail Express*	Lancaster.	12:42 a. m.	2:55 a. m.
Philadelphia Express	Lancaster.	2:27 a. m.	4:25 a. m.
Fast Line*	Lancaster.	5:35 a. m.	7:50 a. m.
Harrisburg Express	Lancaster.	8:10 a. m.	10:20 a. m.
Columbia Accommodation.	Lancaster.	9:00 a. m.	11:45 a. m.
Seashore Express	Lancaster.	12:58 p. m.	3:15 p. m.
Johantown Express	Lancaster.	2:20 p. m.	5:05 p. m.
Day Express*	Lancaster.	5:25 p. m.	7:25 p. m.
Harrisburg Accom.	Lancaster.	6:45 p. m.	9:45 p. m.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 1:35 p. m., and runs to Frederick. Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m. will run through to Hanover daily except Sunday. Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York. The Fast Line, west, on Sunday, when flagged, will stop at Downingtown, Coatesville, Parkesburg, Mount Joy, Elizabethtown and Middletown. The Johnstown Express from the west, will connect at Harrisburg on Sundays with Sunday Mail east, for Philadelphia, via Marietta and Columbia.

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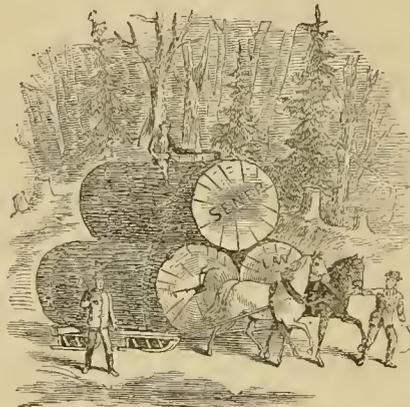
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79-2-

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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., NOVEMBER, 1883.

Vol. XV. No. 11.

EDITORIAL.

HOW TO "STOP THE PAPER."

The way to discontinue a subscription to a newspaper, magazine, or other serial publication, is an exceedingly simple one, and yet, many otherwise intelligent—or even intellectually *sharp* subscribers, often sadly bungle therein. Unless from the nature of the contract between publisher and patron, the latter is bound for six months, a year, or to the end of a series, the *modus operandi* is to merely to *pay up all arrearages*, and order the publisher or proprietor to "stop the paper." It is a matter that relates strictly to the *business* department of the paper, and therefore, the representative of that department is by all means the proper, and in many cases the *only* proper person to be addressed; and the paper itself will somewhere in its columns designate who he is, and where he is. If published by a company, of course, the company becomes a person, and should be addressed as such, unless it has constituted a special individual to act as its agent. On matters relating to subscriptions, advertisements, or anything else of a secular character, the Editor should never be addressed—unless he is also the publisher—because, as Editor, he is not supposed to know *who* the subscribers or advertisers are. He may reside miles away from the office of publication, and even never visit it, from one year's end to another. All matter intended for publication, however, whether in the form of correspondence, communication, or contribution, should be addressed to the Editor, for these come directly within the sphere of the editorial function. These rules constitute the common law of literary publications, of whatsoever character they may be, over the whole country; and, the subscribers to a book might with equal propriety address the writer or writers of it, declining to take it, or finding fault with it, as for a newspaper subscriber to address the editor on a matter strictly between him and the publisher. All this has been repeated hundreds, yea thousands of times and still it is systematically unheeded by those who certainly know better. Cut this out—paste it inside on the crown of your hat, and act accordingly.

SMUT IN WHEAT.

We insert with more than ordinary pleasure the communication of our correspondent from Brookville, because it seems to have a good, intelligent, and practical Lancaster county farmer-ring; and, if Lancaster county farmers would only condescend to make their sentiments freely and liberally known, through the medium of the press, we feel assured that they could honorably occupy the exalted position of *teachers*, instead of mere *freshmen* in agricultural lore. Of course, it is not to be supposed that we officially endorse the doctrines embraced in the various paragraphs we quote from other journals, any more than we are supposed to endorse the sentiments of

all our contributors and correspondents. But, finding these paragraphs in respectable journals we suppose them to have a respectable authorship, and hence we give them place for what they may be worth, knowing that if they cannot bear a practical test, they come to naught. According to some of the most unquestionable authorities on the origin and germination of "rust" or "smut," our correspondent is right; nor can we see, any more than he can, how the small *quantum* of sulphate of copper which may adhere to a grain of wheat, can have any beneficial effect upon a disease that is only banefully developed some eight or nine months thereafter. There is not a more subtle development in the vegetable kingdom than that of mold, smut, or rust, under whatsoever name, or in whatever form it may appear. Its development seems to be entirely under the control of surrounding conditions, and as these conditions cannot be seen six or eight months in advance, it would seem futile to depend on any remedy involved in "seed-steeping." These cryptogamic parasites may be found in the seed-cavities of apples, pears and quinces; in the cells within a loaf of bread, or an English cheese, or within the abdominal cavity of an insect even before it is dead. This would imply that the spores or germs had been in the air, and that their development was entirely dependent upon surrounding conditions, and these conditions would more likely exist in a damp cellar than in a dry garret. Of course, any chemical application that would stimulate the healthy and vigorous growth of a plant, would advance it farther beyond the injury of rust, than if it were in an enervated condition. It is true also that often the most vigorous plants become affected with rust, but then this may occur through excessive stimulation, and a protracted humidity in the surrounding atmosphere.

NOTEWORTHY.

Mr. Miles Rock, assistant astronomer of the U. S. Naval Observatory, sailed October 1st, to accept the position of astronomer on the survey of the boundary between Guatemala and Mexico. The work will occupy one or two years. He will also make ethnological observations and photograph ruins for the Smithsonian Institution.—*Scientific and Literary Gossip*, Oct. 15th.

Mr. Rock is a Lancaster countian, and a brother to Allen Rock, of North Queen street, Lancaster city. He was at one time an active member of the Linnæan Society, and is now one of its most distinguished correspondents, and has made a worthy record in contributions to its museum and library.

None congratulate him on his scientific advancement more earnestly than his old-time friends among the Linnæans, and they recall with special gratitude his remembrance of the society on his late return from Cordova, South America, where he assisted in making observations on the transit of Venus in 1880. His contributions to natural science, and especially to astronomy, on that occasion were

valuable and were duly appreciated, not only by the Government, but also by his private beneficiaries. Long residence at the National Capitol has not alienated him from his friends in Lancaster county, and they look upon his scientific and social progress with a solicitude that is second to none. He has the unqualified sympathy in his undertakings of all who know him in this community, and, not least, of the members of the Linnæan Society, who feel that he is competent to the discharge of any duty that may devolve upon him by his own consent. The boundary between Guatemala and Mexico will present a new field of scientific operation, although it may be a rough one, and we await with interest its ultimate results. Independent of the skill of the mere mathematician it will be a prolific source to the naturalist, a line of observation and research in which Mr. Rock is not a stranger, although he may make no special professions in that direction. The web of natural science is so intricately woven together, that no one can explore one of its threads without feeling or cultivating an interest in collateral fibers.

EXCERPTS.

THIS year's crop of Rio coffee is estimated at from 3,000,000 to 3,500,000 bags.

THE horse population of the United States is now over 11,000,000, or about one horse to every five human beings.—*Chicago Inter-Ocean*.

THERE is no better food for chickens than skim milk.—*Chicago Journal*.

LAST year Kansas had 62 tornadoes; Illinois, 54; Missouri, 44; Iowa, 31; Indiana, 27, and Minnesota, 21.—*Prairie Farmer*.

DICKEY COUNTY, D. T., one year ago had a population of 200. Now it has 5,000, and more coming.—*Dakota Journal*.

NEW YORK eats \$5,000,000 worth of oysters a year. Philadelphia \$3,500,000. Baltimore \$2,000,000, Boston \$1,750,000 and about \$85,000,000 worth of beans. How grateful the Boston oyster must be to the bean.—*N. Y. Times*.

SEVEN tunnels, with an aggregate length of about seven miles, will be built on the line of the Harrisburg & Western Railroad between that city and the Youghiogheny River. The road is to cost \$20,000,000 or about \$100,000 per mile, and is to be completed within two years.—*Philadelphia Press*.

THERE are about 500 fancy biscuit bake-shops in this country, and each has a capacity of from 100 to 600 barrels of biscuit a day. Crackers cut into fanciful designs are carried around the world by travelers and, a baker says, are not only a thing of beauty, but a joy forever.—*Detroit Post*.

IN 1856 the best railroad time between New York and New Orleans was five days, and a passenger had to make nine changes, many of them long rides from depot to depot. In 1869 the time was reduced to four days; in

1873 to three and a half days, and in 1878 to three days and only one change. Now the time has been reduced to fifty-eight hours.

STRENGTH is imparted to the strawberry plants by taking off the runners, especially the late ones.

IN some countries a farmer can sue his neighbor for damages if the latter allows weeds to grow and seed.

IN packing butter for winter use it should be borne in mind that uniformity of color in the jars is very important,

VERMONT Merino sheep-breeders are becoming disgusted with the heavy folds on the wool, and think they will breed them off.

A SUBSCRIBER recommends a drop of kerosene oil, picked into the injured part with a needle, as a certain remedy for bee stings.

MR. ST. JOHN, of Newton, Iowa, trains his grapevines on elm trees, and claims that he secures fine fruit every year and free from rot.

HARDINESS is the most essential requisite in fruit trees. No matter how beautiful the fruit and foliage, they will prove unprofitable unless able to stand severe winters.

IF cornstalks are passed through a cutter and crushed during the operation of cutting the stock will eat the whole up clean. Preparation saves waste and renders the stalk more palatable.

THERE is no occasion for deriding "scientific farming," as is sometimes done. It is only common sense practically applied, and it is only to the extent that it is scientific that any farming is successful.—*Farm, Herd and Home.*

BARs of steel obtained by the cementation process in the works at Unieux frequently contain crystals in those portions exposed to the hottest portion of the furnace.

IN Krupp's great gun manufactory at Essen, compressed carbonic acid is used for the manufacture of what ice and seltzer water may be required by the workmen.

SPARROWS appear to be a veritable plague at Pergamos, in Asia Minor, and the inhabitants have begun to urge the Turkish Government to take some measures to abate the nuisance.

WHEN carbonic anhydride, says Professor E. Noack, is passed over heated zinc dust contained in a combustion tube it is almost completely reduced to carbonic oxide, the last traces of carbonic anhydride being easily removed by passing the gas through some soda solution.

THE Soja bean, which has been so highly recommended, does not ripen in New Jersey. At least it did not do so in some parts this season. It may serve well, however, as a green manurial plant, as it produces abundantly of foliage.

THERE is a kind of clover called German clover, which was introduced in Virginia several years ago. It thrives best when sown in the fall. It is ready to be cut by the first of May, grows high, yields heavily, and is relished by all classes of stock.

MUTTON to be good and devoid of rank flavor must be prepared quickly, says the

Western Rural. The food eaten by the animal imparts flavor to the meat to a certain extent, and this difficulty is increased when sheep are slaughtered just after being fed.

THE power exercised by beets and annual roots is exceedingly great. At the New York shipment station a long blood beet was planted in an inch drain tile, set upon end and buried in the soil. The tile was split lengthwise as the root outgrew its accommodations.

SHEEP can be made profitable on some soils that are too poor for cultivation, and, as a proof of this, an Alabama sheep breeder made his flock net 60 per cent. on his investment. He claims that any old sage grass field, interspersed with shrubbery, makes the best of pasture for sheep.

EGGS are beginning to be very high, because the matured fowls have been sent to market to make room for early pullets, which do not begin to lay till somewhat later. After the remaining old fowls have finished moulting they begin to lay as soon as they again become full in plumage.

THE Pittsburg *Stockman* suggests that too many farmers are inclined to put off many necessary jobs until the time comes when the necessity is made most apparent. Thus many leave all their draining and ditching until spring, when the ground is full of water, the worst and most in convenient time for such work.

MANY farmers who secure for themselves all the labor-saving improvements are slow in arranging similar helps for their wives. A reaper or mower is used at the most only a few days in the year. A creamer, to make butter-making easier, will be in use nearly or quite every day in the year, and the butter product will bring enough more to pay heavy interest on the first cost, besides the saving in labor.

A WRITER in *Farmer and Fruit Grower* says: "If the agricultural colleges and experiment stations would make disinterested trials of the new fruits and give the public unbiased opinions of the character and merits of each fruit, it might prove of as much value in their bulletins as some of the lengthy accounts about the albuminoids and carbohydrates. Nurserymen's circulars are generally made to puff those plants in which their pecuniary interest predominates.

THE cost of storing ensilage is stated by a Wisconsin farmer as follows: "My ensilage last year, made of grass, cost me 80 cents a ton to put it in the silo. This season, in three and a half days, I put 125 tons of grass in my silo at a cost of \$7.75, or a fraction less than 57 cents per ton. At the rate of four tons of ensilage as an equivalent of a ton of hay, this would be equal to \$2.28 per ton of hay. I doubt if hay can be put up for less than this, and no doubt well-preserved ensilage is better than hay."

A WRITER in the *Prairie Farmer*, after extended experiments, is convinced that wheat is generally sown too deep.

THE advantages of having early-maturing corn have never been so well demonstrated as this year. Bear it in mind in saving seed for next year.—*Exchange.*

HICKORY-NUT cream cake is made of two

teacups of sugar, half a cup of butter, one cup of thin cream, three and a half cups of flour, two teaspoonfuls of baking powder mixed with the dry flour, three eggs, the whites and yolks beaten separately, and one large cupful of the hickory nuts chopped or broken in small bits.—*N. Y. Post.*

AN agricultural writer has found salt sprinkled on a manure heap an excellent application both for summer and winter. He says: "In warm weather it attracts moisture and keeps the manure from fire-fungus or burning from excessive fermentation. In winter it keeps the heap from freezing solid, and at any season it makes the manure more soluble."

OIL CLOTH may be kept bright when almost worn out, if after washing you take a flannel cloth and dip a corner of it in kerosene and rub the oil cloth with it. A little oil goes a great way and care must be taken not to use too much.

TO MAKE black Japan varnish mix together burnt umber, eight ounces; true asphaltum, three ounces; boiled linseed oil, one gallon; grind the umber with a little of the oil; add the asphaltum, previously dissolved in a small quantity of the oil by heat; mix, add the remainder of the oil, boil, cool and thin with a sufficient quantity of oil of turpentine.

TO MAKE crystal varnish take genuine pale Canada balsam and rectified oil of turpentine, equal parts; mix, place the bottles in warm water, agitate well, set it aside in a moderately warm place, and in a week pour off the clear. It is used for maps, prints, drawings and other articles of paper; also to prepare tracing paper and to transfer engravings.

ENGLISH statisticians who have been compiling data on the subject pronounce the United States to be not only potentially, but actually, richer than Great Britain. Counting the houses, furniture, manufactures, railways, shipping, bullion, lands, cattle, crops, investments and roads, it is estimated that there is a grand total in the United States of \$49,770,000,000. Great Britain is credited with something less than \$40,000,000,000, or nearly \$10,000,000,000 less than the United States. The wealth per inhabitant in Great Britain is estimated at \$1,160, and in the United States at \$995. With regard to the remuneration of labor, assuming the product of labor to be 100, in Great Britain 56 parts go to the laborer, 21 to capital and 23 to government. In France, 41 parts go to labor, 36 to capital and 23 to government. In the United States, 72 parts go to labor, 23 to capital and 5 to government.

THERE were 25,000 people at the Reading fair on Thursday, the biggest day in the history of Berks county. At the York county fair on the same day 23,703 persons were in attendance.

*GRAPE INFESTATIONS.

*Read before the Linnæan Society, by Dr. S. S. Rathvon.

During the last week in September, Mr. Jno. Thomas of East Orange street, in the City of Lancaster, brought me several clusters of grapes, of the Concord and another unnamed variety, about three in every five of which were affected with some sort of disease,

through which they began to rot. Many of them were perforated, and firmly adhered to each other where they came in contact, but with very little of the silky fiber which usually characterizes the work of the "Grape codling," or, "Grape-berry moth," (*Penthina vitivorana*, Pack.) or, (*Eudemis botrana* Schiff. †) when they tie the grapes together, and pass out of one into another. Some of the diseased berries that I opened contained at least one small Lepidopterous larva, (some contained two) mainly agreeing with the descriptions of the insect, or insects above named. These diseased grapes I placed in three small wide mouthed jars, or cups, with glass covers. Two of them developed nothing so far (Oct 19.) but green, and white mould; but the third one developed a multitude of small Dipterous larvæ, from the pupæ of which evolved as many small two-winged Flies, but not a particle of mould, of any kind. In those berries that I opened, I observed neither dipterous larvæ or pupæ, nor did I detect anything on the outside of them that could be recognized as eggs, and yet in the cluster which I enclosed, eggs may have been present without having been discovered by me, on account of their minuteness.

On Sunday, Oct. 14, the weather was exceedingly warm: and had been so the two previous days. On that day I noticed the first evolution of these little flies, and as there were only a few of them I supposed they might have been parasitic on the bodies of the "codling" worms, but at the present date (October 19) they are two numerous and too large, to have all subsisted on the bodies aforementioned. There are hundreds of them and they seem familiar, although I can't name them. Many of the maggots are crawling up the sides of the glass jar, some of which pass there into the pupa state, and from that into the *imago*. This seems a necessary preliminary, to illustration and description.

These larvæ are of the ordinary maggot shape—as they are usually found in the MUSCIDE—small or attenuated at the anterior end and increasing in size until the middle is reached, and from thence to the posterior extremity of a nearly uniform size, and there terminating by an abrupt truncation, except that there is a small projecting protuberance from the anal end, akin to an ovipositor in some species of LEPIDOPTERA. The immature larva is almost transparent, and the contents of the intestines, in oblong dark streaks, are visible through the skin. The head is very small, dark in color, and very retractile, as are also three of the anterior segments. Two divergent dark streaks are seen through the first or second anterior segments, and just behind them two others, larger and more diverging. When the larva becomes mature it becomes white, and nearly opaque, and is then about five *m. m.* in length. On opening one of the grapes I found within it, buried in the decayed pulp, more than twenty of these

larvæ, but no pupæ—they seemed to prefer pupating outside of the grape—but on the bottom and sides of the jar, or on the skin of the grape they were abundantly found.

The pupa is a trifle shorter than the mature larva and of nearly the same color, and is prominently distinguished by two slightly divergent spines projecting from the anal extremity; the anterior end being more obtuse than it is in the larva.

In the *imago* there are two forms, which are undoubtedly sexual, although there is very little difference in size. The body is four *m. m.* in length, and the alar expansion is six *m. m.*, in some specimens more and in others less. The thorax, the head and the ventral portion of the abdomen, are a honey yellow, darker in the male than in the female. The dorsal portion of the abdomen is dark swarthy—darker in the male than in the female. The head is proportionately large, and the eyes are very prominent—indeed, the most striking feature of the whole insect—being a bright, waxy scarlet red, about the color of red sealing wax, and when crushed on white paper they leave a scarlet streak; the ligula, or proboscis, is large and retractile, working in and out, or up and down like a bellows. The antennæ are quite small, and bristle like, scarcely distinguishable from other dark, forward, projecting bristles on the head. The feet are all whitish, and in the males the *tarsi* are dark. In the females there are a few hairs, pointing backward, on each side of the thorax, and also a few on the abdomen, fringing the segments.

The dorsal portion of the female abdomen is glossy and she is provided with an exerted ovipositor, similar to that of a female "wheat-midge" (*Cecidomyia tritici*). The thorax and abdomen of the male have many bristling hairs, inclining backwards, arranged along the posterior margins of the abdominal segments, and the abdomen terminates somewhat obtusely. All the hairs on both sexes are of a dark color, but not black. The halteres are prominent in both sexes, and the wings are longitudinally nervéd, with a few transverse nerves, and of a beautiful hyaline, or iridescent in coloration, but after the insect dies the iridescence passes away, and they are simply a dull transparent.

The larva has great power of extension and hence moves rapidly, and, although entirely footless, can crawl up the glass sides of a jar with perfect ease. The fly is dexterous in its cursorial movements and alert in flight.

There were seven or eight grapes in the jar; two of which were immature, and unripe. These latter dried up and developed nothing. From the other five were developed about two hundred, or more, flies, of which I secured twenty-five or thirty, and the others escaped; I also secured about the same number of the larva, and a few pupæ.

The eggs of these flies must have been deposited in or on the grapes before I received them, for after they were enclosed in the jar nothing could have approached them. When the flies were developed it was impossible for them to escape, hence no fly could have gotten into the jar.

It is possible, however, that these flies only deposit their eggs in grapes after they have

commenced to rot; a condition produced by other causes.

October 31st I introduced a number of the above described flies into one of the jars in which there had been no evidence of the presence of the flies on the 19th of October, and today I find a goodly number of larvæ and pupæ, and also a slightly increased number of the perfect flies, from which it is apparent that under favorable conditions, they pass to the pupæ state at least, in the short space of about ten days, from the egg. This is further evidenced by the fact, that in the jar in which no flies were introduced the grapes are rotting away without developing anything but a crop of fungi.

Another coincidence is the fact, that after the flies were introduced into the jar no more fungi were developed, in that on the 21st there was a rank crop of this cryptogam, whilst on the 31st there was little or none visible in a living condition. No sound grapes were placed in either of the jars, so that I am not able to state whether these flies deposit their eggs on sound fruit or not.

But what became of the larvæ of the "Grape codling," or "Grapeberry moth?" As before stated, some of the grapes dissected, at the time of bottling them, contained these larvæ, and I expected to develop the moths, but none have appeared, nor was a vestige of them present in any of the grapes infested by the maggots of the flies, all of which were thoroughly explored. Did they die and were subsequently devoured by the maggots? Possibly none of the bottled grapes contained them, but they presented the same appearance as those that *did* contain them. I record another fact in regard to the tenacity of this fly. I confined some of them in a small tin box, where they have been kept for ten or eleven days and they are not now only *alive*, but also very *lively*.

If this fly deposits its eggs on sound grapes it may become the most formidable enemy to that luscious fruit that it is known to have, for it is capable of rearing a brood every ten or twelve days from their earliest ripening until the first of November, if not longer.

I had seen similar flies frequently, but I knew not from whence they came, but in this instance I observed the development of the insect in all its stages, except that of the egg, and I concluded my observations on the 21st of October. Whether the evolution from the pupa would have occurred the present season, had the grapes been left out in the weather is more than I can attest, but they were brought into the house. Their evolution, however, commenced in the absence of any artificial heat, and at a place where the temperature was lower than it was out in the sun. A "grape maggot" may be common, but its identification with the fly that produces it, is new to me, hence this recorded experience.

†This is without a doubt, the "Wine-loving pomace fly" (*Drosophila ampelophila*) referred to in the U. S. Entomologists Report for 1881-1882. (See proceedings of the Linnean Society in November number of the *Lancaster Farmer*.)

TO PREVENT IRON FROM RUSTING.—Kerosene applied with a cloth to stoves will keep them from rusting during the Summer. It is also an excellent material to apply to all iron utensils used about a farm.

†Dr. Packard illustrates the first named, and Mr. Saunders the last named, with precisely the same cuts; and, as the latter makes no reference to a synonym in his late work, when he records the habit of the "berry-moth," it seems to involve a doubt, as to whether both authors allude to the same insect or not. Possibly the ignoring of synonyms in popular natural history may be for the purpose of simplifying it, but in reality it only complicates it.

CONTRIBUTIONS.

CORRESPONDENCE ABOUT RUST.

DR. S. S. RATHVON.—*Dear Sir:* I see by the *Lancaster Farmer*, for October, that some one in the *New York Weekly Times*, suggests the propriety of steeping seed in a solution of sulphate of copper, and other mixtures containing ammonia, for the prevention of rust and smut, on the plants grown from seed, so treated. As I see it, I don't go much on such recommendations. The spores or germs of mildew, rust and smut, are afloat in the atmosphere, and take root on any plant that is in a condition to admit of it—that is, in a wet time, when the stems and leaves are soft. These fungi are parasitic in their habits. In foggy weather, nearly all kinds of plants, especially kitchen garden vegetation, are liable to be affected by the growth of these fungi on the different parts of the plant. If it is true that germs take root on these plants by coming in contact with the exterior of the different parts of the different plants; then, upon what principle could treating seed in this way do any good? One of the best remedies that I know of is to furnish the soil with such chemical compounds as the plant wants to give its stem a coating of glass, such as cornstocks have. The silicates, especially of potash, furnish what the plant wants to protect itself from the exhausting effects of this growth, white sand and wood ashes furnished the soil, is a good application. Remedies for this, as well as for human ailments, consists in assisting nature in this work of protecting itself.

Philosophers have, already, enumerated more than 150 varieties of these fungi.

The science of Mycology, as the study of these almost microscopic cryptogamous plants (concealed flowers) are called, is one of the most recondite of sciences. When we are advised to do a thing, before we do it, we should always first ask ourselves, does it look reasonable, or have we a reason for the faith that is in us.—*C. G., Brookville, O., October 27, 1883.*

CORRESPONDENCE ABOUT APHIDS.

S. S. RATHVON, ESQ.—*Dear Sir:* We have been greatly annoyed in this section of the state the past growing season, and injured indeed by the *black aphides* on our fruit trees; but more particularly on the *cherry*, in their first years growth of budding and grafting; on their tender succulent terminal leaves. They increase rapidly, and so entirely exhaust the leaves of their juices, as to stop the growth of the branch, or stem upon which they are feeding. You will greatly oblige by a line, advising me of the best method of getting rid of them early in the season, of their first appearance. On examination since our late severe frosts up here near the mountains, I still find some left, and apparently as active and lively of a warm day as they appeared earlier in the season; but nothing like so numerous. As they appear so soon in spring, I infer that many of them survive the winter and commence their depredations to some extent on the first opening leaves of early spring, as the Peach tree aphids, which produce the *curled leaf*. I have your paper and accompanying illustrations, on insects injurious to fruit

trees, read and presented to the Fruit Growers Society of Penna, several years ago, but I cannot place my hand upon it, and I am sorry for it, for I am only troubling you for what I want, and which I suppose is there fully set forth. I tried "London Purple," but put it on too strong I suppose, as it not only destroyed the insect, but the leaves and succulent shoots—this was done late in the season. If they appear in spring, I will try the experiment again in a more mild form. The "curled" leaf is pretty bad on the peach—have you a certain cure for it. I have heard of "*Prof. Culver's insect annihilate to trees and plants*," do you know anything about it? I forward you with this a copy of my book on the "*Culture and diseases of the Peach*."—*Yours Truly, J. Rutter, Muncy, Lycoming Co. Pa., Oct. 22, 1883.*

REPLY.

Yours of the 22d inst. was duly received and I don't know that I can make very a satisfactory reply; because, of late years, my secular occupation has very much interfered with my experimental entomology. Although the *aphids* and *coccids* that infest the various fruit trees, shrubbery and plants are, or are supposed to be, different species, yet they all succumb to the same remedies; but, even if a certain remedy is known much depends upon the intelligence and practice of the experimenter. He should know exactly what strength of solution, decoction, emulsion or dry remedy, the various plants infested can bear, at their different periods of growth—a young leaf or sprig cannot bear as strong an application as an older one—and your experience with "London Purple" has been one step in that direction.

The particular species of aphid that infests the cherry tree (Black Aphids) is the *Myzus cerasi*, Fab.; that of the peach, *Myzus persicae*, Sulz. These insects occur from early spring until late autumn; indeed, in some instances, they have been known to bring forth young as late as the 1st of November. But finally they yield to the cold weather, and none of them survive the winter. Before they pass away, however, a brood of males is produced; these fertilize the females, and they then deposit their minute eggs about the base of the buds, and in the small fissures of the bark of the branches, where they remain all winter, and no amount of cold usual to this latitude can adversely effect them. But as soon as the genial warmth of spring swells and bursts the buds the same warmth also incubates the aphid eggs. It would be almost useless to apply a remedy to the eggs, unless you rubbed it in with a stiff tooth-brush, and if the trees were small and of special value it would pay to go to that trouble; but when the young appear they are easily destroyed—heavy showers of rain even sometimes destroy millions of them. But the impregnation, or fertilization of aphids, is one of the most wonderful things in nature. The first brood evolved in the spring are all impregnated females, and thence forward no more eggs are deposited until late in autumn, but each female brings forth her young, one at a time, perfectly formed, and this is also an impregnated female, and in due time brings forth another; and this continues "unto the thirteenth or

fourteenth generation," or until the end of the season, when males are produced, as and for the purposes above stated.

These aphids are visited by many ants, which eagerly lap up their exudations of "honey-dew," but they are also visited by many parasites which feast upon them. For instance, the *imago* and *larvæ* of "Lady-birds," the larvæ of "Syrphus" and "Lacewing" flies, and also species of minute "Chalcis flies." These parasites often entirely destroy whole colonies of aphids, but still a remnant may remain, and that remnant is capable of originating a new colony later in the season, when the parasites have disappeared, either by transformation or departure in quest of additional food, for when the aphids are consumed there is no inducement for them to stay.

Among the artificial remedies for the extermination of aphids are decoctions of tobacco, Pyrethrum, and Cayenne pepper, or solutions of whale oil soap or weak lye applied with a garden syringe, and drenching thoroughly. These will destroy all the insects they come in contact with. According to a series of experiments made under the direction of the U. S. Department of Agriculture, much stress is laid upon emulsions of kerosene oil, as a general insecticide. As follows: 1 gal. kerosene, $\frac{1}{2}$ gal. cow's milk—fresh or sour—and stir them thoroughly until they present the appearance of thin butter. One pint of this mixture is then diluted with $1\frac{1}{2}$ gals. of water, poured in gradually, and rapidly stirred, until all is poured in; applied as aforesaid, or by a portable force pump. This is particularly recommended for scale insects, but for *aphids* it might be further diluted, say two gals. of water.

I know nothing about the *merits* of Prof. Culver's remedy—practically or otherwise. I have seen it advertised, and that is all I know about it.

With thanks for your work on "Peach Yellows," I am yours truly,
S. S. R.

FOR THE LANCASTER FARMER.

ON WHEAT-GROWING AND THE HESSIAN FLY.

It seems the Hessian fly was first observed in New Jersey, soon after the army was removed from the neighborhood of Trenton. It was the supposition that the soldiers from the continent of Europe emptied their chaffbags, that had been filled with straw by the Hessians in the English army, and that said straw contained the eggs or *pupæ* of the fly, or perhaps both.

The fly made its first appearance in Lancaster county in 1806 or 7, and ever since that period, more or less of them have annually appeared in different localities. In those days when the wheat would not thrive and properly "joint," the farmers used the German phraseology—"Der weitzen hot der stodt;" the wheat got "boggy"—it ceased growing. From 1806 to 1820 the farmers of Lancaster county cultivated a white wheat, which was the leading variety, but it was so thick in the husk, and the grains adhered so tenaciously, and withal were so difficult to tramp out by the horses, that they discontinued its cultivation. It would, at the

present time, not be so objectionable on that account, since we have efficient machinery. The red, bearded wheat, was next introduced, and generally grown on oats-stubble; and the so-called "stubble-wheat" was supposed to thrive better on "stubble-ground, or on ground not too rich. Up to the year 1825, it was considered the wheat; but from that period to 1835, the smooth-chaffed blue-stem took its place. In 1827 the winter was so mild that the growing oats did not perish in the field during the winter, so that in the following harvest the farmers had a full oats crop mixed with their wheat, and the wheat itself was one of the best crops they had for years. The oats having had the whole winter for its development, it ripened simultaneously with the wheat, and they were harvested together, but the wheat kernels were so heavy that there was very little difficulty to separate them, when it came to "cleaning up." We have not had such a mild winter since that date, and for three years thereafter we had but little snow and the winters were not especially cold; and during those years there was no sleighing at all, and country sleighs were converted into peaceable hen-roosts.

A very deep snow fell in the last days of 1831. It commenced snowing in Virginia at 1 o'clock P. M., and in Lancaster county at 7 P. M., and snowed all night and all next day, and the average depth was full two feet on a level. It so drifted that many of the roads were shut up and became almost impassable. Sleighing continued without intermission for nearly four weeks, and sleighs were in great demand, hence most of the people were not prepared to indulge in the luxury. We had then sleighing successfully every winter for several years, and the winters were intensely cold. This was especially the case from January to March in 1835, when sleighing continued about eight weeks, with very little interruption, and the ice on the Susquehanna did not move until very late in March. Many apple, peach, and cherry trees were ruined from the effects of the cold, and sometimes the trunk and limbs exploded with a loud report, from the expansion of the frozen sap—it was very cold.

In 1831 there were indications of a very good harvest: there was a full crop of cereals, but it was long known as "the wet harvest." About the beginning of the harvest, or after a proper beginning had been made, a heavy shower of rain began to fall about 11 o'clock, A. M. and you could hear peals of thunder, and see flashes of lightning in the South, none expecting it would work up towards the North, but by 1 o'clock, P. M., it commenced raining briskly. This was on Thursday, and then it continued raining all the remainder of that week, and the whole of the following week, with scarcely an interval of sunshine. The wheat had begun to sprout on the stalk, and when it had been cut and shocked, the outer exposed grains germinated and threw out sprouts two or three inches long. It was followed by an epoch of "sour soggy" bread. It cleared up on Saturday night, and the sun shone bright and clear on the following Sunday morning. Some farmers commenced to harvest on Sunday morning, but rather to their discomfiture—spoiling it more

or less. Those who waited until Monday morning had fine weather all week. All the wheat was in a greater or lesser degree spoiled, throughout the rain belt.

In the summers and autumns of 1835-6 and 7, the Hessian fly was unusually injurious, especially in 1836. Whole fields were turned into pasture grounds or were turned down with the plow. The wheat was more than ordinarily good in the fall, but the fly was particularly bad the following spring.

In January, 1835, my father sold one hundred bushels of wheat to Ex-Sheriff Adam Diller, at \$1.25 per bushel, delivered it at Demuth's (now Rank's) Mill. On some plea or other, Demuth refused to take the wheat, alleging among other things that it was not sound. That same wheat was kept until June, 1837, and was then sold for \$2.31 per bushel. That year the wheat crop was a total failure throughout Lancaster county and elsewhere, and flour went up to \$14 per barrel. Cargoes of wheat were imported from the Mediterranean, and some of our farmers obtained seed and sowed it, hence it was called "Mediterranean wheat." It subsequently became an object of general culture in the county of Lancaster until 1858. A farmer in Paradise township picked out some extra ears of wheat in his field which was a redder color than usual, and on cultivation it turned out to be a great improvement on the old. It was extensively cultivated and took the name of "Red Mediterranean," and both kinds are still extant. It makes better flour than the "Foltz wheat," and brings from five to ten cents more per bushel. The "Foltz" was first discovered by a workman named Foltz, in one of the river valleys. He noticed a bunch of wheat in harvest time which was different from that around it, which he secured and took home. His sons urged him to plant it; he did so, and was successful in raising a new variety. It is now very extensively cultivated, but it has not yet displaced the Mediterranean wheat. It requires a very good and rich soil to thrive well.

There is still a smooth "Red-chaff" wheat cultivated in the counties of Lancaster, York and Lebanon, which does very well and is a little longer in the stem than the Foltz. It is known under different names, and I hope some one will give a history of it.

In 1845 we had a good wheat year, but in June after it had headed a white frost occurred, and all the wheat on low grounds was damaged or destroyed—there was nothing but empty stiff straw.

I believe the best thing that could be gotten up by agricultural societies would be to offer premiums for the best new varieties of wheat. This would encourage farmers, in harvest time, to look for and collect the best stray heads of wheat in their fields. I believe by such a process we might get wheat to yield from thirty to forty bushels per acre.—*L. S. R., Oregon, November, 1883.*

We have no prejudices or partialities in the matter at all. We desire to publish the truth as near as we can get it. If what we have published comes short of the truth, it seems to us it ought to be easy to disprove it. But

*For a different version of the origin of the "Foltz wheat," see the *Lancaster Farmer* for February, 1881, pp. 17, 22, 13, Vol. 15.

Dr. Porter's version has been standing since February last, and we have seen nothing that authoritatively contradicts it. Something also is due to the *authority*, and we consider Dr. P.'s entitled to the highest consideration, because we do not believe he would write upon the subject as he does, without knowing something very definite about it. He was intimately acquainted with Dr. Foltz, and therefore ought to know something about the wheat named after him. An *honest workman* is of no less consequence than a *Doctor*; and a *Doctor* is of no more consequence than an *honest workman*, in any matter relating to a real discovery; but, positive testimony is always of more consequence than merely "hear say" testimony, until the former is successfully rebutted, and the latter corroborated.

SELECTIONS.

MAKING COMPOST.

Making compost and making manure are two different things. It was once considered that only turf was compost, but farmers now prepare compost from every available substance. What is best known as compost on the majority of farms at present is made by the mingling of manure with other matter, the whole to be finally brought to a fine, well-rotted state.

Barnyard manure, if dropped into a cellar with the liquids flowing off in another direction, would soon become tough and elastic, and a fork could no more enter it than it could a bale of cotton, but by mixing the manure with an absorbent, and making the mass in the shape of a mound, the volatile matters are retained, while the manure is more or less disintegrated and broken up. The importance of utilizing the liquids is also taken into consideration while making compost, as they are not only absorbed but assist in rotting the solids. Moisture being almost absolutely essential to the decomposition of the heap, it is best to apply the liquids from the stable. Composts admit of the use of a large amount of absorbent materials, for, along with the solid and liquid manures from the stable, all the dirty water, soapsuds and other refuse matter should be added to it, nothing being omitted that is supposed to contain fertilizing matter of any kind.

The compost, as stated before, should be very fine. Long straw and whole cornstalks are out of place in the compost heap, but answer admirably when passed through the fodder-cutter, and well saturated with liquid manure, which quickly rots them when so prepared. Such coarse material belongs to the manure heap. Leaves make an excellent absorbent material, and even road dust is valuable, not for its fertilizing qualities so much as for its power of absorbing and retaining liquids. But one of the best materials from which to make compost is marl, which is, possibly, cheaper than anything else for the purpose, considering its chemical value. As it is almost as fine as dirt and easily handled and incorporated with manure and other matter, it not only assists in saving the valuable gaseous substances but adds in itself fertilizing elements that are often lacking in the manure to a certain degree. Although

marl contains no ammonia, it contains quite a fair percentage of potash, phosphoric acid and lime, all of which, though partially insoluble in the marl, are changed in conditions by the chemical action of the compost heap. If marl were a soluble material its price would be high, but as it must be made available by being composted it is one of the cheapest items in the whole list of fertilizers.

To properly make the compost heap put down a layer of marl, then a layer of manure, then any other material that can be raked, scraped, and gathered up. Pour over it the liquids, but not too profusely, as they may soak through it, if the heap is small, and flow off. After the lapse of a week mix the mass well together and place it over a layer of marl. This is the beginning of the general heap, and each successive addition should be treated likewise—that is, first thoroughly mix the ingredients in small heaps before placing them on the larger ones. The compost heap must never become dry, but should be protected from the sun and rain. If the whole mass is occasionally worked over so much the better. Just before applying it to the soil it should be made very fine, if required, and a little plaster sprinkled through it while it is being handled. Should marl not be obtained use dry earth instead. Do not add lime to the heap at any time, nor wood ashes, as the articles may do more harm than good unless the heap contains a large amount of absorbent matter and is kept moist all the time.

The value of compost is largely due to its retention of that which is commonly wasted; its facility for being hauled and spread by reason of being fine; its thorough decomposition without "fire-fanging," which permits of its use on all crops and at any time, and of its being a factory within which a large amount of insoluble material can be made available as plant food.—*Lancaster Inquirer*.

WINTER DAIRYING.

Muscle is not the only agency employed in successful farming. *Mind* must direct and control all exertion, if it be productive of good results. What distinguishes men most in this age is their ability to think, to plan, to "lay wires," and the reward to such a farmer is thrift and comfort, influence and wealth. The keen eye, the deft hand, the mature judgment, of the thinking farmer, tell in every part of his labor. It is this advanced thought amongst us that is rapidly taking farm labor and methods onto higher ground, dismissing much drudgery and tedious, profitless toil.

Among the multitude of interests fostered and pushed in the West is the dairy. What a wonderful revolution in the methods and results of this branch of industry! Cultivated grasses and nutritious foods; improved breeds and extra care of herds; scientific apparatus and careful, constant attention, have increased the number of cows and the annual yield per cow; have improved the quality and price of butter, and made the country, in many ways, more prosperous. One million cows, with well nigh one hundred million pounds of butter annually, in Iowa, show the ponderous proportions of this business. The purpose of this article is to raise the question—and settle it—whether it were not

possible and advisable to carry on much of our dairy work in the fall and winter.

Now, the intelligent, progressive farmers who have not already given close thought to the subject, and have made some experiments in that line, will at once consider it. They will weigh the subject, and if the claims of its advocates are plausible, they will try it.

Why should we engage in winter dairying?

1st. In the fall and winter, farmers are free from the rush of the cropping season, and can give proper attention to the business. The women and children are not then the sole operators. It will not then be a drudge to milk, for the heat and burden of the day have not been endured. It will then be of importance, since nothing is of special interest.

2d. If the cows drop their calves in October and November, they are in good flesh and strength, and give the offspring good life, and, because of liberal and proper feed, will start them off well for the winter. In March and April cows are poor, from lack of food and shelter. The grass is not on in sufficient quantity to produce free flow of milk, and both the cow and the calf get a bad start for the summer. By the time the May and June grasses have brought the cow to moderate flesh and flow of milk, the hot weather, dry grass, insufficient water, and horrid flies, set in, and then comes another check to business.

3d. Since, in profitable dairying, the calves must be fed, the fall and winter season is proper, for the men have time. The calf can be fed and do well. The old notion that a calf must suck is only a notion. One of the most successful stockmen of our country has just told me that the calves he feeds are better than those that follow the cow. Many other progressive men practice the same way. It must be left for another article to tell how calves shall be fed, but it can be done, and is done every year successfully, even by fine-stock men.

4th. Every cow must be fed and sheltered in winter, if she is to yield any revenue to her owner. If she be well fed, she will yield richly, and the product is always more valuable than in warmer seasons. Then she will milk longer, and, when she goes onto grass, will give a good flow of rich milk, because of her excellent condition in the spring. Just so much food is required to sustain all the vital processes in normal condition. Whatever she gets above this will yield a return in milk. If she does not get the extra food, then she gives no milk or she draws upon her reserve vital force to yield the milk, and reduces her life powers—flesh, strength, etc. If the cow goes dry for six or eight weeks, it will be in hot, dry, fly time, when there is not time to milk her, and when butter and cream are least valuable.

5th. The skimmed sweet milk of the dairy is of great value in feeding, not only calves, but pigs and young fowls. The calf, being fed during the winter is, by the time grass starts nicely, ready to leave the milk and live in the field on grass and grain, and come out worth from \$30 to \$50 for beef at a year old. Just as the calf leaves the milk the pigs and young fowls come on to use it, and it is utilized all the year round.

Now that we have told why we should more generally engage in winter dairying, let a line

of advice be given. Be sure to manage well. Use the most approved apparatus for setting milk—deep setting cans, $4\frac{1}{2}$ gallons, with proper gauge, and no cover on while the milk is cooling; a good tank, that puts abundance of water about and over the milk, yet ventilates it every hour of the day. Situate the milk out of the cellar or cave, and where no impure air can reach it. If butter be made at the farm provide a thermometer, a good barrel churn, and numerous other articles, and do it well. George Washington's goods passed down the river from Mt. Vernon place without inspection because they were his. Make your butter of good flavor and grain, and it will be "gilt edge." When Dr. Brown was asked how he mixed his paints, he answered: "I mix them with brains." Butter is made in much the same way.

But farm butter-making is only profitable near large places, where a good local market is sustained. The creameries of Iowa have done much for our farmers in giving them from twenty to thirty cents per gauge for winter cream, and the creamery system in country places is the only correct one; therefore, patronize them, and thus foster one of Iowa's first interests.—*J. W. Johnson in Dairy and Farm Journal*.

ON CROSSING BREEDS FOR DAIRY PURPOSES.

Farmers who are breeding for dairy purposes are ever anxious for the best stock, which is found to be the most profitable at the milk-pail and churn. In selecting cows to begin with, they have generally to be content with the best common stock that can be picked up here and there among their neighbors, or that they have raised from calves and have selected as the most promising among their young heifers. To get several number one cows in this manner, has been a long and tedious business. But almost every farmer has one or more such cows, which he refuses to part with at any price. And this is a wise procedure, for one first-class cow is worth three medium cows, as any one can see at a glance. Say such first-class cow will produce ten pounds of butter per week; three medium cows would produce five pounds each or a total of fifteen pounds. Say it costs in feed, work, care of milk, etc., fifty cents per week to keep each cow. The butter produced from the ten-pound cow will be worth, at twenty cents per pound for 500 pounds, \$100, giving a net profit of \$74. The butter from three five-pound cows will bring \$150 for 750 pounds, leaving a net profit of \$72, or \$2 less than the ten-pound cow gave. The calves I have counted for nothing, for, if sold to the butcher, the milk in fattening would be worth more than the calf brings. The net profit per cow of the latter would be \$24, while that of the first class cow would be three times as much and \$2 over. If such a cow costs \$100, the income would be seventy-four per cent. net. At the same rate, the others would be worth only \$32.30 each. Such being the case, it becomes a matter of vital importance to raise first-class stock in breeding for the dairy.

I have said nothing of that class of cows, which are kept by the thousand, that only produce three or four pounds of butter per week. Such hardly pay for their keeping.

Now, what is to be done in stocking a farm where money is limited? In the first place, procure the very best common stock that your means will allow. Don't be afraid of giving double for a good one what you would for a common or poor one. Then procure a bull from the very best butter family within your reach, and breed your cows to such animal until you get heifers containing fifty, seventy-five, and eighty-seven and one-half per cent. of his blood. Don't be afraid of inbreeding so long a your bull is strong, vigorous and healthy. Castrate the male calves, or dispose of them as you would common stock; but keep your heifers, by all means, for your future dairy cows.

For the above purposes there is no strain of cattle at all comparable to the Jersey breed. They have been bred for hundreds of years for milk, cream and butter mainly, and, of course, excel in every particular. The castrated males will make as much beef in proportion to the food they consume as any other race. A bull can be procured of a reliable breeder for from \$50 to \$75. By getting a thoroughbred, recorded animal, his service fees in the neighborhood would pay for himself in a season. They are old enough for service at about one year of age. Proper handling is necessary to any race, if you would have a gentle animal. The Jersey bull is as gentle, docile and easily handled as bulls of any other race; possibly they excel in docility. Bred from such a bull your heifer calves at birth are worth as much as a two-year-old heifer of the common stock, even at the first cross. The three-quarter blood heifers, and from that to the fifteen-sixteenths, are worth double and treble as much. And when such heifers come into milk they will almost equal the thoroughbred Jersey herself in richness of cream and butter product, while, if the dam is a first-class milker they often excel the thoroughbred Jersey in the quantity of milk they yield. Thus, in ten years any man may breed up a first-class dairy stock which would be almost like a gold mine by a little care in selecting a bull.—*E. L. Briggs in Dairy and Farm Journal.*

HAVANA SEED.

What It Has Done For Baldwinsville, N. Y.

When you are in a tobacco region, the conversation turns on tobacco and the prospect; when you are in a hop section, the people talk glibly and perhaps intelligently about hops; when you are in a potato section, the all-absorbing topic is potatoes and potato seedlings; and when you are among teal growers of Skaneateles, you are very much interested in the fact that Skaneateles stands the highest of any section in the United States in the production of teals and in their management. We are in the great tobacco section around the fast growing lively village of Baldwinsville, with its increasing industries. For miles around our place is very much interested in the numerous and growing fields of domestic Havana tobacco. On every side you see plots of this famous variety of leaf growing. As you pass the fields you smell the rich and may say pleasant aroma of domestic Havana tobacco, which has followed the original Havana plant to the very doors of our ener-

getic growers in the County of Onondaga, and the sections adjoining our county. The growth of Havana seed tobacco, as it is sometimes called, has become a veritable industry with our farmers, and they are thriving as the ox thrives on the products of the great cornfields of Illinois. From the proceeds of our tobacco fields our active farmer boys feel glad to think they can sport a fine wagon, horse and harness; which, on the other hand, the merchant is happy to know that as the production of tobacco becomes greater, his profits also become more satisfactory, and he himself can afford a very pleasant life for his family.

"Yes," said a stranger, "your town is assuredly growing, and may I inquire the cause?"

"The thriving condition of our place is owing to the tobacco interest in this section, and the large amounts of money annually paid out here for domestic Havana tobacco produced in this region."

Such was the answer given a stranger. Our village is increasing its population very rapidly, because of the impetus given to it by reason of the large receipts of tobacco by the different warehouses here.

Thrift, industry, life of an active character—these things go hand in hand here, and our go ahead people are, rest assured, very largely interested in the growth of tobacco, because through its successful production their bread and butter come.

Baldwinsville receives its tobacco from South Butler, Victory, Westbury, Red Creek, Meridian, Cato, Hannibal Centre and South Hannibal, Granby, Bowen's Corners, Fulton, Lysander village, Caneville, Oswego township, Pulaski, Volney, Mexico, Hastings, Schroepel, Cicero, Chittenango, Clay, Skaneateles, Elbridge, Camills, Marcellus, Marietta, Van Buren, Lysander, and numerous other points, quite too numerous, in fact, to chronicle here. Is it a wonder, therefore, that our place is growing? Labor and industry makes a place grow. Our tobacco industry gives to the laborer in winter and in summer labor—labor to help on the poor man's family—to brace him during the long winter months which we are certain to have in this northern climate. We feel gratified for the labor the assorting and packing of tobacco furnishes our laborers; and we know that whenever there is work going on, their money is paid out, and the merchants and grocers get a portion of it to build up their trades. Thus we are moving on. New tobacco warehouses are being built here; new firms from abroad are coming among us to buy our leaf, renewed interest is being taken in our fine Havana tobacco, and the foreign buyers covet it; they want it; in a word, it seems to us that they must have our Havana leaf for the manufacture of fine cigars and still finer wrappers.—*Syracuse (N. Y.) Journal.*

CORN, HOG, AND CHOLERA.

However presumptuous it may appear in one, a simple farmer, who spends his time at home attending to the endless duties and routine of the farm, to express an opinion on the vexed question of the cause and preventative of the dreaded swine plague commonly

known as cholera, yet I shall venture an opinion, which may or may not be of value.

For years it has been contended that the almost exclusive diet of corn, on which the hogs of the West were reared and fattened, was the primary cause of this dreaded scourge. Yet this has lacked a successful verification, as so many instances have occurred where the crop of spring pigs, along with the sows, have been swept away in the fall when they have had nothing, or very little, more than grass through the summer. So, thus far, the subject seems to be left about where it was. For years I have been watching for anything which would throw light on the subject of the swine plague, and have gathered many theories, the most of which have been discarded, and a few still seem of enough importance to retain for further consideration.

One coincidence, if it be not cause, has been so manifest during three years past that it is worthy of farther consideration, and that is, the relation between a big corn crop and the ravages of the cholera. In 1879 we had the heaviest yield of corn per acre ever raised in this country. Corn was cheap and plenty. In 1880 followed another good crop, increasing its plentifulness. It was fed lavishly. In 1880 and 1881 was a remarkable scourge of the hog cholera. In 1881 and 1882 the corn through the hog-growing sections was light, and, therefore, fed more sparingly; more grass and other food and less corn was used in pork production, and the cholera steadily decreased during these years, till now, in 1883, the Agricultural Department reported the disease extinct.

There is yet a lack of evidence to prove that corn is the prime cause of disease in swine, yet there is enough to cause a further investigation of the subject. To my mind it will not do to lay the blame on corn or any one thing alone for the visitations of this dread disease; but, undoubtedly, overcrowding has had more to do with it than any other one thing, and a region devoted to corn-raising is more apt to lead to extensive hog production, because of the enhanced profits in feeding corn to the hogs over selling it. I have often tried to find an instance where the cholera has made its first appearance in a neighborhood in a small herd, but so far have failed. So far as my observation has gone, it has always begun its ravages in the larger herds, and from there has spread to the smaller ones, though the treatment of the herds, to all appearance, has been the same.

Long feeding in one place and unchanged sleeping quarters lead to an accumulation of filth, and then, when certain meteorological conditions which we do not understand occur, the disease breaks out. As this accumulation is more rapid in the large than in the small herd the disease is more apt to break out there; and with the small herd the conditions are so nearly perfect that it only needs the contact of the taint given by the actual disease to perfect it, and so the disease spreads to the small herds.

This may all be theory, from the beginning to the end, yet to me there is much of fact in it, and I believe if we were to pay greater attention to cleanliness in the care of our swine, oftener change their eating and sleeping quarters, and keep fewer together, we would ma-

terially lessen the startling annual loss from the plague. It is folly to consider this industry safe, even if our learned professors of agriculture do declare the plague dead. We know it is only sleeping and may become very wide awake at any moment.—*L. O. Mosher in Dairy and Farm Journal.*

THE JERSEYS.

Jersey is but a small island; if it were square, it would be just six and three-fourths miles each way. Yet this little spot manages to support about twelve thousand cattle—that is, roughly speaking, one for every two acres of its surface—rocks, roads, wastes, and house-room for 60,000 people included. And it has done this for the last twenty years, at least, for the census of 1861 gives the number of cattle in Jersey as 12,037. What is more remarkable, it exports every year above 2,000 head, the average export, by the customs returns, for the last eighteen years, being 2,049—nearly one for every ten acres. Now, the total number of cattle in England only averages one head to ten acres. It therefore follows that, in proportion to its size, Jersey exports every year as many cattle as England contains. In other words, if England were to export cattle at the same rate, her whole stock would be swept away in a single year—not a hoof would be left behind. The system that enables Jersey to do this must be worth considering, particularly in these days, when the English farmer is at his wit's end what to do, as his sheet-anchor, wheat raising, lets him drift upon the rocks.

But another, and not less striking, result of our management is the breed of cattle it has produced. Hitherto, it has been the accustomed fashion in England to look upon Jerseys as the curled darlings of fortune—pretty playthings for the rich—lovely little objects for the lawn—yielding a small quantity of very rich milk, cream, and butter for those wealthy enough to afford such extravagance. That they are small, we admit; beautiful, we grant. Fitness for the work is the thing; all the rest, tinsel. The office of the Jersey is to convert grass and roots into butter, not beef. She is not bred to be eaten; she is too valuable as a butter machine. Then why should she be larger? And, far from being the rich man's luxury, she is, more than any other breed, the poor man's necessity, the small farmer's best help.

We have seen that 12,000 cattle are here kept, on a place six miles square; where rent averages £9 (\$45) an acre; where the farms are smaller than anywhere else in the world; where every farmer works with his own hands and is brought face to face with the wolf he must keep from the door. What do we see? The island eaten up with cows and the farmers beggars? On the contrary the whole island is like a garden thickly strewn with comfortable well-to-do houses and homesteads; we find ease and comfort everywhere, poverty and want unknown, beggars none. I do not say this is all the produce of cows; but I do say that our farmers (who have so close a fight, and yet are so wonderfully successful) must understand their business, and do not keep 12,000 cattle at a loss. If Jerseys pay here, with land at £9 an acre, can they be unprofitable in England, or anywhere else where

butter finds a market? But we go much farther; we hold that the Jersey cow is the most beautiful of her species, and the most profitable.

The Jersey does not claim to be the best animal for producing beef or milk or cheese. Her specialty is butter, and here she stands unrivalled for quality and for profit. All the beef for our 60,000 people is imported every week from the neighboring coast of France and from Spain; and this has been the case for the last hundred years, at least, as the Acts of our island abundantly show. With our 12,000 cattle we do not rear a single bullock; neither do we make a single pound of cheese, and probably never did. As to milk, that of the Jersey cow is far too good for the milkman, who would find a Holstein or one of the deep-milking tribes of Shorthorns much more profitable. Neither does the Jersey claim to be "a good all-round cow." The "good all-round cow" is an anachronism; she might have done very well when every man was his own butcher and baker. Nowadays the farmer is obliged to consider what particular line will best suit his circumstances and surroundings—whether beef or milk, cheese or butter; and he must choose his cow accordingly, for on this depends his success or failure. If he decided in favor of butter, there is no cow will suit him so well as the Jersey, for she is the only one that has been persistently bred for butter alone, and she is the accumulated result of some hundreds of years' persevering effort in that direction.

STORING SWEET POTATOES.

The most common and most successful way of storing away sweet potatoes for winter keeping in this latitude is to put up in dust. There are other modes which have their advocates. In the summer, when the dust is very dry, I take as many barrels or boxes as I shall want to fill with potatoes and fill them with road dust and put them away in a dry place to keep until I dig my potatoes. I prefer digging before frost. I dig them and let them dry in the sun a day; then they are stored away in a cool place; they are spread singly over the floor so as not to heat nor sweat; when cold weather sets in they are taken and stored in the cellar; cover the bottom of the barrel or box with about three inches of dust, then a layer of potatoes close as they can be not to touch; cover them with dust, the potatoes, and so on until the barrel or box is nearly full; then fill up with dust. In this way potatoes will keep through most any winter. I find this the best way to keep sweet potatoes in winter. Another way I have tried with good success is to pile the potatoes in a large cone-shaped pile. Thirty to forty bushels keep better than less. Then take straw in small handfuls and pack around, commencing at the bottom, building it firm, eight or ten inches thick, until near the top, then insert a flue near the top and build tight around the flue. In a few days the potatoes will begin to sweat and emit a steam; after they go through the heat and cold weather sets in this flue can be stopped with straw. Now this straw is covered with dirt thick enough to suit the weather. I have very good success with potatoes stored in this way, but prefer putting up in dust. When I put up with

straw I put up in the garden, putting a shelter over them.—*Farm and Garden.*

INCREASING LEAN MEAT IN PIGS.

We may well suppose that the habit of the pig in laying on an excessive quantity of fat has been caused by long and excessive feeding of fat producing food, and it is not likely that any sudden transformation could be brought about; but it is well known that the pigs of different countries differ in respect to fat. We have only to contrast fattened pigs of this country with those in Canada. There pork is fattened partly upon barley, but largely upon peas, a highly nitrogenous food, yielding a large proportion of muscle, and our pigs are fattened almost wholly upon corn, an excessively starchy and fattening food. The Canadian pork has a much larger proportion of lean meat and less lard. The difference is very marked, so much so, that in a market supplied with both kinds, purchasers easily select the one or the other, as desired. Wild hogs do not have such excess of fat, and the Southern hog, which is grown much slower than those in the Northern and Western States, and fed much less corn, is comparatively lean. There can, therefore, be little doubt that the habit of depositing this excess of fat is caused by long-continued feeding adapted to that end. The hog is naturally a grass and root-eating animal, and so its domestication is fed almost wholly upon concentrated food. Hogs fed upon skimmed milk have a less proportion of fat than those fed upon corn. If young pigs are kept upon food that will grow the muscles and bones and develop a rangy frame, they will possess so much muscle when half grown that a moderate length of time in fattening, even on corn, will not pile on an excessive amount of fat.—*National Live Stock Journal.*

HEALTHY HOMES.

Robert Rawlinson, C. E., London, says:

The sub-soil beneath a house should be naturally dry, or it should be made dry by land draining.

The ground floor of a house should not be below the level of the land, street or road outside.

A site excavated on the side of a hill, or steep bank, is liable to be dangerous, as external ventilation may be defective, and the subsoil water from above may soak toward and beneath such houses. Middens, cesspools and ashpits, if at the back, must also taint such basements.

The subsoil within every basement should have a layer of concrete over it, and there should be full ventilation.

Cesspools, cesspits, sinkholes, drains, etc., should not be formed nor be retained within house basements.

The grounds round dwelling houses should be paved, flagged, asphalted, covered with concrete, or be graveled.

Outside channels should be in good order, and be regularly cleansed.

House eaves should be guttered and spouted.

Swill tubs should not be near doors or windows.

Pigstyes should ever be at a distance, and, where pigs are kept, there should be rigid

cleanliness. Improperly keeping pigs has caused more human sickness and destroyed more human life than all the battles the country has ever been engaged in.

Garden plants should of course be in order, and properly cultivated.

Many houses, from the mansion to the cottage, are unwholesome for some of the following reasons.

MR. WEASEL BROUGHT INTO CAMP.

Though a poultry raiser thirty years, upon the sea coast and in villages, we received our first call from the blood-thirsty creature about half-past three o'clock, Wednesday, July 25th, 1883. Our forty-five Light Brahma chickens were housed in a small out building, to prevent depredations in the garden. A terrible squalling among the birds called our attention to the attack immediately. The chickens turned out at once, and in one corner we found a weasel fastened to the thigh bone of one of the birds, and was beaten with a club before he released his hold. The thigh bone was broken, and the bird had to be killed. Just a week from that date, at the same hour in the afternoon, he came again, but was driven off without damage to the chickens. In the meantime he had visited the neighbors' coops and slain a large number. On the Monday following, at the same hour of the day, we found him among the flock again. Having learned the tenacity of the grip upon his prey, we were prepared for his visit. He had a large chicken by the juglar vein, and was partly concealed under her wing as she lay upon the floor. With a spade we pinned him to the earth and closed his career of blood-sucking. In about two minutes he had drained the blood from a two-pound chicken. The specimen, a male, was about an average adult size; whole length, from tip to tip, eighteen inches; body, twelve inches; tail, six inches. The jaws and neck are exceedingly strong, and the teeth very sharp, nice instruments for tearing open veins. It is very difficult to catch a weasel in a steel-trap, still more difficult to shoot one. But caught in the act of bloodshed, with a spade, you have him.—*Rev. Wm. Clift, in American Agriculturist for Oct.*

SMALL FARMS.

The United States has many farmers who are "land poor;" they have so much land that they cannot make a living on it. When they have learned that it is not economy to own more land than they can till in the most profitable manner, so that it will pay for the money expended in keeping it free from taxes, weeds, and other encumbrances, they will have solved the problem of ease in a farmer's life. The happiest and thriftiest farmers we have ever known lived on farms of less than one hundred acres—some on farms of only ten acres, every foot of which was made to count. On the other hand, the farmer who has so many broad acres that he cannot walk over them daily, where rods of fence corners are never cultivated or made of any use, lives a life of anxiety and worry. His taxes are heavy and his crops light. He cannot give reasonably thorough cultivation to so much land. Now, if the farmers who own one hundred acres of land will sell half of it and expend the money received for it in cultivating

the other fifty, getting blooded stock and poultry, fertilizers, etc., he can make each acre produce as much as two acres are doing now. His taxes will be less, his cares less, and his gains vastly greater.—*American Farm and Home.*

IS BREED SUPERIOR TO FEED?

There must always be a starting-point. A foundation must be laid before we can build. It is surprising how a biological theory like that of evolution, be it right or wrong, gives a bias to a man's mind and tones all his thoughts and opinions. It is seen to crop out in the now quite prevalent belief that breed is superior to feed in the development of our best races of cattle. It is because of this belief or opinion that we see such numerous sums of money paid for immature or even unborn animals—in *utero*—simply because of their parentage. It is not sufficient to note the fact that the hereditary descent of good qualities directly is a very rare circumstance, and that remarkable animals as a rule are the progeny of very ordinary ones, and vice versa. There is no hereditary aristocracy of excellence in men or in animals. Great men rarely have sons that are conspicuous for their father's qualities; on the contrary, the sons of noted men are generally remarkable for the absence of any extraordinary capacity, and the continuance of a family reputation is so rare as to be phenomenal. On the other hand, all the great men of history of modern times have emerged from obscurity, and their parentage has only been remarkable for the accident of producing them. It is the same with animals. There are thousands of instances against a very few exceptions. When the horse Dexter first appeared like a sudden meteor no one knew his history, and one was made for him. It was the same with the stallion Smuggler, and we have yet to hear of any of his progeny that have a record. It is the same with cattle. The cow Alpha had no parentage of remarkable record, and although some of her blood has been unusually productive, it is not more so than other Jersey cows of other families, or of no family at all, and some of these have surpassed her record. The cow Duchess, the first of that noted tribe of short horns, produced twenty-four pounds of butter in a week, but late Duchesses have required the help of nurses to rear their calves. Examples of this kind are too numerous to mention, and all go to show that breed is not to be relied upon to produce anything beyond the ordinary character of the breed. Breeds do not improve by breeding. The best animals are made and not bred. Accidental prodigies never reproduce themselves. "Sports" are known in vegetable growth as extraordinary departures from the normal character of a variety—of a breed. Such, for instance, was the "Late Rose" among potatoes, a sport from the Early Rose, but in a few years it lost all its peculiar character. So with sports among flowers; they either fail come true to seed, or they produce no seed, and even when propagated by cuttings they deteriorate very quickly. Even a seedling, a variety bred to a certain point, soon loses its valuable character and becomes poor or worthless unless it is cultivated with the greatest care.

Among plants, cultivation alone has been the source of improvement. Naturally flowers are single. The dog rose is an example; the original dahlia is another, and there are others in endless numbers. The gardener may breed these plants pure, and all he can do is to keep them stationary. But he begins to use the arts of cultivation—feeding, in fact—and he soon begins to change the natural habits of the plant. From the dog rose he produces the *Centipolia*, the cabbage rose, the moss rose, and he changes the color from pink to white and deep crimson, with all intermediate shades. So he makes the plain-colored single-flowered dahlia produce all shades now known, with its hundreds of petals, quilled in the most regular manner. It is thus with the cabbage and the turnip, the cauliflower and the beets, which, by breed, were scashore plants, of which the sea rocket is a type, or the charlock or wild mustard, of our poorer fields. The breed is still the useless charlock; it is the cultivation and the feeding which has produced the valuable cabbage and the indispensable turnip from the original breed.

Feed is superior to breed. It makes the modern improved breed. Feed is a manner of training. By its practice we may take a poor animal and improve it. We continue this through a few generations and we make a new breed. But even then this will not survive by its own force and character. Left alone, it speedily returns to its first estate and breeds back—reverts—to its original type. The best variety of turnip abandoned to its own resources goes back to charlock, its original, in a few years. By poor cultivation its return is slower and more gradual, but not less certain. We take a Hambletonian and put him before a canal-boat and associate him with wretched mules and scarecrows and treat him as we treat them, and his blood, made rich by generous feeding and care, reverts to the type of the class, and becomes as poor as the meanest scrub of the tow-path. In the same way a careless farmer with more money than wit, misled by the prevalent folly that breed is superior to feed, procures a Duke and Duchess or a Red Rose or a Princess, and thinks he will have a herd. He treats these highly fed and well-cared-for cattle as he treats his scrubs. They retrograde fast, and the calves, pinched and neglected—if they live—become even worse than the scrub stock. If this man persists a few years no semblance of the breed remains; it is all starved out, and only a wreck remains of it. The breed is there. It is the blood which has been lost by want of nourishment, and for want of food the breed is no longer what it was. A wiser man takes the wreck and reverses the method. He feeds and cherishes the spark of life left in the blood, and in time restores what has been lost and the breed is recovered again. If feed and care were not superior to breed these pure-bred animals would hold their own in spite of starvation and hardship. If breed is superior to feed there would be no encouragement for the farmer to improve his stock and to secure a basis for bettering it by rearing his young animals and taking the best of them to perpetuate what he thus gains step by step, and interbreeding them to fix his progress as it is made, and so procure ground

upon which to raise another stage, and so on until, in time, if he has the ability and the perseverance, he may make a breed for himself. There is a breed of swine common in the West, the Poland China, which has been built up in precisely this manner. From common but good materials a selection was chosen, and by good feeding and care improvement was made. This was fixed by selecting the best for breeding—the breeding being wholly subordinate to the feeding, be it observed—and in forty years a breed was established. But one may see even this fine breed run down to the condition of the land pike or the rail-splitter by neglect, and its miseries perpetuated by breeding down.

This heresy is akin to a system of morality or religion which removes all incentives to a virtuous life. If our stock is predestined by its birth or breed to maintain its high character, the incentive to generous feeding and good care is removed. If one has the breed he may neglect the feed. But the very reverse is more nearly true. If it were not, the majority of farmers would be in a most hopeless state. If they had no hope that they could better their stock by better feeding, by better lodging, by more gentle training and careful handling, they would have no opportunity of improving them at the start, and like a man who believes himself to be lost, would make no effort to save themselves. Few farmers or graziers can hope to possess herds of pure-bred cattle. But every one can procure the means of infusing the best blood in his herd. If he is led to believe that breed is the one thing needful, and that he cannot breed but from pure-bred animals, he will stay as he is and do the best he can. If, on the contrary, he is made to see that feed is the main thing to be secured and breed the next, he is at once induced to improve his stock, first by better care and feeding, and then by the addition of pure blood, which will give him material upon which feeding can be made to produce its best results; he will be very apt in the pursuit of his own interests to begin to breed up his herd without delay. And the farmer who has no present possibility of doing any more will at once begin to improve his herd from within, hopeful of at least some measure of success by better feeding.—*N. Y. Times.*

THE RACCOON.

Dr. R. H. Stockwell, of Michigan, treats the raccoon as an animal injurious to Agriculture, and writes as follows in the *Am. Agriculturist* for August.

The raccoon is described as a nocturnal animal, while in truth all hours of the day or night are pretty much the same to it. Its shrewdness, however, leads it to seek the cover of darkness, while experience has taught that fishing is attended with better results when practiced in the shadowy and uncertain light of the moon. I have observed it at different hours during the day skulking along the margins of streams, hunting for frogs and turtles, or stalking the wild duck and her brood, and even feeding in the maize fields. In one instance the writer caught a coon invading cautiously the well-stocked poultry yard at high noon.

Where only high and dry woodlands or

broad expanses of prairie prevail, the raccoon is seldom encountered, save as a rambler. Low, moist grounds, with lofty trees, are preferred, like the well-wooded swamps and lagoons of the South; while to the northward, forest slopes, bordering lakes and ponds, or traversed by brooks and rivulets, are selected. The purely evergreen forests of the North rarely shelter it, since nuts, acorns, and other mast are an important factor in the problem of life at certain seasons of the year. Hence its presence therein must be held as accidental. But wherever the coon is established, it wanders over wide stretches of territory in summer, often miles away from its home, absenting itself for days and even weeks, especially during the wooing season. It is during such excursions that it is met with in the open prairie, being led thereto, presumably, in search of grouse, plover, and other feathered creatures and their nests, along with mice, hares, and gophers.

North of Ohio and Indiana, the raccoon hibernates in winter, but rarely, if ever, in lower latitudes. But even in his most extreme northern habitat, the habit is by no means general or constant, as with the bear, but appears rather as assumed, to correspond with diminished food supply. In Northern Michigan I have found them racing over the snow on bright mid-winter days, while with the advent of extreme cold or stormy weather, it retired again to its peculiar sleep in the recesses of its lair. At the same period, a pair held in confinement, and abundantly supplied with food, at no time exhibited any tendency towards hibernation, though constantly refusing admission to their kennel of all articles looking to increased warmth, preferring to make their beds upon the naked boards. Even during the coldest days, when the thermometer was down in the twenties below zero, the advent of a tub of water was heralded with manifest delight, in the cold water of which they would paddle and play, and push the ice about until wetted to the skin.

BUSINESS LAW.

A note or contract made (or dated) on Sunday, or by a minor, or without consideration, is void.

Signatures made with lead pencil are good, in law.

The maker of an "accommodation" bill or note is not liable to the party accommodated, but is bound to all others as though there were a valid consideration.

A note falling due on Sunday, or on a legal holiday, must be paid on the day before. If Saturday should be a holiday, and the note fall due on Sunday, it should be paid on Friday; and if Monday is a holiday, and the note falls due on Monday, it should be paid on Saturday.

A note may be endorsed on the face or back—usually on the back; and the endorser is liable if the maker fails to pay, provided he is served with notice of protest within twenty-four hours after it falls due.

A note is a written promise to pay. An acceptance is a *draft*, accepted by the payer, and made payable at a fixed and definite time. Either is negotiable.

Principals are responsible for the acts of their agents.

The acts of one partner bind all the rest.

If a check or draft is not presented for payment promptly, that is as soon as it can reach the place of payment in due course of business, and if, the meantime, the bank or payer fails, the holder and not the maker must lose the amount.

A note or draft may be presented at any time during the day that it falls due, even after business hours, and the payee has the right to refuse anything except bank bills or a certified check, and if not so paid, the note or draft will be protested the next day, and notices sent to all endorsers, who then become severally liable.

An endorser is not liable if he endorses after the words "without recourse."

All claims which do not rest on a "seal" or "judgment" must be sued within six years from the time they originate.

Part payment of a debt that has passed the time of statutory limitation revives the whole debt, which holds for another period of six years.

A debtor has the right to designate on which bill he wishes to make payment, when partial payments are made.

An oral agreement must be proved by witnesses.

The finder of negotiable paper or other property, must make reasonable efforts to find the owner, or otherwise he will be liable to a charge of larceny.

Notes do not bear interest, unless stated in the note.

A will should begin with the words "In the name of God, amen;" and all bequests should be plainly and unequivocally made and stated, without interlineations or erasures. Any change in a will should be made by codicil, and both that and the principal instrument should be signed and sealed before two witnesses.

All legal instruments are to be interpreted according to the natural use of language. It is better to avoid any peculiar phrasology or technical terms.

THE CARE OF CANARIES.

The greatest favorite among birds appears to be the canary. The best singing varieties are imported from Germany, principally from the Hartz mountains, where they are bred by the peasantry by the hundreds of thousands yearly, and from there are shipped to this country, England, France and even to Australia. This bird had its origin in the Canary Islands, where its color is of a greenish gray.

It was first introduced into Europe in the sixteenth century, where their notes, particularly in Germany, were greatly improved by raising them in rooms where other birds—such as nightingales, woodlarks, skylarks, and the like—were commonly kept. They would take notes from each bird, and by mixing these notes the canary has attained the beautiful and varied song transmitted to its descendants. When the compost song of the canary was thought completed the use of other birds was not deemed requisite, as the young ones learned from their parents.

Instead of a succession of noisy notes the bird should know how, with a silvery, son-

rous voice, to descend regularly through all the notes of the octave, and the whole song should consist of about twenty notes, the the most admired of which are the bowtrail, the bell note and woodlark note.

To raise such birds the breeder must be a good judge himself, and must not put together birds having unpleasant notes. He should also keep one or two of his very best singers in separate cages near the breeding room or cage, which will be the teachers of the young.

From the 1st of June, 1882, to the end of May, this year, 95,000 canaries were imported into New York, of which one firm bought 85,000.

The two varieties most prized by amateurs are the Jonquil and the Meally, combining the greatest beauty in color and excellence in song. The long breed, or French canary, is now almost out of favor, and but few of the kind are to be seen in this country, although they bring a much higher price owing to the difficulty in breeding them.

This leads many people to believe that they must consequently be much better singers, but such is not the fact, for the song is much inferior to the others.

The price for male canaries varies according to the size, age and song—from \$2.50 up to \$25 each—and for females from 75 cents to \$1.00.

The canary, as a domesticated bird, is the easiest of all others to take care of. The treatment they require is most simple and certainly the best known, but there are many persons whose ideas on this subject are very limited, and, what is worse, very erroneous.

As to their food, the most simple and natural it is the better and more conducive to good health and cheerfulness. Mixtures such as rape, millet, hemp, canary, poppy, lettuce, oatmeal, oats, sugar, sweet cake, biscuit and such like, so far from being wholesome, as people think, are very unwholesome; it spoils their taste for natural food, weakens the stomach, renders them feeble, sickly and incapable of bearing moulting, under which they frequently die.

The best food is a mixture of rape and canary and a little green stuff, such as chick weed, lettuce or cabbage in season, or sweet apple in winter. The main point, however, is to obtain pure and fresh seed. Rape seed, when old or kept too long in a damp place, becomes musty, gets a bitter taste and does not agree with the birds. The best sort is the German summer rape, which has a nut like flavor in distinction from the English, which tastes somewhat like mustard. The canary seed should be clean and have a glossy hue, free from musty smell and have a sweet taste.

The cage should be daily supplied with fresh water, both of bathing and drinking, and the cage bottom be cleaned out at least once a week and be covered over with dry gravel, which the birds freely pick and which helps digestion.

The perches should be kept clean. The birds feet should be occasionally examined and if they are found dirty the bird should be taken carefully out of the cage and the dirt washed off by soaking in lukewarm water.

The claws, if too long, should be cut with a pair of sharp scissors, care being taken not

to draw blood: the same with an overgrown bill.

Canaries, if kept for singing alone, should be placed in cages of about a foot in diameter either round or square, as in large cages they do not sing so well or so constantly, having too much room to fly about and amuse themselves, which takes away their attention from singing.

It is not necessary to keep these birds in a very warm room in winter, as they can endure a great deal of cold without injury, but they should not be removed from a cold room to a warm one, or vice versa, but be kept in as equal a temperature as possible, and free from draught.

In the summer it is well to keep the bird in the fresh air, but shaded from the sun and rain.

They begin to pair about the middle of February. The female lays from two to six eggs and the time for incubation is thirteen to fourteen days. While breeding they should be fed with hard-boiled eggs, chopped fine, yolk and white together, as well as their regular seed. It is wrong to take the eggs from under the hen while she is laying, as many people do, for the purpose of hatching them at one time.

As soon as the little ones were hatched they may be fed besides their general seed with eggs boiled hard and chopped fine, and an equal quantity of grated cracker mixed with the egg into a paste. This food should be given to them fresh three times a day, for the old birds are more inclined to feed the young when fresh food is given them.

An extra cup containing soaked rape-seed should also be given them. They also require fresh green food daily.

When the young birds feed themselves and are put in a compartment by themselves they should still for a time be supplied with soft food.

The young males will commence warbling as soon as they leave the nest and improve daily for eight or nine months, when their singing quality will depend very much on the birds they are placed near.

The male bird is distinguished from the female by having a larger and flatter head; its color, particularly around the eye, is of a brighter hue and its action also differs from that of the female, but it takes an experienced judge to distinguish these differences.

The canary breeds with other birds, such as goldfinches, linnets and siskins; but for this purpose a female canary must be taken and a male of any of the species desired, for the female of the latter cannot be induced to lay in an artificial nest.

If it is required to teach them any particular air from a flute, an organ, or other instrument, they must be put when very young into a separate apartment, in a dark place, out of hearing of any other birds, and the air be played to them several times a day.

TO CLEAR MUDDY WATER.—A little dissolved alum is very effective in clearing muddy water. If thrown into a tub of soapsuds the soap curdles, and accompanied by the mud particles, sink to the bottom, leaving the water above clear and pure. In times of scarcity of water this may be useful.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

The County Agricultural Society met in monthly meeting on Monday afternoon, November 5th, in their rooms.

The following members were present: John C. Linville, Sadsbury; Joseph H. Witmer, Paradise; Calvin Cooper, Bird-in-Hand; Casper Hiller, Conestoga; Henry M. Engle, Marietta; C. L. Hunsecker, Manheim; S. P. Eby, J. M. Juhnato, F. R. Diefenderfer, Robert B. Risk, Dr. W. D. Bollinger, city; M. D. Kendig, Manor; Levi S. Reist, Manheim, Simon A. Hershey, Salunga.

In the absence of President Rush, Vice President Engle took the chair.

Reports of Committees.

Levi S. Reist had been at the Berk county fair. The exhibition of apples was unusually fine. So was that of pears. The grape exhibit was also good. The mechanical department was well filled. The stock exhibit was fairly good. The fair on the whole was up to the average in that county.

C. L. Hunsecker was also there and thought the fair a very respectable one. The machinery exhibit was large. The horses, sheep and cattle were not so fine. The fruit, especially the apple, show was fine. Potatoes and corn made a fine appearance. There was little drunkenness.

M. D. Kendig, who visited the York county fair, reported a good attendance, and the fair as one of the most successful in every particular ever held by the County Agricultural Society. The exhibits of all kinds were large and fine. The fruits were numerous of excellent character. The grapes were especially fine. Apples seem very plenty over there.

John C. Linville was at the exhibition held by the Octoraro Farmers' Club, and reported one of the finest displays of vegetables he ever saw. This was the first fair held by this club.

Crop Reports.

Joseph C. Witmer reported wheat looking very well everywhere. The corn crop is good, but not quite equal to last year's. There is still a good deal to husk. Late pasture is good. Has noticed no fly in the wheat so far. Farmers are late with seeding.

M. D. Kendig reported a good growth in wheat under the favorable weather of the fall. The rain fall for October was 3.10 inches.

J. C. Linville said wheat is unusually fine. Much was sown in October—much later than usual. There is much soft corn, but the crop is generally good, nevertheless.

H. M. Engle reported seedling very late, but wheat now looks well. Corn is a full crop. Clover is abundant. Late potatoes show considerable rot.

Mr. Casper Hiller read the following essay on

Corn Culture.

We have again passed through a year's experience in corn culture, and we may sum up the causes of our failures and successes. We started out in the early season with unfavorable weather, and with a great deal of defective seed; indeed, this bad seed at first seriously threatened the prospect of a good crop, but owing to the favorable condition of the weather, the replanting and even the re-replanting made some corn. There is, however, no question but that had the seed been uniformly good, we would have many more bushels of corn. This question of good seed demands our serious attention.

Our corn in the cribs is even in worse condition than it was last fall, and very little will come out next spring fit to plant. Seed corn, if not already selected, should be attended to immediately, and should be put in a dry place, where it will thoroughly dry before cold weather sets in.

I can report failures and successes this year. Our main plot (several acres), may be called a failure. Cause, bad seed, some root lice, and serious floods. To the last the main cause of failure may be attributed (the lot being quite hilly).

Several rains early in the season, a few weeks apart, washed the ground so badly that it could not again be put in good condition. The yield was about forty bushels per acre. This plot was a clover sod, and had about four hundred weight of South Carolina rock per acre plowed in—was in fair condition to make about seventy bushels per acre.

Plot No. 2 is nearly level and contains one acre. Variety, White Dent, of which I show a specimen. This plot was potato ground the previous season; got a dressing of 600 pounds of South Carolina rock in the spring and was planted with seed that was hung up by the husks last fall; came up fairly—had a set of one plant to about every two feet—rows 3½ feet apart.

This was to make no less than 100 bushels to the acre. But about August unfavorable conditions were manifest. The stalks became too tall, tassels made their appearance and most of the stalks showed no signs of ears. But the ears finally made their appearance, and under the circumstances made a respectable crop of 150 bushels of ears.

Plot No. 3, one-fourth acre, variety, Blount's prolific, yielded 44 baskets, which will shell at the rate of 100 bushels to the acre. This was also a potato patch the previous season. This plot was planted May 9, had 100 pounds of bone and ashes scattered in the row, and on June 9 had another 100 pounds of the bone and ashes applied along the rows. This was planted very thickly two or three grains to every 18 or 20 inches, but was afterwards thinned to one plant.

Plot No. 4, one-fourth acre, variety, Mammoth Chester, yielded 45 baskets—nearly 100 bushels per acre. This plot would have made over 100 bushels per acre, but had the outside rows interfered with by nursery rows of trees and also suffered some loss by replanting. This was a clover sod, and had a good dressing of stable manure plowed down. Good seed, good soil with plenty of manure, and good culture rarely fail in making a good crop of corn.

But we have not yet learned all about corn. Can we learn why one plant bears an ear that nearly makes a quart of corn while the next neighbor bears a nubbin, or is a robust looking plant without a sign of ear? Can the seed be improved by cutting out all defective plants before they scatter their pollen broadcast over the field? If we can develop a thoroughbred seed, that will produce no barren stalks, we can increase the possibilities of our cornfields vastly. Thousands of acres of land in this country are adapted to the production of one hundred bushels and over. Good corn land must not be so level as to retain surface water, nor so hilly as to wash off the soil.

Let me repeat, good seed, plenty of fertilizers and good culture are the requisites of a good crop of corn.

Plot No. 3 has been in my time an abandoned common, too poor to produce a crop of any kind.

M. D. Kendig thought the way to get a sure stand of corn was to plant more seed than are needed and then thin out to about two stalks in the hill.

Levi S. Reist spoke of a disease attached to the roots of corn, causing the stalk to turn yellow.

Casper Miller pronounced it an aphid—a root louse which frequently does much damage. It is said if the seed is soaked in copperas water, the insect will be headed off.

J. C. Linville heard it said salt was a remedy. Phosphates are also said to be a remedy. The insect shows its work first when corn is about three weeks old. It is one of the greatest pests of the corn growers. This aphid or louse is greenish or light colored.

Ventilation of Houses.

M. D. Kendig said while special ventilation is useful, he did not believe that farm houses required much attention in that direction. There is plenty of good air all around farm houses. If you want cool or fresh air open a window a little and you have it on the inside also.

S. P. Eby remarked upon the indifference and neglect of many farmers in providing proper ventila-

tion for their houses. The old-fashioned fireside was the best of all ventilators, but these are now disappearing rapidly. Open stairways to the garret are also useful. A majority of farmers do not appreciate the advantages of proper ventilation. Nothing keeps a room so sweet as pure sunlight; let it come in during the day and at sundown close the doors and windows again. The atmosphere in every room where men live becomes impure and needs to be carefully attended to.

Dr. Bollinger said this subject was a big one and required a volume for its treatment. Costly experiments have been tried, but we don't progress very rapidly. We need ventilation more now than they did a hundred years ago. Paper on walls is a retainer of disease. Carpets also foster sickness.

J. C. Linville said the trouble now is that farmers try to make their houses as nearly air tight as possible. This keeps out the cold but it keeps out fresh air also. There ought to be some means to remedy this. The storage of fruits and vegetables in cellars also increases the trouble. These things should be kept in the barn cellar.

M. D. Kendig made inquiry as to a peculiar grass or weed that is crowding out the natural grasses on his lawn. It appears wherever the grass is mown; where not mown, none of it appears. He wanted to know what it is and how he can get rid of it. It is about three inches high and the top separates into three or four distinct heads.

H. M. Engle reported the rainfall in Conoy township for October to have been 4½ inches.

Fruits on Exhibition.

Henry M. Engle had on exhibition four varieties of pears, the Kieffer, Vicar, Urbaniste and Lawrence; and ten varieties of apples, Rambo, Ewalt, Pittsburg Pippin, Rhode Island Greening, Saylor, Hubbard's Nonesuch, Baldwin, Russell, Northern Spy, and a very fine specimen for name. All the above were of excellent quality.

The Examining Committee recommended that the apple submitted for a name by Mr. Engle be called after that gentleman, in case he was the originator of the variety.

Casper Miller had on exhibition a Krauser apple, which he described the only one out of 30 or 40 varieties that is of any value this year. It was of fine quality. He also showed a LeConte pear, said to be very hardy and productive. Also a Kieffer pear, worthy of planting, because of its early bearing, productiveness, size, beauty, quality for cooking and preserving. Its eating qualities do not compare favorably with the Seckel and Bartlett—might be called medium quality.

Mr. Miller also had present specimens of the corn described in his essays. The ears were large and the grains also. On motion, the Society adjourned.

POULTRY ASSOCIATION.

The regular meeting of the Poultry Society was held at half past 10 o'clock Monday morning Nov. 5, eleven members being present.

In the absence of the president the meeting was called to order by Mr. H. A. Schroyer, who was elected president pro tem.

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

Mr. J. B. Long, who had been authorized to correspond with persons with reference to securing judges for the coming exhibition, reported that he had received answers from a number of persons, and after considering the terms offered, the committee had engaged Mr. George O. Brown, of Baltimore, Md. On motion the action of the committee in securing Mr. Brown for judge on poultry was approved.

On motion Mr. Charles Becker, of Baltimore, was engaged as judge on pigeons.

On motion Mr. Brown was also selected as judge on incubators, in conjunction with two other persons to be appointed during the show by the Board of Directors.

The premium list for the coming show was read and adopted by the society. Adjourned.

FULTON FARMERS' CLUB.

The club held its meeting for November at the residence of Day Wood, in Fulton township.

The members were all represented by some member of their families, except Joseph R. Blackburn.

Visitors: Isaac Bradley, A. K. Bradley, Wm. Shoemaker and Neal Hambleton.

The President, J. R. Blackburn, being absent, E. H. Haines was chosen President pro tem.

Very fine corn was exhibited by Josiah Brown, Day Wood, Neal Hamilton and Joel King. Emeline Cauffman exhibited cauliflower; Lizzie Wood, Fallowater and another variety of apple for name; Day Wood an old water can that has been in use for about fifty years, without any repair than a coat of paint.

Mrs. E. Cauffman asked how cauliflower should be prepared for use.

Sallie Hambleton: Cut off the main stem, boil till tender, and dress with cream and butter—or cook till tender and dress as other pickles. It makes nice chow-chow.

The Corn Crop.

Wm. King: Would it be better to sell corn in the ear at the present price, 36 cents for 72 pounds, or allow it to dry and take 50 cents per bushel for it after it is shelled.

The club was of the opinion that if it was not for the hauling it was better to sell now. But the hauling would be a heavy item.

E. H. Haines thought that the shrinkage in corn was not so much in weight as in bulk.

Montillion Brown: How is the corn crop this year, compared with other years?

Isaac Bradley said that it was filling up the cribs.

Lindley Jackson: Better than common.

Day Wood: Good average crop.

Amos K. Bradley: Corn too thick, but a good crop.

Neal Hambleton: His crop was damaged by flood but was the best he had ever raised.

Joel King's was better than ordinary.

Wm. Shoemaker's was too thick, but good.

Wm. King said his corn was too thin on the ground but was the best he had ever raised.

Josiah Brown had the best crop that he had ever raised. Off eighteen acres he had eighty two loads, which would shell out twenty bushels per load.

E. H. Haines had the best crop that he had ever raised, and thought that the corn crop in his section was above the average.

Other Questions Discussed.

Neal Hamilton asked if there was any difference in the feeding value of white and yellow corn?

Montillion Brown: Scientific men say there is not much difference.

S. L. Gregg could see no reason for any difference.

Sallie Hamilton asked for the best way to prepare hen feathers for use?

Emeline Cauffman: Steam over a pot of boiling water and bake. New feathers should be baked.

Melissa Gregg: Put in tight bags and bake. Keep in bags till wanted.

E. K. Haines: Boil and spread out. Whip them up occasionally when drying.

R. D. King: Pour boiling water over them, then run them through a clothes wringer. Stir them up, occasionally while drying. Dry with heat, but don't bake.

S. L. Gregg: Which is best, a large or small roller?

Amos K. Bradley: A large one will run more easily than a small one.

Neal Hamilton: A small one will break up clods better, but a large one will run more easily.

Joel King uses a small roller.

Wm. Shoemaker: A small roller will pulverize better than a large one.

M. Brown: A heavy roller, about fourteen inches in diameter, will do the best work.

Isaac Bradley: If we had to pull it we would prefer a large one. A small one will do better work, but enough to make up for the draught.

Josiah Brown: Which is the better depth to plow, in order to raise a big crop of corn—4 or 6 inches?

This same question was before the club some time ago, and the club still adheres to the opinion that for this neighborhood shallow plowing is preferable for corn.

The Afternoon Session.

The Club now adjourned for dinner and to take a look at the farming operations, after which they again convened in the house, when, criticisms being in order, the host was complimented for his fine stock, and especially for the neat and comfortable tenant houses which he has lately put up.

Literary Exercises.

Day Wood read from the Philadelphia Times an article on the Eastern Experimental Farm, giving a very gloomy picture of its dilapidated condition.

Montillon Brown read an article from *The Lancaster Farmer*, urging farmers to write for it.

Lizzie Wood read an article on Sugar, from *The Household*.

M. Brown read an article on crowding out sorrel by high manuring with bone dust and ashes

R. D. King read "What I Saw."

Miss Wilson read "Beginning Again."

E. K. Haines read "One by One."

The club adjourned to meet at E. H. Haines' on the first Saturday in December.

LINNÆAN SOCIETY.

The Linnæan Society met in their museum on Saturday afternoon, October 27, 1883, at 2:30 P. M., the president, J. P. Wickersham in the chair, and nine members present. Dues were collected and the minutes of the previous meeting were read in part and approved.

Donations to the Museum.

A bottle of insects, centipedes, and arachnids, collected late in September last, on the rocky ridge near Collins' Station, on the Pennsylvania Railroad, a few miles above Bainbridge, familiarly known in the neighborhood as "Stony-Batter"—a ridge which continues all along the northern portion of Lancaster county, and extends into the counties that form the eastern boundary of the State—a singular ridge, consisting of different sized boulders of an exceedingly hard sienitic or porphyritic rock, doubtless the water worn relics of a glacial deposit. In many places the ridge is very barren, the trees scrubby and vegetation scant, yet no doubt a visit to it in the early part of the summer would be interesting to the naturalist. In September the most abundant insects are grasshoppers and crickets, and under the stones various species of ants, spiders and centipedes. Next to these, on the juniper bushes, were the insects known as "wheel bugs," from a longitudinal ridge on the thorax, which resembles a portion of a cog wheel. This is the *Reduvius (Prionotus) novemstrius* of entomologists.

For seven years (from 1841 to 1848) I had canvassed portions of Lancaster and York counties, and extended my excursions as far west as Hollidaysburg, and as far northwest as Hunters' and Lewis' lakes in Lycoming county, and yet I had never met with a single specimen of this insect. I think the first living specimen I ever met with was in the autumn of 1851 near the Schuylkill, in West Philadelphia. During the autumn of 1853 I took one or two specimens in the eastern suburbs of Lancaster city. From that period down to the present time they have very perceptibly increased, and are frequently found in Lancaster city, but there are few among the masses who know anything about their history and habits, hence many of them are wantonly destroyed. They are entirely carnivorous, feeding on other insects—and sometimes on each other—from their earliest infancy to their extremest age. They should be cherished and protected by all who have any interest in the production of the soil. In an earlier number of the *Lancaster Farmer* a description was given, illustrating how the young bridge over

the period of youthfulness, in relation to their feeding habits, through which, although fifty may be excluded from a single cluster of eggs, yet not more than half a dozen may finally reach maturity.

Mr. John Peterman, of Paradise township, donated a beautiful specimen of the Ringnecked snake, which he turned up with a plow in a field. It is said that the young common Black snake (*Bascantion Constrictor*) has a ringed neck, but that it disappears before the snake reaches maturity, but the descriptions accessible to me are silent on the subject. Authorities, however, state that there are three or four species of Ringnecked snakes in the United States, and the late Jacob Stauffer records one species as inhabiting Lancaster county, and that it is not rare: Namely, the *Diadophis punctatus*. Both these snakes, and also the *Scotophis allighanensis*, found in Lancaster county, were formerly included in the old genus *Coluber*, but the restless spirit of scientific progress has ruled them out, and placed them into different genera. Long years ago, when a mere boy, two Black snakes were known to me, one called the "racer" and the other the "chaser." The racer was the more slender of the two, and the snakes were doubtless those now known generally, to the scientific world, at *Bascantion* and *Scotophis*; and, of the latter, I helped to kill one that measured over five feet in length. Marvelous tales were told of these snakes, as to their size, their habits, and their dispositions; but the information was generally "hearsay" exaggerations, and it is doubtful whether any of them much exceeded the length I have mentioned. The specimen of Ringnecked snake donated by Mr. Peterman, is evidently immature, but it seems to be covered by De Kay's description in the natural history of New York.

Specimens of sulphuret of nickel and copper, from the "Gap mines," by Mr. Gill. In this connection it may be appropriate to state that the Gap mines are likely to be superseded by the discovery of more abundant and easier worked nickel ore in Colorado at different localities.

Cocoons of *Nematis ventricosus*, or "currant saw-fly," and also those of another Hymenopterous insect, *Tipbia inornata*, perforated, and the pupæ totally destroyed by *Anthrenes varians*, or common "museum beetle."

A small box containing the singular pendant cocoons of a small spider. It seems to be the *Theridion trigonum*, of Hentz, or a species very nearly allied to it, and was sent to one of the curators by Mr. J. B. Erb, of Lime Valley, Lancaster county, three or four years ago. Donated by S. S. R.

A small bottle containing the larvæ the pupa and the imago of a small dipterous insect, bred from diseased grapes. On comparison with the description and illustrations in the U. S. Entomologist's report for 1881-1882, published by the Department of Agriculture, I have no doubt it is what, by way of distinction, is known as "The Vine-loving Pomace-fly"—*Drosophila ampelophila* of Lowe. Of course, some of the details of that description I did not recognize in my observations, from the fact that mine were made under a much inferior magnifying power and, perhaps, also an inferior light.

Part of what was a large and most magnificent snow white fungus, which has become tarnished in drying, belonging to the *Boletus* family. It would perhaps be a legitimate question for discussion, as to whether the grass grew through the fungus or the fungus grew around the grass, as that of the two wags, as to whether the abbreviated caudal appendage of a canine had been cut off or driven in.

A specimen of the granite of which the "new Mormon temple is built, or being built, donated by Mr. Irving Rawlins, a native of Lancaster county, but now residing at Ogden City, Utah.

A bottle containing a male and female specimen of the "Sprectre Insect" or "Walking Stick"—*Spectrum femoratum*—donated by M. W. W. Bullar, of Mountville. Also two immature specimens of the "Harlequin bug"—*Strachia histrionica*—from Mr. John B. Garber, of Maytown. Also, a beautiful, large orange-colored spider—*Epelra glaciis*? sent by

some nameless person by mail. The "Harlequin" is fully as destructive to the cabbage crop as the "green worm" is, when it becomes abundant. It has long been known south of us, and even in eastern Pennsylvania, and it would be a great misfortune should it become numerous in Lancaster county.

Three mounted specimens of exotic plants, and 16 specimens of unmounted plants, from the Dillerville swamp, also a bottle containing peach stems infested with *Lecanium Persica*, a species of cocoon or scale insect; and an old fashioned shutter fastener from an old residence in Lancaster donated by S. M. Sener.

Donations to the Library.

Lancaster Farmer for October, 1883; *Sanitary Engineer* for October, 1883; four pamphlet catalogues; preface to Dr. McCosh's Lectures on Evolution; eight envelopes of 53 miscellaneous scraps; *Patent Office Gazette*, Nos. 1 to 4 of Vol. 25; copy of *Science* for September, 1883; six catalogues and two letters. A paper was read by Dr. Rathvon on "Grape Infestations," which was very interesting indeed. The adoption of amendments to constitution and by laws again laid on the table till some other meeting.

Robert C. Balr, of York Furnace, York county, was then elected a correspondent, and Walter P. King, of Lancaster, was elected a regular member.

The treasurer then presented a bill of \$27.95 for binding, and one of \$5 for subscription to proceedings of Academy of Natural Sciences for 1883, and 60 cents for postal cards. On motion these bills were ordered to be paid.

After the transaction of some minor business the society adjourned to meet on Saturday afternoon, November 24, 1883, at 2:30 P. M., in museum.

HORTICULTURE.

Overdoing Cultivation.

A farmer tried the experiment last year, of raking several plots, so that the soil was as fine as possible, and then sowing wheat. The effects of this extra care were not evident in better crop or larger heads. There is such a thing as making a soil too powdery. If it is at all heavy soil it will crust over and bake, after the first hard rain, like cement. We know a farmer who, after getting his corn ground in good order, invariably goes over it two or three times more with the expectation of making it in better condition for the growing of corn. With all his cultivation he never raises a very large crop, no more and frequently not as good as do his neighbors with good but not extra cultivation previous to planting. Enough seems to be sufficient for all practical purposes in such cases, and that there can be too much cultivation of the soil when either wet or dry is evident to most practical farmers. It is, however, not of frequent occurrence, and few err in this direction. The general rule is too little rather than too much.—*Michigan Farmer*.

About Bulbs.

It is pleasant to notice that within the last decade the cultivation of the family of bulbs has considerably increased, though not nearly to the extent they should be. These flowers, with the single exception of the rose, take precedence in point of beauty and attractiveness over all others. The first half of November is perhaps the most suitable time to set out nearly all varieties of the bulb, including the Hyacinth, Tulip, Narcissus, Snowdrop, Crocus, Japan Lilies, American Turk's Cap, Grant Lily, etc. The *Gladiolus* does best when potted late in October, or not later than the middle of November. Take eight or twelve good sized pots and fill them with the largest mass of corms or bulbs the pot will admit, and place the pots in the conservatory or wherever there is a sufficiently mild temperature and then about the middle of April plant them out in rows about one foot apart and three or four inches deep. The Crown Imperial ought to be taken up and replanted as soon as they are done blooming and the

flower stalks are decayed; but they can also be taken up in autumn, buried in sand in the cellar and set out in April. All these require a deep, rich, sandy or very light soil, and except the Hyacinth and the Gladiolus, it is not necessary to take them up and replant yearly. Indeed, we seldom replant the Crocus and Snowdrop, except for the purpose of extending the bed. The Tulip should be taken up about every third year; the Lillie's every year. Those taken up should be preserved in sand through the winter, occasionally moistened a little in the cellar or a pit and placed on shelves. They must be protected against mice or they will play havoc with them; and this can be done by covering them with sand or soil.—*German town Telegraph.*

Whitewashing Apple Trees—Scraping and Washing.

This very old mode, among tidy farmers, to make their apple orchards look nice, but which for many years has been next to abandoned, is coming into vogue again, and discussions are being indulged in as to the propriety of it. What we know about the matter ourselves is that we do not think it makes much difference, so far as the health or productiveness of the trees are concerned, whether they are whitewashed or not. In other words we don't think "it pays." It certainly has a tendency to close the pores of the trunks as well as that it has an unnatural appearance. Some people believe that the whitewash causes the old bark to scale off and the hiding place of insects to be disturbed, and this is about all that is claimed for it, but how much better for every farmer having an orchard, to *scrape* the trees once a year, or only every other year, and follow it with a *washing* of whale oil soap or carbolic soap and water, applied with a stout broom. This would be *sure* to dislodge the insects, open the pores of the trees and give them a natural healthy appearance. This would do the work effectually, and leave no room for doubt or discussion.

Whatever aid the whitewashing of trees may be to their health and productiveness, the best orchards we ever saw, which bore full crops for a generation, were *not* whitewashed, but scraped and washed with "soft" soap and water. And the best time for this scraping and washing to take place is the end of November or beginning of December, or it may be done in the spring, not later than early in March before the insects have begun their rounds.—*German town Telegraph.*

Vines on Houses.

It is generally supposed that vines make houses damp, for which reason there are not nearly as many cottages and houses beautified with vines as there should be. It is only when the climbers are allowed to cover the eaves and obstruct the gutters, or find their way under the shingles, that they become objectionable, and these conditions should of course, be carefully guarded against. The *Gardeners' Monthly's* remarks in this respect are well taken: "Vines should always be kept cut down below the roof. It is a little trouble to do this once a year, but we can not get even our shoes blackened without some trouble. Those who know how beautiful and how cosy look a vine-covered cottage will not object to the few hours' labor it requires to keep vines from stopping up the gutter. Vines really make a wall dry. The millions of rootlets by which they adhere to the wall absorb water, and an examination will prove a vine-covered wall to be as 'dry as an old bone.' One great advantage of a vine-covered cottage, not often thought of, is that it is cooler in summer and warmer in winter than when there is but a mere naked wall."—*American Gardener.*

Mulching Fruit Trees.

A member of the Oneida Community, writing on the importance of mulching fruit trees and plants of every kind, says that he mulched a row of the Franconia raspberry and also one of the Philadelphia side by side. The effect was very marked. While the Franconias, which were not mulched, were literally

scorched and the leaves crumbled in the sun, the row which received the mulching carried through nearly double the crop of fruit. The material used for mulching was old, half decayed buckwheat straw, etc.

To Blanch Celery.

The *Canadian Horticulturist* tells how to blanch celery: "To blanch easily and rapidly go on your knees astride the row; take the plant in one hand, shake it and squeeze it close to get out the earth from centre, holding in one hand; with the other draw the earth up to the plant on that side; take the plant in the other hand and draw the earth on that side, after which let go of the plant and draw the earth from both sides, pressing it against the plant. After your row is gone over and blanched finish up with a hoe. Two blanchings are enough. A sprinkling of salt along the row has been found to be of advantage at the time of blanching."

Watering Plants.

Ben Perley Poore says in the *American Cultivator*: "Plants should never be watered in the heat of the day in hot weather, nor in the evening when there is any danger of frost. When sunshine long-continued, says Darwin, has stimulated the plant into violent action, if that stimulus of heat be suddenly diminished by the effusion of cold water, or by its sudden evaporation, death ensues, exactly as it has frequently happened to those who have bathed in cold spring water after having been heated by violent and continued exercise on a hot day. Very lately in this city some very precious plants, by accident, were not watered early in the morning, but at 11 o'clock, when the pots and the earth were much heated; the consequence was the sudden death of six out of eleven of them."

Importance of Hoeing.

An English gardener, Mr. Barnea, of Devonshire, in giving an opinion of the importance of hoeing, said he "did not agree with those who say that one good weeding is worth two hoeings. I say never weed any crop in which a hoe can be got between the plants, not so much for the sake of destroying the weeds and vermin, which must necessarily be the case if the hoeing be done well, as for increasing the porosity of the soil to allow the water and air to penetrate freely through it." He adds: "I am well convinced, by long and close practice, that oftentimes there is more benefit derived by crops from keeping them well hoed than there is from the manure applied. Weeds or no weeds, I still keep stirring the soil, well knowing from practice the very beneficial effects it has."

HOUSEHOLD RECIPES.

CHICKEN FRITTERS.—Cut cold roasted or boiled chicken in small pieces, and place in an earthen dish. Season well with salt, pepper and the juice of a fresh lemon. Let the meat stand one hour; then make a fritter batter, and stir the pieces into it. Drop, by the spoonful, into boiling fat, and fry till a light brown. Drain and serve immediately. Any kind of cold meat, if tender, can be used in this way.—*N. Y. Times.*

JENNY LIND PUDDING.—Peel ten or twelve good tart apples and slice them very thin, or chop fine; grate several thick slices of dry bread, or rub them through a colander; place in a pudding dish, well buttered, a layer of apple, with plenty of sugar and grated lemon-peel, or powdered cassia; then a layer of bread crumbs, with bits of butter scattered over it; fill up the dish in this way, and bake for three-quarters of an hour; serve with whipped cream.—*The Household.*

GRAHAM GEMS.—One quart Graham flour, one and a half teaspoonfuls sugar, one teaspoonful salt, two large teaspoonfuls Royal Baking Powder, one pint milk. Sift Graham flour, sugar, salt and pow-

der together thoroughly, add the milk, mix into a smooth batter as for griddle cakes. Bake in a hot oven twelve minutes.

SALLY LUNNS.—One quart flour, one teaspoonful salt, two teaspoonfuls Royal Baking Powder, two-thirds cup butter, four eggs, half pint milk. Sift together flour, salt and powder, rub in the butter cold, add the beaten eggs and milk. Mix into a firm batter like cup cake, pour into two round cake tins the size of pie-plates, bake twenty-five minutes in a pretty hot oven, or until a straw thrust into it gently comes out free of dough.

GRAHAM MUFFINS.—One quart Graham flour, two tablespoonfuls sugar, two eggs, half teaspoonful butter, one tablespoonful baking powder, a little salt; moisten and mix thoroughly with a little milk. Bake in patty pans at once, in a quick oven.

CORN-MEAL MUFFINS.—Three eggs well beaten, whites and yolks separately, two heaping cupfuls Indian meal and one of flour, one teaspoonful soda and two of cream tartar, add a teaspoonful of lard melted, three cupfuls milk, one teaspoonful salt; beat well and bake quickly in rings.

NEW ENGLAND PANCAKES.—Mix a pint of milk, four teaspoonfuls fine flour, seven yolks and four whites of eggs, a very little salt; fry very thin in fresh butter; between each strew sugar and cinnamon.

JOHNNY CAKE.—One quart Indian meal, two-teaspoonfuls Gillett's Baking Powder, one-third teaspoonful salt; mix well; add sufficient milk and water to make a batter; pour into a greased tin, bake at once in quick oven.

COMMON CAKE.—Four cups flour, two cups sugar, two cups sour milk, one tablespoonful butter, one teaspoonful salaratus, few raisins and a small quantity nutmeg.

DOVER CAKE.—One cup butter, two cupfuls sugar, one and a half pints flour, one teaspoonful Royal Baking Powder, one cup milk, a teaspoonful extract cinnamon or orange.

FRENCH PUFFS.—Three cups flour, three teaspoonfuls melted butter, three eggs, white and yolks beaten separately and very light, three cups milk, a saltspoonful of salt.

MRS. P.'S GINGER CAKES.—Half pound butter, half teacup cold water, an ordinary bowlful of molasses, teaspoonful ginger, teaspoonful salaratus.

VELVET CAKE.—Mix the yolks of three eggs with a quart of new milk, add a teaspoonful salt and enough flour to make a batter, whip in the whites of three eggs. Bake at once.

CHOCOLATE CHARLOTTE ROUSSE.—Heat one pint of cream to boiling, add half cupful powdered sugar, three tablespoonfuls of grated chocolate rubbed in milk, half an ounce of gelatine; when these are thoroughly dissolved, add slowly the yolks of four eggs well beaten. Set in a pan of water five minutes, stirring until hot, not boiling; take it out and beat to a froth, adding the whites of the eggs. Put your sponge in your moulds, fill with this mixture.

DUCHESS CAKE.—One and a half cups butter, one cupful sugar, six eggs, one teaspoonful Royal Baking Powder, mix with one pint flour, teaspoonful extract cinnamon. Rub butter and sugar to light cream, add eggs two at a time, beating well between each; mix into medium thick batter, bake thirty minutes, take from the oven and ice.

MOUNTAIN CAKE.—One cup butter, two and a half cupfuls sugar, three whole eggs and three yolks, pint of flour, one and a half teaspoonfuls Royal Baking Powder, one cupful milk, one teaspoonful extract vanilla, one cupful currant jelly, two cupfuls sugar, three whites of eggs.

FINE FRUIT CAKE.—One cup brown sugar, one of sweet milk, one of butter, one of molasses, one teaspoonful baking powder, one and a half pounds raisins chopped, one nutmeg, a little brandy. This will make two loaves, and if kept in an earthen pot, covered, will keep a month.

SUET PUDDING.—Three cups flour, two teaspoon-

fuls Gillett's Baking Powder, half teaspoonful salt; mix and add one cup suet chopped fine, one cup fruit, two-thirds cup sugar, milk and water to make a stiff batter. Steam an hour and a half.

BAVARIAN CREAM.—One quart sweet cream, yolks five eggs, one-half ounce gelatine, one small cup sugar, wine-glass Jamaica rum. Beat the yolks of the eggs and the sugar together; pour on the gelatine enough water to cover it; when this has stood for an hour mix with half the cream, boiling hot, which then beat in thoroughly with the eggs and sugar. Put on the fire until it begins to thicken, then remove and add the Jamaica rum. The other half the cream should be thoroughly whipped and now beat in very gradually. Pour into a jelly mould, and set in a cool place to form.

CATSKILL MOUNTAIN PUDDING.—One quart flour, two teaspoonfuls Gillett's Baking Powder, half teaspoonful salt, one tablespoon sugar, one of butter; mix and add two beaten eggs and one pint of milk. Bake in a dish or bowl in a mould.

MARY B'S CAKE.—One-half pound butter, three-quarters pound flour, four eggs, half a nutmeg, small glass wine.

COCOANUT CAKE.—One pound sugar, half pound butter, three-quarters pound flour, six eggs, one cocoanut grated; mix butter, sugar and yolks, well beaten, then the whites well beaten, then the flour, then the cocoanut.

LADY CAKE.—One pound flour, five eggs, one pound sugar, tumbler milk, teaspoonful soda, half pound butter, juice and rind one lemon, ten bitter almonds pounded. Bake thin.

SILVER CAKE.—Two cups sugar, one cup butter, mix them, stir in the whites of eight eggs, add three-quarters cup sweet milk, three cups flour sifted with two teaspoonfuls Gillett's Baking Powder; flavor to suit the taste, stir together, bake at once.

WINE CAKE.—One and a half cups of butter, two cups sugar, two cups flour, half teaspoonful Royal Baking Powder, one gill wine, three eggs. Rub the butter and sugar to light cream, add the eggs—one at a time—beating four minutes between each; add the flour sifted with the powder, and the wine, bake in moderate oven forty minutes. Ice when taken from the oven.

MACARONI A L'ITALIENNE.—Take one-fourth pound macaroni, boil it in water till tender; thicken one-half pint milk with two tablespoons flour; add two tablespoons cream; one-half tablespoon mustard, a little white pepper and salt. Stir into this one-half pound of grated cheese; boil all together a few minutes, add the macaroni, and boil ten minutes. This is the mode adopted at the best tables in Florence.

RICE JELLY.—Soak half cup rice two hours in warm water; put a pinch of salt into three pints of water, and add to the rice; simmer half an hour; then boil until the water is reduced one-half and it becomes a smooth paste; strain through a cloth.

WINE WHEY.—Boil a pint of milk; when scalding hot, pour in a large glass of wine. Boil once—remove from fire and cool, without stirring. When the curd forms, draw off the whey and sweeten.

ARROWROOT CUSTARD.—Mix three large teaspoonfuls arrowroot with a little cold milk, then mix this with two cupfuls boiling milk; add two tablespoonfuls white sugar beaten with an egg, after taking from the fire. Boil three minutes longer, then flavor.

FLOATING ISLAND.—Beat the yolks of four eggs, stir in four large tablespoonfuls white sugar; add one quart warm milk, a little at a time. Boil until it begins to thicken. When cool, flavor; stir well; pour into a dish. Put upon this the whites of the eggs, into which has been beaten half cup currant jelly.

CHOCOLATE CAKE.—Beat the whites of two eggs, with quarter pound powdered sugar, into a cream; to this add six ounces grated chocolate fine and the juice of half a lemon. Drop this mixed on flat baker and bake slowly.

WHITE LILY CAKE.—Whites of half dozen eggs, two cups sugar, three cups flour, one cup sweet milk, three-quarters cup butter, two teaspoonfuls Royal Baking Powder.

VIENNA ROLLS.—One quart flour, half teaspoonful salt, two teaspoonfuls Royal Baking Powder, one tablespoonful lard, one pint milk; sift together flour, salt and powder, rub in the lard cold, add the milk and mix into a smooth dough in the bowl easy to be handled without sticking to the hands or board; flour the board, turn it out and give it a quick knead or two to equalize it, then roll it out to the thickness of half an inch, cut with round cutter, fold one-half on the other, doubling it, lay on a greased baking sheet without touching; wash with a little milk to glaze them; bake in hot oven fifteen minutes.

HOMINY CROQUETTES.—To one teacup of cold boiled hominy add a teaspoonful melted butter and stir it well, adding by degrees a cupful of milk till all is made into a soft, light paste, add a teaspoonful white sugar and one well-beaten egg. Roll into oval balls with floured hands, dip into beaten egg, then in rolled cracker-crumbs, and fry in hot lard.

LIVE STOCK.

The Treatment of Dairy Cows.

Mr. J. A. Smith, a western dairyman, writing of the importance of the feed and proper treatment of dairy cows, gives some excellent suggestions on this topic. He says that dairymen are often surprised at the light weight of their milk the next morning after a cold rainstorm, through which their cows have suffered unstabled, and it is only a natural result of such treatment. The cow does not eat as much, for one thing; and another is, part of what she does eat goes to repair the waste of her system in withstanding the effects of the storm, and that keeps a per cent. out of the milk pail, until she has recovered from the effects of such exposure. It is also true that a cow, affected by short feed or painful exposure, not only loses in the quantity of her yield of milk, but in the amount of fatty matter it contains. In a word, nature has so organized the cow that she revenges herself on her owner's pocket, for cruel neglect and short feed; and a farmer might just as well try to dodge taxes and death as to risk the unwise treatment of a cow. In point of fact, when thus treated, she takes the first and gives the owner what skim milk she cannot assimilate. The only way to get a profit out of her is to fill her so full that she runs over, and take the surplus for your gold mine.—*Midland Farmer*.

Feeding Animals.

The practice of feeding must be regulated by the science of feeding. It is one of those operations which depend upon principles, and the practice of it must be governed by these. No man can go through the endless number of tests and experiments which would be necessary for the knowledge of the effects of food upon the condition and products of his animals, blindly groping without a guide in a vain endeavor to find what is best, under each of the infinitely varying circumstances which might occur. Life is too short for that. And if it were possible, no one could deduce from the results any law, or code of laws, which would be a guide for others, within reasonable and practicable limits. And so each man's life would be spent in a never-ending labor of experiment which must be taken up by his successors and done over again. Therefore, we must begin at the other end, first learning by accurate study the nature of our animals, and by analysis the character of the foods, so that when we know what our animals need and the exact kind of aliment we have to give to them, we have an easy point to start from, and one from which we can diverge in this or that direction. And so all the investigations into the laws which control the nutrition, growth and chemistry of an animal and those which make known the chemistry of the various foods are of the utmost value to farmers and others interested in feeding live stock of all kinds.

In considering the subject of feeding animals there are several differing points to be noted. The nature and requirements vary in young and growing, mature and fattening, working and milking animals; and each of these will require special study. A young animal adds muscle and bone to its substance, requiring food rich in proteine or muscle-forming matters, and in phosphoric acid and lime or bone-producing matters, as well as sufficient carbohydrates for supplying the vital heat and what force may be expended. A fattening animal requires principally the last of these, because the object is to overload the already formed frame and tissues with fat. A working animal, generally matured as to its growth, requires much about the same, because the fat-forming matters may be expended in producing force and the increased respiration and heat, but some proteine matters will also be needed to supply the waste of muscular tissue. A milking animal also fully formed requires such food as will enable it to yield milk of the richest kind; and as milk contains precisely the elements which go to make up the substance of a young and growing animal, with the addition of food rich in fat, a cow requires the feeding of a young animal and that of a fattenlog one within certain judicious limits. It is thus seen how complex and difficult a matter it is to feed an ordinary mixed farm stock consisting of horses, colts, cows, calves, oxen, heaves, sheep, lambs, pigs and poultry, without putting valuable food material uselessly—and sometimes mischievously to the animals—into the manure heap, on the one hand, and on the other to satisfy fully the varying requirements of each animal.—*N. Y. Times*.

The "Coming Cow."

The position that the "coming cow" is to be one well adapted for both beef and milk production we believe to be correct, if it be not pushed too far. There is an increasing number of dairy farmers who find it best to give almost exclusive attention to the quantity and quality of the milk given by their cows, caring little about their merits as beef makers. So there are beef-producing farmers who properly count it a disadvantage if a cow gives a large flow of milk. This is true on the western plains. It is true of such farmers as J. D. Gillette, who only asks for a cow that shall produce and feed a calf each year. Both these classes form but a minority of cattle raisers. The most successful dairyman and the producers of the very finest beef animals may be found in these classes; but the great majority of cows and steers for beef are, and long will continue to be, raised by men who cannot afford to ignore either the milk-giving or the meat-producing quality. For such men the popular breed must be one with deserved claims to good quality in both directions. It is quite possible that several breeds may, in the future, be claimants for highest merit for the double purpose, but the course of breeding now adopted by the special friends of most leading breeds is calculated to develop one of these qualities at the expense of the other. The Shorthorn has never been surpassed, if equaled, as a "general purpose cow." Ought she to lose all reputation as a dairy cow?—*Breeders' Gazette*.

Selecting Ewes.

It useless to keep old breeding ewes, not so much on account of their greater liability to disease as for the reason that by frequent changes the flock is more quickly improved. The breeder who keeps old ewes is not one who improves, especially if the flock is a common one. In selecting young ewes the largest and best formed must be retained. Examination of each one separately is the proper mode, the length and fineness of the wool being also considered. A good ewe has something to do besides merely becoming the mother of a lamb. She must supply it with food, and the capacity of her udder is not alone sufficient. She must be sound, healthy, a good feeder, and possess depth of carcass and length of body generally. The future growth and early maturity of the lamb depends upon the care of it in the begin-

uing, and any ewe in the flock that has been found deficient in those points necessary for a dam should be cast aside for a better animal. The march of improvement has been mostly in the use of the blooded sire, but the characteristics of the dam largely influence her offspring. It is true a blooded ram confers rapid improvement in a flock; but his influence will be more powerful and lasting if he is allowed in a flock where the ewes have been carefully selected. Some ewes are entirely unfitted for crossing with rams of the Cotswold breed, for the lambs, being heavy feeders and quick growers, cannot procure a sufficient supply of nourishment from their dams, and if the dams are old and inactive the difficulty is augmented by their inability to partially assist themselves. Nor do we approve of breeding a very young ewe with Cotswold or Lincoln rams, but prefer to wait until the second lambing. In crossing with Cotswolds everything depends on the capacity of the ewe to feed her lamb, and in order to do so she must be in full bodily vigor. Many mistakes have been made in breeding through failure to select the best ewes from the flock, for it is necessary for success to be as careful regarding the dam as with the sires.

The Intelligence of a Horse.

An old blind horse belonging to a small tradesman and farmer was turned out to graze on the common near the owner's house. For some cause it wound its way through lanes to the blacksmith's, where he had often been before. The entrance to the forge is difficult of access on account of the ditches on either side, but the animal reached it safely, took its stand by the forge, and then neighed. The blacksmith, being at work in his garden, and hearing a horse neigh, looked for it, and not seeing it, returned to his gardening operations. In a short time he heard it again, but could not see a horse anywhere, until he went into his shop, when he found it standing very quietly by the forge as if waiting to be shod. Thinking some one must have brought it there, the blacksmith looked at its feet, and found one with the shoes pressing into the frog, causing great pain. He then put on another shoe and sent the horse back to its owner.—*Nature*.

Are Our Sheep Improving?

The Report of the Department of Agriculture gives the number of sheep for 1861 as 21,500,000 and the production of wool as 55,000,000 pounds. This gives an average fleece of 2.55 pounds. In 1870 there were 34,000,000 of sheep and 135,000,000 pounds of wool. This gives an average fleece of 3.97 pounds, and is a gain of 55 per cent. in ten years. This result does not look like a backward movement in this industry. A gain of 55 per cent. in ten years ought to be considered very good progress. There has been no report from the Department as to the production of wool during the period between 1870 and 1880, but there has, no doubt, been a steady progress during this last decade. Sheep are kept for wool and carcass, and this large increase in the production of wool indicates a corresponding increase in the weight of carcass. We must therefore, conclude that our flocks are making satisfactory progress. This progress is largely attributable to the use of purely-bred Merino rams upon the rough, thin-wooled native ewes of Colorado, California and Texas, as well as of the Western States generally. And with this desire to improve the form of the sheep has come a clearer perception of the relation of food to growth. The modern sheep farmer, who has studied his business, is now well aware that a large, finely-formed animal represents generous and judicious feeding.—*National Live Stock Journal*.

Bad Habits in the Poultry Yard.

Much of the trouble and vexation created in the management of poultry is caused by the fowls contracting habits, which, when once formed, are very hard to break. One of the principal and most aggravating habits is that of eating eggs.

When the fowls are confined in close quarters and

have very little exercise they get in the habit of scratching the straw in their nests for want of some other exercise. After an egg is once broken they, of course, eat it, and in this way the habit is formed. This, as well as all other habits are formed only when the fowls are confined in small yards and have very little exercise, and anything that offers they are ready and willing to do. This is one of their worst habits and a very hard one to break. Much has been said on this subject; however, prevention is far better and easier than cure. To avoid all this trouble the fowls should have plenty of occupation outside of the hen-house. Give them corn on the cob and let them labor a little for their food—the more the better. Another bad habit, and one that is extremely vexatious to the fancier, is that of feather eating. This habit, and one that is also formed purely from want of something better to do and an appetite is soon acquired. When fowls are allowed to run at large they gather innumerable insects as well as vegetable food of all kinds, and if a good supply of animal and vegetable food is not given them when confined these habits are easily formed. Both these habits are acquired by all breeds but the rapid layers and non-setters are the worst, for they possess an almost irresistible appetite for animal food, and it is the gratifying of this appetite that gives us so many eggs. Another habit is high-flying, which is formed by placing the roosts high in the coop, and it is for this reason principally that low roosts are recommended. Remember when fowls are confined they depend entirely on their keeper for their feed, which should be given them regularly and in such quantities that none will be left to spoil on the ground.

Fowls delight to scratch in loose ground, and if a portion of their yard is dug up at intervals it will afford them the exercise they so much need.—*H. S. Walds, in South and West*.

Poultry Notes.

Those who are handling the White Cochin will find that they will do better if they are allowed to run where there is white or light-colored sand.

It should be borne in mind by those who have fowls confined, that green food is essential. It matters not what kind, but it is absolutely necessary.

The *Fanciers' Gazette* says that if a chick is discovered watering at the eyes and running at the nose, give it half a teaspoonful of castor oil and place it in warm quarters. So say we.

There should be good judgment used in the selection of breeding fowls. Vigorous females, as well as males, should be selected. We mean by this that the color of plumage, symmetry, and the carriage that denotes good health, should be considered.

To the inexperienced we will remark, that it is best not to try to keep too many kinds of fowls. One breed, if well cared for, is better than a dozen that will soon mix and be of no distinct kind. For all purposes, we believe the Plymouth Rock to be the best.

It is a noted fact, established by experience, that fowls produce eggs in an inverse ratio to the number kept, which militates against keeping fowls on a large scale. Where there are so many together, various causes lower the vitality and cause a falling off of egg products.—*Dairy and Farm Journal*.

LITERARY AND PERSONAL.

ENTOMOLOGICAL LITERATURE.—Fifty years ago the Entomologists and the Entomological literature of the United States were very limited. The elder and younger Melsheimers, Say, Peck, Hentz, Harris, and a few other names were pretty much all that could be mentioned, and their contributions were scattered through the proceedings of various societies, or through the columns of various agricultural and secular newspapers, and very few of these treated the subject in a practical and popular manner. Very few people—even those sufficiently intelligent on other subjects—really knew what the term *Entomology* meant; hence, when we, on one occasion, sent a collection of American insects to Europe

through a gentleman then residing in Lancaster, it was editorially announced, through one of the city newspapers that a Lancaster county "Etymologist" had sent a collection of insects to Heidelberg in Germany. No systematic catalogue of American Entomologists or Entomological literature is now accessible to us, but we know they have greatly multiplied since fifty years ago. Recently, however, we received a copy of "Bibliothèque Entomologique" for September, 1883, containing annual catalogue No. 2, by ED. ANDRE, a dealer in Entomological works in France, and the common reader would be astonished at the richness of the literature upon objects that only elicit the average indifference, if not contempt, among the masses of mankind. Herein we find recorded in an alphabetical list, the names of 340 authors, composing 1359 books, papers, essays, and other works, on the Order COLEOPTERA alone; each author having contributed at least one, several of them as high as fifty, and EDW. REITTER, of Berlin, Prussia, 88; and these contributions to *Coleopterology* are printed in the English, German, Dutch, French, Spanish and Latin languages. The same catalogue also contains the names of 94 authors on HYMENOPTERA, and their contributions number 223. Besides these, 38 authors have produced 54 works on ORTHOPTERA; 23 have produced 54 on NEMOPTERA; 62 ditto 198 papers on HEMIPTERA; 148 do. 386 on LEPIDOPTERA; 77 do. 214 papers on DIPTERA. In addition to the foregoing, other authors are enumerated on ARACHNIDA, CRUSTACEA, MYRIAPODA, ANNULOSA and MISCELANIA, but our analysis will only include the INSECTA, under their scientific restrictions.

Here are seven orders of insects, (not including the *Thysanura*, *Parasita*, and *Aptera*) upon which seven hundred men of intellect, (we have deducted eighty two from the whole number for duplications, because some of them have studied and written upon several orders) have devoted their physical and mental energies, their time, and much of their pecuniary means, to the collection, history, and description of objects for which many people can find no more appropriate name than "bugs," and for those who make them specialties, no other name than "buggers;" and these seven hundred have written 2,518 separate papers, books, pamphlets or essays in elucidation thereof, to say nothing about figures, drawings, and sketchings, by way of illustration.

Of course, this does not include the entire bulk of the scientific literature of these entomological authors, for we may suppose that some of their works are "out of print," and hence not catalogued, and also that many others remain in manuscript. These several contributions, in price, range from 25 centimes, all the way up to 100 francs. Edwards' "Butterflies of North America" is catalogued at \$30 a volume, and Smiths and Abbot on the insects of the Southern States, at \$50.00, in *American lists of Entomological literature*.

Distinct and separate entomological organizations now exist in the United States, in Canada, in Europe, in Asia and in Australia, and many of these associations and clubs publish regular serials of their proceedings in pamphlet or book form, and illustrate them with beautiful colored engravings, and many thousands of wood-cuts.

Perhaps, no department in natural history has now a more extensive literature than Entomology, not even in the United States, where the subject, compared with the older countries, may be regarded as recent in its development.

A glance at the "Naturalists Directory" will illustrate that although the entomologists of the United States fifty years ago could not be counted by dozens, yet now they can be counted by hundreds, and the literature upon the subject has increased from a few scattered contributions to hundreds of volumes. Thomas Say was, perhaps, the first man whose contributions were gathered together and published in book form. And all these labors, and this literature relate to objects, which the majority of mankind, think far beneath their notice, or even contemplation.

THE DAIRY AND FARM JOURNAL.—A 4 paged folio published monthly at West Liberty, Iowa, at 75 cents a year in advance, by "Journal Publishing Company." I. Maxson and C. Elliot, editors, with two assistant and seven associate editors, besides a live corps of contributors, correspondents, etc., all indicating that it is "bound to go," and if subsequent numbers only equal that of November, 1883, it deserves success.

THE IRISH FARM, FOREST AND GARDEN.—No. 41. Vol. 1, new series of this super-royal quarto (October 20), has reached the table of our *sanctum*, and we greet it as an "old familiar," and accord it a hearty "God bless auld Ireland." This journal is very substantially gotten up, and abounds in solid and useful reading matter on topics relating to its specialties. From the 22d to the 27th of October, 1883, only 65 fairs were held in Ireland, and a goodly number of them in the county of Donegal, where they "eat paratees skins and all." Some of these fairs are nominally restricted to special productions of the soil, for instance, the *Onion Fair* at Waterford, on Thursday, October 25th. These names have a cherished recollection with us, for we were born in Waterford, in the township of Donegal, Lancaster county, Pa., said village subsequently becoming incorporated with the village of New Haven, under the corporate title of Marietta borough. The large advertising patronage of this journal must assure its financial success, but independent of all that, its teeming columns of practical agricultural and domestic matter, make it *worthy* of success and of public confidence.

FORESTRY IN THE UNITED STATES.—Department of Agriculture, special report No. 1, containing the address of Hon. George B. Loring, U. S. Commissioner of Agriculture, before the "American Forestry Congress," held at Saint Paul, Minnesota, August 8, 1883; an octavo pamphlet of 41 pp. uniform with the usual bulletins issued by the office, in which the forests of Europe and America are illustrated in interesting and practical detail.

REPORT ON CONDITION OF CROPS, yield of grain per acre, and on freight rates and transportation companies; October, 1883; 28 pp. uniform with the above, being report No. 1, new series, division of statistics.

AN INVESTIGATION OF THE COMPOSITION OF AMERICAN WHEAT AND CORN, by Clifford Richardson, assistant chemist of the U. S. Department of Agriculture, being Bulletin No. 1 of the Chemical Division; 67 pp. octavo, in which many interesting practical details and statistical tables are given, and furnishing the means of agricultural intelligence to those who have "ears to hear" what science is able to contribute to the subject—a subject involving the most important material interest to mankind.

A NOBLE DOZEN.—Self imposed Taxes, by John E. Read, 1; Golden Opportunities, by Joseph, 2; The Granger's Club, by M. K. Boyer, Jr., 3; Leather as Fertilizers, by Beedy Aich, 4; Best Melon for Market, by Thos. D. Baird, 5; Peppers, by N. J. Shepherd, 6; Draining, by W. D. Boynton, 7; Texas Hybrid Pink Blackberry, by S. A. Mahon, 8; Apple Varieties and Planting, Eli Minich, 9; Economy of Shelter, by John M. Stahe, 10; To free the house from Vermin, by Experience, 11; Growth of Young Chickens, by A Subscriber, 12.

We find the above twelve contributions by twelve different writers in a single number of the *Farm and Garden* (Nov. 1883) published in Philadelphia, by Child & Bro. at 50 cts a year, and we allude to this Journal again because the Editor makes the following standing confession at the head of his editorial column, and in spite of the old maxim that "comparisons are odious," we desire our patrons to draw the line themselves.—

"Our subscribers have done most of the work of building up *The Farm and Garden*, and the time is now coming for them to secure us renewals of all old subscribers, and many new ones. Remember, we depend on you."

And to make the matter more emphatic the paragraph is printed in italics and capitals.

The above named contributions, and the quoted paragraph, condenses the whole subject within a nutshell. Most subscribers hereabouts look wholly and solely to the editor or publisher for their literary repast as if they were inexhaustible cornucopias of literary pabulum. It is the subscribers and contributors that build up a healthy and enduring journal; without their sustaining aid, the best conducted journal, or other publication, in the world, must ultimately dwindle down to a mere skeleton, or, in waggish parlance, the mere "running gears" of a paper. We may also legitimately say—"Remember we depend on you."

We use this merely as an illustration; but there are hundreds of other journals in the Union, which base their success upon the same foundation. Cannot Lancaster county make some faint approximation to other communities in this respect.

THE CULTURE AND DISEASES OF THE PEACH.—History of the "Yellows," its causes and remedies; by John Rutter, West Chester, Pa., 1880. This is a neat little 12 mo. pamphlet of 94 pages in paper covers, with an index; parts of which were read before the "Pennsylvania Fruit-Growers Society," at its *twenty-first* annual meeting, held at Bethlehem, Pa., January 21 and 22, 1880, Judge Stitzel, President, in the chair. Mr. Rutter in this paper speaks with emphasis; and, having had 30 years experience in the cultivation and observation of the peach tree, he surely has a right so to speak; therefore, those peach culturists whose trees have suffered by the *yellows*, should by all means procure a copy of this work, study it, and make a practical application of its principles; and we urge the matter the more earnestly, because, since the publication of this book we have heard loud, long, and distressing complaints about the "peach-yellows," just as if nothing had ever been written and published on the subject. Possibly, those most interested in the matter do not patronize and read what *has been* published. Very few people outside of the profession read medicine, because they expect to employ a doctor—or one who makes the administration of medicine a specialty—when they see or feel that they need his services. Now, this ought to suggest the establishment of universities (not agricultural colleges), where the diseases and cures of vegetation are made a special study, and the degree of V. D. is conferred upon those who are qualified to receive it. This is what the *agricultural people* want with a few exceptions, instead of reading themselves up on a subject that so plainly relates to their own interest. Just at this time there is a greater need for Doctors of Vegetation, than for any other kind of doctors in the land for the dear people *will not know* the diseases of plants any more than they *will know themselves*. But in order to cover the whole ground until such a contemplated institution is established, we commend to them Mr. Rutter's "little book" as the best thing they can consult; because, what one man can do, others can do, *provided*, they know how. We may be able to *teach* others what we know, but they themselves must *learn* it; practically upon this subject, like any other, *there must be co operation*.

THE FARMER'S COMPANION and Prize Monthly; a royal four-paged folio, published at \$1 a year, by the Pratt Brothers, at Marlboro, Mass., will be furnished to subscribers to the LANCASTER FARMER, at the extraordinary low price of \$1.25 a year, to clubs of ten or more, accompanied by the cash; or to clubs of twenty, with the cash in advance, the two papers will be furnished at \$1.15 per year. The size of the pages of the *Farmer's Companion* are 25 by 20, eight columns to the page, and filled with the best agricultural and domestic reading; besides a liberal sprinkling of general literature. The material and typography are first class, and the matter unexceptionable. Although we have always contended that every farmer should patronize, at least, the local paper of his own county, town, or district, yet we never meant to confine him to this, if his means will allow him to go beyond; and here we furnish him an opportunity to go beyond at the smallest possible expense—less than many of them spend for cigars or tobacco in a single day. But we wish it distinctly understood that we cannot furnish the papers at the above prices to a less number than the clubs mentioned, with the cash in advance; and further more we may add, that we will furnish to clubs of fifty, the two papers for \$50 a year.

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Dr. S. S. Rathvon, who has so ably managed the editorial department in the past, will continue in the position of editor. His contributions 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. He is determined to make "The Farmer" a necessity to all households.

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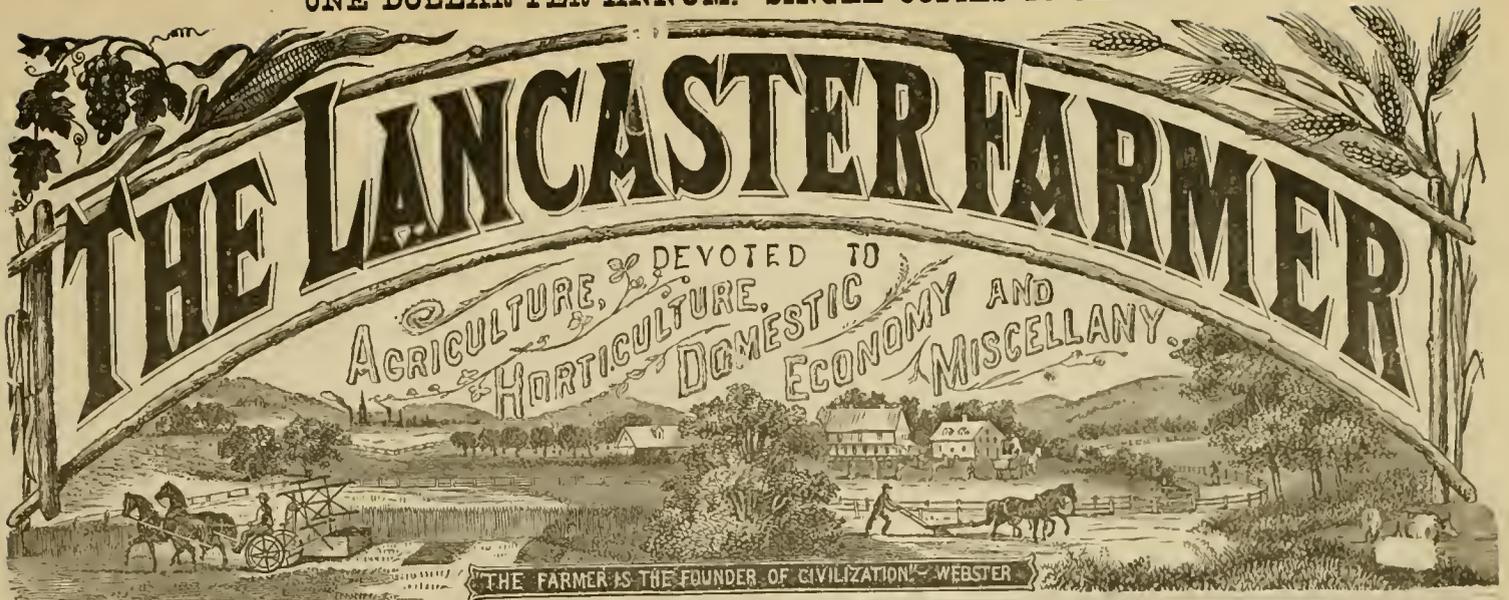
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JOHN A. HIESTAND, Publisher

Entered at the Post Office at Lancaster as Second Class Matter.

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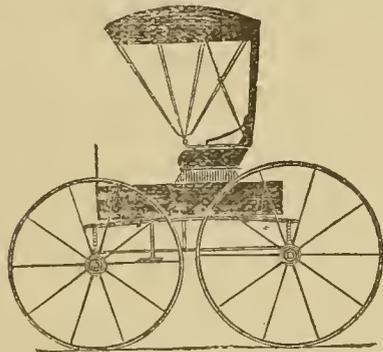
WE TWARD.	Leave Lancaster.	Arrive Harrisburg.
Pacific Express	1:35 a. m.	2:55 a. m.
News Express	6:25 a. m.	7:30 a. m.
Way Passenger	6:30 a. m.	8:50 a. m.
Mail Train via Mt. Joy	9:30 a. m.	10:50 a. m.
Mail No. 2 via Columbia	9:35 a. m.	11:05 a. m.
Niagara Express	9:45 a. m.	10:55 a. m.
Hanover Accommodation	9:50 a. m.	Col. 10:20 a. m.
Fast Line	1:35 p. m.	2:55 p. m.
Frederick Accommodation	1:45 p. m.	Col. 2:15 p. m.
Lancaster Accommodation	2:30 p. m.	4:00 p. m.
Harrisburg Accommodation	5:20 p. m.	7:20 p. m.
Columbia Accommodation	7:30 p. m.	Col. 8:15 p. m.
Harrisburg Express	7:40 p. m.	8:50 p. m.
Western Express	11:10 p. m.	12:25 a. m.

EASTWARD.	Lancaster.	Philadelphia
Mail Express	12:42 a. m.	2:55 a. m.
Philadelphia Express	2:27 a. m.	4:25 a. m.
Fast Line	5:35 a. m.	7:50 a. m.
Harrisburg Express	8:10 a. m.	10:20 a. m.
Columbia Accommodation	9:00 a. m.	11:45 a. m.
Seashore Express	12:58 p. m.	3:15 p. m.
Johnstown Express	2:20 p. m.	5:05 p. m.
Day Express	5:25 p. m.	7:25 p. m.
Harrisburg Accommodation	6:45 p. m.	9:45 p. m.

The Frederick Accommodation, west, connects at Lancaster with Fast Line, west, at 1:35 p. m., and runs to Frederick. Hanover Accommodation, west, connecting at Lancaster with Niagara Express at 9:45 a. m. will run through to Hanover daily except Sunday. Harrisburg Express, west, at 7:40 p. m. has direct connection to Columbia and York. The Fast Line, west, on Sunday, when flagged, will stop at Downingtown, Coatesville, Parkesburg, Mount Joy, Elizabethtown and Middletown. The Johnstown Express from the west, will connect at Harrisburg on Sundays with Sunday Mail east, for Philadelphia, via Marietta and Columbia.

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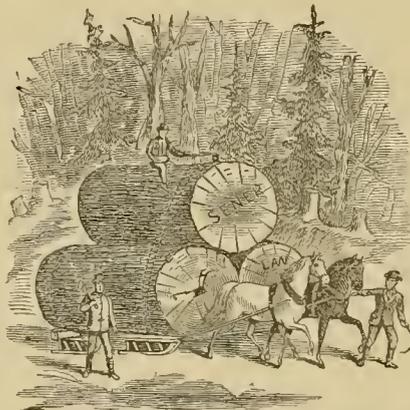
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The Lancaster Farmer.

Dr. S. S. RATHVON, Editor.

LANCASTER, PA., DECEMBER, 1883.

Vol. XV. No. 12.

EDITORIAL.

TO OUR PATRONS AND READERS

"Lo! in the silent night a child is born."

From January, 1869, to January, 1883, is fifteen years, according to popular reckoning, and therefore this *one hundred and eightieth monthly issue of the LANCASTER FARMER*—based on said reckoning—completes its *fifteenth* volume; or, the fifteenth year of its existence among the things that be. On the morning when the FARMER was ushered into a dubious existence, General Grant was President of these United States; Schuyler Colfax was Vice President; John W. Geary was Governor of the Commonwealth of Pennsylvania; Henry G. Long was President Judge of the Courts of Lancaster county, and Ferree Brinton and John J. Libhart were Associate Judges; Jacob F. Frey was Sheriff of the county, and George Sanderson was Mayor of Lancaster city. These names, and the official stations attached to them, we merely insert as landmarks in our local history, and as an illustration of the eventful mutations in the onward strides of time. Although only fifteen years have sped, not one of the above named functionaries exercise the powers they did on the day when the FARMER was born, and one-half of them have passed to that "bourne from whence no traveler returns;" hence, the *past* is, or ought to be, a lesson to the *present*, in its progress to the *future*; and most especially since the year 1883 has been eminently distinguished as one that has been characterized by more deaths and destructions by means of fires, floods, cyclones and volcanic eruptions, than any that has been recorded in modern times; omitting the ravages by wars, by famines, and by fell diseases. And yet, amidst all the elemental carnage that has visited the human family in various quarters of the world, we, of the American Union have been most signally blest, even beyond our knowledge or special recognition. Only a few days ago we essayed a formal *thanksgiving* for the prosperity we have enjoyed during the preceding year, but it is just possible that our aspirations and invocations never reached above the creature comforts of the sensuous plane. But even this much, may be an acknowledgment of a moral obligation to a power beyond us and above us, although in its essence we may understand it not. Immediately preceding violent convulsions of nature, it is said, even the lower animals manifest an attitude of awe—a sort of perception of some power beyond the sphere of natural vision, preadmonishing sentient beings of a coming calamity. We therefore conclude that there is something to be thankful for, and an everpresent *Intelligence* to be thankful to—an all pervading *Deity* to adore.

And now, another festal season is upon us; a season more than festal, and possessing a significance second to no other relating to the destinies of the human race—an epoch as significant as the creation of man himself.

Man, taken as a whole, at the *creation*, was obedient, plastic, humble and unsophisticated; but at the *Incarnation* he was self-willed, obstinate, brutal and imperious, taken as a whole, so that we may infer it will require a greater exercise of Almighty power to redeem and regenerate him, than it did to create him; hence the deeper significance of the *incarnation*.

The coming Christmastide represents the eighteen hundred and eighty-third anniversary of the notably august event—an event in which the whole human family is interested, and included—whether they acknowledge it or not—whether they *know* it or not. Its influence is irresistible, and its manifestations innumerable, according to the mental medium through which they are ultimated in visible acts. The impulse to do some kindly act, or to exercise some kindly feeling during the Christmastide, is controlled by influences that may not be recognized by merely worldly wisdom, or may be totally denied, and yet the universal tenor of those influences are unswerved from their eternal purposes, and will not return void. We would suggest to our readers, on such occasions at least, to "do good, lend, hoping for nothing again," but to do it rationally; whether in prosperity or adversity—indeed, in that long range of view which culminates in eternity, adversity may be a greater blessing than material prosperity. The outward manifestations of Christmastide may in many cases be perverted, but they are not altogether selfish. "There is a divinity within them which shapes their end, rough hew them as we will." Let the social plane of giving and taking, be but the medium through which a higher perception of the event is attained.

With the admonition that—
"Though Christ a thousand times in Bethlehem be born,
If He is not born in thee, thy soul is all forlorn."
We tender to one and all our *Christmas Greetings*.

THE COMING POULTRY SHOW.

The Poultry Association of Lancaster county will hold their fifth annual exhibition at Lancaster, on Thursday, Friday, Saturday, Monday, Tuesday, Wednesday, January 17th, 18th, 19th, 21st, 22d, 23rd, 1884, in the new Post-office Building, and there is hardly a question but it will be a success. This society, like the Agricultural and Horticultural Society, has never been blest with very large meetings, indeed, outside of the membership of Lancaster city, the attendance is generally very small, but those who do attend work with a determined will toward a specific end.

A year ago this society held an exhibition, and so far as the display was concerned it was eminently successful, but financially it was equivalent to a failure. But the society possesses "grit," and it is now pushing on just as energetically as if no such failure had ever occurred. The deficiency in the exchequer was promptly redeemed by the voluntary contributions of its members.

But when such exhibitions do not pay expenses it cannot be said, without qualification, that they are a failure—they merely "cost more than they come to"—which is often the case in things laudable, useful and honorable. The ocean telegraph was not abandoned because the first line laid was an entire loss to the company. Such contingencies are sometimes of more absolute value than a conceded success. If the whole merely *money* value goes to "pot" there are still undestructable benefits—in the form of knowledge and experiences—remaining, which may serve for all time to come. There can be no question about the good the Poultry Association has done and is doing in the county of Lancaster. The introduction of the fine poultry stock that is now in the city and county, and the knowledge that is disseminated among the people through these societies and poultry publications more than pay, even should every exhibition be a financial failure.

The citizens—the well-to-do citizens—who are most benefited by improved poultry stock, should so far encourage the society by a liberal patronage of their exhibitions as to turn out *en masse* on this occasion, a thing many of them failed to do last winter. It is about as chaste and harmless an exhibition as can be gotten up with any other class of animals in the world. Farmers coming to town should not fail to see the *chicken show* during the week of the exhibition.

SOCIAL APATHY.

A discussion arose at the last meeting of the Agricultural and Horticultural Society relating to the habitual apathy of its members, and the slim attendance at its public meetings. It is true, it would be better for the success of the Society if it were otherwise, but this ought not to essentially discourage those who find it pleasant and profitable to attend. This Society is now becoming venerable, and only stands third upon the list of the old Societies, (excepting those of the Church) in the county of Lancaster.

It has done much good—indeed, much more than is accorded to it by the members themselves. Criticism and ridicule, on the part of those who take no interest in such organizations, or who do not so much as "lift up a finger" in bearing their responsibilities, is very cheap, and is therefore lavishly bestowed; but, it should not have the least disturbing influence upon the feelings or conduct of the members who are doing what they can in sustaining the Society. Numbers, moreover, are not always indications of success. A dozen effective, intelligent working men may do more in almost any Society, than a hundred merely disinterested lookers on. If a large number, however, could become influenced by the same zeal, it would greatly strengthen the hands of all. We would therefore encourage the few to "go on," just as though the whole movement of the Society depended upon themselves. Mr. Johnston's remarks seemed to approxi-

mate the cause of the small attendance at the meeting, but this ought not to constitute a valid cause. As well might those who are members of a religious Society, absent themselves from church-meetings, because they can read their bibles, their sermons, their prayers, and sing their sacred songs, at home. Those who are assigned a duty, and who are in the effort to perform it, are encouraged and upheld in that effort by the sympathizing sphere of their auditors for no man can feel comfortable or encouraged in delivering an essay, or addressing a discourse to empty benches. Still, those who entertain convictions that "it is good to be there," ought not to abate their energies, because others have no sympathy, and feel no interest in what they are doing. The watchword ought to still be "Go on, go on."

EXCERPTS.

STEAM ploughs are being introduced into Dakota, and with great success.

IT takes 250 bushels of potatoes to make a ton of starch.

SINCE 1860 the number of known American species of mammals, fossil and recent, has increased from 250 to nearly two thousand.

PLANTING fruit trees, without giving the trees *one-half the attention* required to make them profitable, is foolish and wasteful.—*Cincinnati Commercial-Gazette.*

EACH year's experience only deepens the conviction that the autumn application of barnyard manure to the surface, either after the land is plowed, or on meadow or clover fields that are to be plowed very early for the planting of corn, is the most profitable method. The best result seems to follow the *application of manure* where it is done some time previous to plowing. In this case the soluble parts are retained near the surface, where they can be readily appropriated as food by the clover and grass roots.—*Farm and Fireside.*

THIS is the season when you should feed *root and vegetable food* in conjunction with grain to your fowl stock, to take the place of grass and other green stuff that they were accustomed to in mild weather. If poulterers would believe how valuable and succulent potatoes, cabbage, turnips and carrots are, when cooked and mixed with meal and given to the birds, it is certain they would make ample provision for them in the coming of winter.

MR. MASON BROOKS, a farmer near Whitesboro, Texas, made 3322 gallons of sorghum syrup this year, which he sold at forty cents per gallon.

A FARMER in Suwannee county, Fla., has gathered two crops of peaches from his trees this season.

THERE have been but four seasons in thirty-three years when the yield of corn in Ohio was as light as it was this year. The average per acre is placed at 28.2 bushels.

A HOTEL proprietor and veterinary surgeon were lately fired in Wales for docking a horse's tail. The practice was pronounced both cruel and needless by two professors of anatomy. Good!

TENNESSEE farmers will sow clover seed largely next year.

HEAVY rains and high tides have submerged the rice crop on Cape Fear River to the extent of 20,000 bushels.

THREE thousand turkeys were shipped in early November from Bristol, Tenn., to Savannah, Ga., in one car.

THE cranberry crop of Cape Cod is more highly colored than usual this year and of good quality.

THE farmers of South Carolina sold last year \$200,000 worth of grain—corn, oats and wheat. And this was the first year that any considerable number of them had a surplus of grain.

PEANUTS yield 1,000 pounds to the acre in Southern California, and have proved an excellent food for fattening hogs, giving to hams and bacon "an exquisitely delicate flavor."

IN a gum-sealed jug, in an Aztec ruin in Arizona, was found some corn by Mr. Wm. Wallbridge. The corn was planted, and in six weeks the grower was eating roasting-ears of a variety which only prehistoric races had hitherto cultivated. The stalk grows but three feet high, and the corn is small, deep red and flinty. Two crops will mature in one summer. All this on the authority of the *Arizona Gazette.*

SIX hundred million dollars' worth of poultry and eggs are produced annually in the United States, with quality, consumption and price increasing.

MRS. HICKS has a hen turkey which fed her thirty young ones on grasshoppers so long as the crop held out and then took to the woods, flew up into the oak trees and shook down acorns for the brood. Mrs. Hicks and her turkey live in Dutchess county, N. Y.

A FINE botanical garden is to be established at Palatka, Fla.

TEXAS is said to produce about one-half the cattle raised in the United States.

H. C. WHEELER has the largest farm in Iowa, at Odebolt.

HENRY F. CURRY, of Manatee, Fla., has planted 27,000 pineapple slips this year.

SOME English gardeners cut unripe tomatoes and ripen them quickly by placing them on hot water pipes.

SEVENTY-FIVE car loads a day of beef cattle have been shipped from the Yellowstone Valley in the past six weeks.

OREGON and Washington have sent into Montana, Dakota and Wyoming fully 20,000 head of cattle, and into the same region about 20,000 young thoroughbred and high-grade bulls were sent from different Eastern and Middle States.

COLONEL TAGGART'S Jersey cow, "Hannah 2d," was brought to bed on the 13th instant with a heifer calf. (Her last was dropped February 15, and lacks two days of being nine months old. The period of gestation was from March 18, only 240 days.) Mr. Packer's imported bull, "Fletcher," is the sire of this precocious bovine.

THE wool clip of the United States for the current year is said to exceed that of 1882 by about 20,000,000 pounds, aggregating about 320,000,000 pounds.

IN the neighborhood of Lyons, France, every cow on calving receives four to five

quarts of wine and one pound of toasted bread, and this ration is frequently repeated two or three times in twenty-four hours. Professor Grogner lays down that a cow under such circumstances can take fifteen quarts of wine a day without any injurious effects.

PORK packers complain that it is hard to secure lean hogs, and the swine now seeking market are too round and heavy to put into the foreign style of meats now most in demand.

IN weaning calves, in France, hay tea enters largely as a substitute for milk, then linseed cake gruel; in Russia beer is largely mixed with the milk, which explains the enormous size of the calves; two pounds of hay are steeped in nine quarts of warm water, and five quarts of the tea are estimated as equal to one quart of milk.

GERMAN carp, hatched two years ago in Georgia, now weigh four pounds.

MANY Delaware tomato growers realized over \$90 an acre this year.

WE had a new birch floor laid in the kitchen this Spring, and we can't say enough in praise. The good man gave it a coat of oil when it was laid and put it on boiling hot, another this fall; and it is so easy to keep looking clean and nice. The oil brings out the grain of the wood so beautifully. Wish we had one like it in all the chambers.—*Correspondence of New England Homestead.*

SIXTEEN cents a pound for butter is about the same as one and a quarter cents per quart for milk. Better make poultry or pork of it at that price.—*Farm Journal.*

IN an establishment at Oakland, California, the entrails of sheep are used for making very serviceable belting for machinery. First the entrails are cleaned and soaked for a few days in brine. The prepared material is then wound on bobbins, when it is ready for working up either into ropes, or flat belts. A three-quarter-inch rope of this material is capable of bearing a strain of seven tons. The material, furthermore, is durable—more than twice as durable as hemp.

EVERY piece of horse radish grows; if we take a piece of root about an inch in length, about the size of a large bean, and put it an inch below the surface of the prepared ground, a short piece will come to the surface and form a crown, and another portion will descend and probably fork to form a root; but instead of this, if we make a hole a foot or so deep in the ground with a dibble and let the little pieces of root drop to the bottom, a clean straight sprout will come up to the surface, and this will in time make as clean and thrifty a market piece as could be desired.

WHEN Victoria came to the throne in 1837, the estimate for her personal expenses was based on the charges of the household of William the Fourth. For her Majesty's privy purse they set apart \$300,000 yearly; for household salaries, \$656,300; for ordinary household expenses, \$862,500; for royal bounty, etc., \$66,000; and for various other small items, \$40,200. The total is about \$1,925,000. Besides this she has \$215,000, being the revenue of the Duchy of Lancaster. Thus the sum which her Majesty receives yearly,

for her privy purse, is \$515,000. This is entirely outside of her actual ordinary expenses. Is is clear pocket money.

ALWAYS get the best you can find to breed from, using *thoroughbred males*. Do not hesitate on the score of economy. Meat producing animals from such stock fatten easier, consume less feed, weigh heavier, and are always in demand, because they are nice and smooth, and when put on the block their offal is small compared to that of a rough bony steer, or hazel splitter hog.—*Pcoria Transcript*.

LET any one who has an attack of the lock-jaw take a small quantity of spirits of turpentine, warm it and pour it on the wound, no matter where the wound is or what its nature. Relief will follow in less than one minute. Turpentine is also a sovereign remedy for croup. Saturate a piece of flannel with it and place on to the throat, chest, and, in severe cases, three to five drops on a lump of sugar may be taken internally.

AN excellent cement for attaching metal to glass or porcelain consists in a mixture of a solution of eight ounces of strong glue, and one ounce of varnish of linseed oil, or three-quarters of an ounce of Venice turpentine, which should be boiled together and stirred till the mixture is thoroughly incorporated.—*Harness and Carriage Journal*.

To cultivate the soil with success, requires both thought and study.

THE FARMER'S WIFE.

"Oh! give me the life of a farmer's wife,

In the fields and woods so bright,

'Mong the singing birds and the lowing herds,

And the elover blossoms white.

The note of the morning's heavenward lark,

Is the music sweet to me;

As the dewy flowers in the early hours,

The gems I love to see.

"Oh! give me the breeze from the waving trees,

The murmur of summer leaves;

And the swallow's song as he skims along,

Or twitters beneath the eaves!

The plowman's shout, as he's turning out

His team, at set of sun.

Or his merry 'good night,' by the fire-fly's light

When his daily work is done.

"And give me the root and the luscious fruit,

My own hands rear for food;

And the bread so light, and the honey white,

And the milk so pure and good!

For sweet the breed of labor is,

When the heart is strong and true,

And blessings will come to the hearth and home

If our best we bravely do."

CONTRIBUTIONS.

PREMIUM WHEAT.

The following contribution from one of our patrons speaks for itself. We feel assured that much of a similar nature could be published if our farmers did not persist in covering their light with a "bushel."

Tribute to a Lancaster County Farmer.

The Messrs. Landreth & Sons, the great American seed growers, offered, last season, a special premium of \$15 to the producer of the largest number of bushels (of 60 lbs. each) to the acre of the "Landreth White Winter Wheat," a new variety of exceedingly great merit. The wheat was planted by thousands

of farmers all over the country, but it remained for a Lancaster county farmer to carry off the prize in the person of Mr. Henry S. Musser, the well known and popular lumber merchant and tobacco grower, of Marietta, Pa.

Mr. Musser planted four bushels on two and quarter acres and harvested ninety (5,400 lbs.) bushels of the finest wheat ever raised in this county, famous for its good wheat.

Mr. Musser's yield was the largest of all who entered the contest, and would have been considerably greater had the floods not damaged it in the early summer. It is not the money value of the premium so much as the high favor and tribute paid to Lancaster county farmers which demands this well deserved notice. These with other facts go to show that Lancaster county farmers rank foremost among the most successful farmers of the world.—*I. G. S.*

CONCERNING SMUT.

EDITOR LANCASTER FARMER: Your correspondent, C. G., in November number of the FARMER "Don't go much" on the recommendation to steep seeds in sulphate of copper to prevent smut and rust. He evidently does not comprehend the theory or he would be less skeptical about the result. The seed becomes contaminated by the spores of smut when growing. These exceedingly minute spores or seeds adhere to the seeds of wheat or oats and are planted with them. The spores are then carried in the ascending sap, and finding a congenial place for their growth and development in the immature grain, produce a crop of smut to the utter destruction of the cereal.

Will sulphuric acid or salt kill the spores of smut? If so, may we not "have a reason for the faith that is in us" when we take the advice of the *Times* correspondent and steep our smutty seeds in sulphate of copper.

It is true, as C. G. suggests, that the spores of smut and rust float in the atmosphere, but it does not follow that that is their only mode of distribution. As well say that diphtheria and typhoid fevers are caused only by germs afloat in the atmosphere, when it is well known that these diseases are frequently caused by drinking contaminated water.

When I have sown smutty seed I have invariably reaped smutty grain. When I have sown clean seed I have seen little or no smut the ensuing harvest. Not so, however, with rust. Every one has observed that under certain atmospheric conditions wheat rusts badly, and yet I have not found any evidence that seed from rusted or mildewed wheat is likely to produce a plant that is affected the same way. Rust or mildew is on the stalk and blade, and feeds on the pabulum prepared for the seed, but smut feeds on the seed itself.

In the fall of 1880 I bought two bushels of Rogers' white wheat and drilled it in a field alongside of Fultz wheat. At harvest time there were a great many smutty heads in it. I sowed of the seed again and the result the following season was the same, although in both cases Fultz wheat alongside of it was entirely clear of smut. I apprehend the Rogers' wheat was contaminated with smut when I sowed it first, although I was not aware of it at the time. If the "germs were afloat in the atmosphere" why did not

at least a few heads of the Fultz wheat succumb to the insidious parasite? Some years ago I noticed a few smutty heads in my oats. It continued to increase from year to year, until I was compelled to abandon the use of my own oats for seed, and yet a neighbor's oats, the same variety, on the other side the fence, had very few heads of smut in them. Why did not the spores find their way into his field? Simply because his seed had but little smut in it. I have never tried the above-mentioned remedies for smut, because the seed cannot then be drilled. I regret, however, that I did not try the experiment, it is so easily done. JOHN C. LINVILL.

SELECTIONS.

PACKING EGGS FOR TRANSPORTATION.

Many devices have been tried for packing eggs for latching after transportation. My way is to take a box of suitable size for the number to be sent, allowing plenty of room. I bore a hole in two opposite sides and make a rope handle by putting a piece of rope in from the outside and tying a knot on it to keep it from pulling out. The knots at the ends should both be on the inside, and the rope should be long enough to have a little slack when the lid is on. I pack a layer of hay about two inches thick on the bottom of the box; on this I put a layer of fine, perfectly dry sawdust or bran; now take the eggs, one at a time, and wrap them in a small piece of paper and stick them into the bran endwise, when all are in, put on enough bran to cover the eggs, shaking slightly so as to settle it close around them. Now another layer of hay to cover all. Screw the lid on and mark. Eggs should not be too close to the sides of the box, nor too many in a box, unless one has had experience in packing. The box should be marked with a stencil "Eggs! With Care." The neater and more convenient it is to handle, the more respect it will probably receive at the hands of expressmen. Fresh eggs, from healthy, thrifty fowls, packed in this way, should (and do) hatch a fair percentage after long trips.—*Dr. Dickie*.

USING YOUNG BULLS.

Some good suggestions in regard to the use of young bulls are given in a recent number of the *National Live Stock Journal*, in answer to questions pertaining to the service of a Short-Horn bull a year old in December last. The editor says that such animal may be safely used this spring, if he is strong and vigorous, and serve twenty cows without injury, adding "he should never be turned out with the cow. This practice ruins more young bulls by far than the numbers of cows he serves. One service is as good as two or three, even better than half a dozen. It is important that a cow should be served as soon as she comes in heat; and, if a second service is thought desirable (where a cow has failed to stand to a previous service,) we would put her up and let her stand several hours—say till the paroxysm is nearly over—before she is served a second time. There is no reason why Short-Horn bulls should not be prolific, and continue so until old age, as bulls of any other breed, or even 'scrubs.' Two causes

have conspired, however, to injure many Short-Horn bulls in this respect—in breeding and high feeding. It is the opinion of most persons who have investigated the breeding problem that inbreeding usually affects the procreative powers of all animals unfavorably. This affect is not always apparent, and in some cases it is shown earlier than in others; but it may safely be laid down as a general rule, that inbreeding has a tendency to impair constitutional vigor, and consequently to weaken the reproductive powers, not only of cattle but of all animals; and when once a defect has been developed by inbreeding, it is rapidly intensified by continuing to breed in the same manner. Again, the highly artificial manner in which many Short-Horn bulls and cows have been kept is extremely hurtful. Rich and highly stimulating food, inducing an unnatural state of plethora, allied with close confinement, has destroyed the productive powers of many a well bred Short-Horn, and the evil effects of such a practice are not confined to cattle alone. Short-Horn cattle are no more subject to injury from this condition than any other breed or any other class of stock. Any race of cattle, horses, sheep or swine, when long subjected to inbreeding, close confinement and high feeding, will show the same results. If farmers will select Short-Horn bulls that are descended from a vigorous and prolific ancestry, and that have not been subjected to the forcing process, they will usually be found quite as prolific, and will retain their reproductive powers to quite as great an age as any other race of cattle in the world."

FRUIT NOTES.

There is a great diversity of opinion and practice about the keeping of apples through the winter, though one would think apples had been grown long enough for some good plan to be settled upon. Those who keep them in retarding houses succeed, but such houses are costly. Now and then a man has found that submersion in cold water is effective, others put them on shelves where the air is dry and cold. Success, no doubt, often depends on a good season for ripening as much as in the winter care, and that cannot be controlled as well as a fruit house. One thing seems clear—that the colder they are kept, without freezing, the better.

In packing apples or pears for market, some growers are not yet aware of the value of good, honest and tasteful packing. The barrel, when opened, should show a uniform layer of good, sound fruit, which should be a sample of the whole, not alone of the top layer. To fill up the middle with inferior fruit is knavish, and, besides, it rarely, or never, pays. Especially is this true of a man whose "mark" is often seen in market.

If each small fruit-grower would aim to see how much manure and good culture he could profitably apply to a small area, or to an acre of each, he would not care much thereafter for a larger plantation than he could treat in this manner. When a man can raise 300 bushels of small fruits on an acre, why should he not do it in preference to raising the same amount on five or six acres? Why don't somebody point out the gain? Poor fruit had better go by itself, or not at all.

People accustomed to marketing apples or pears in bushel crates should remember that barrels are cheaper when large quantities are to be shipped. The freight is less and the fruit carries better.

The increased acreage devoted to grapes in the United States is surprising when it is remembered how few grapes were grown forty years ago. We cannot raise the fine-flavored grapes of Europe, but we can raise them nearly as good, and quite as good for wine and many other purposes. But grape-growing is increasing more rapidly than the consumption, hence, until there is a great demand for American wine, it is not likely to be a profitable business for the man who grows mainly for market.

Because a peach tree is not long-lived it is no reason for discarding that noble fruit. Corn, potatoes, wheat, etc., must be planted annually, and yet they are not discarded. A peach tree, with proper care, will last a dozen years or more, unless attacked by such a disease as the yellows. Injury from the borer can be prevented, as can over-cropping and starvation from want of manure.

The time above all others to give close attention to an orchard is during its first half dozen years. Culture and pruning then will do more for it than a dozen years of care after that period. But if neglected during the first six years, after care will not often avail much.

The best age for a standard pear tree at planting is one year from the bud. It suffers less by transplanting, costs less for freight, the nursery price is less, and at six or seven years of age it will generally be as large as the two or three year old tree planted at the same time. Only those hanker for large trees to plant whose eye teeth have not been cut. Another advantage is that they can be trained more readily to a good shape.

The best time to eat fruit is with one's regular meal. Eating between meals is always a bad practice, physically, as it gives the stomach no rest, though it is probably better to eat good fruit at irregular periods than other things.

A pear that varies greatly in its character in different soils or in different seasons is not a desirable variety, especially as we have many sorts that do not seriously vary. Those fruits about which there is so much discussion as to quality had better not be planted. Choose some other.

It is in order during "the melancholy days" of autumn to hunt for the eggs of the tent caterpillar on the apple tree. Every lot destroyed then will save a great deal of work and damage in the spring.—*Philadelphia Press*.

COMMERCE OF THE WORLD.

Prussia exports linen, woolens, zinc, articles of iron, copper and brass, indigo, wax, hams, musical instruments, tobacco, wines and porcelain.

France exports wines, brandies, silks, fancy articles, furniture, jewelry, clocks, watches, paper, perfumery and fancy goods generally.

Italy exports corn, oil, flax, flour, wines, essences, dye stuffs, drugs, fine marble, soap, engravings, paintings, molasses and salt.

Austria exports minerals, raw and manufactured silk thread, glass, wax, tar, nut-

gall, wine, honey and mathematical instruments.

Germany exports wool, woolen goods, linens, rags, corn, timber, iron, lead, tin, flax, hemp, wines, wax, tallow and cattle.

England exports cottons, woolens, glass, hardware, earthenware, cutlery, iron, metallic wares, salt, coal, watches, tin, silks and linens.

Russia exports tallow, flax, hemp, flour, iron, linen, lard, hides, wax, duck, cordage, bristles, fur and potash.

Spain exports wines, brandies, iron, fresh and dried fruits, quicksilver, sulphur, salt, cork, saffron, anchovies, silks and woolens.

China exports tea, rhubarb, musk, ginger, borax, zinc, silks, cassia, fligree work, ivory ware, lacquered ware and porcelain.

Turkey exports opium, silks, drugs, gums, dried fruits, tobacco, wines, camel's hair, carpets, shawls, camlets and morocco.

Hindustan exports gold and silver, cochineal, indigo, sarsaparilla, vanilla, jalap, fustic, campeachy wood, pimento, drugs and dye stuffs.

Brazil exports coffee, indigo, sugar, rice, hides, dried meats, tallow, gold, diamonds, and other stones, gums, mahogany and India rubber.

The West Indies exports sugar, molasses, rum, tobacco, cigars, mahogany, dyewood, coffee, pimento, fresh fruits and preserves, wax, ginger and other spices.

East Indies exports cloves, nutmegs, mace, pepper, rice, indigo, gold dust, camphor, benzine, sulphur, ivory, rattans, sandal-wood, zinc and nuts.

The United States exports principally agricultural produce, tobacco, cotton, flour, provisions of all kinds, lumber, turpentine, agricultural implements, sewing machines, cotton goods, cutlery, builders' hardware, furniture, munitions of war, gold, silver, quicksilver, etc.—*Exchange*.

FOUNDING A HERD OF PIGS.

While it is true that, as a rule, the pig is one of the most profitable of our domestic animals, it is also evident, says an experienced writer in a contemporary journal, that the amount of profit he can be made to bring will be governed largely by the differences in methods of keeping and the intelligence or skill with which he is handled. We find also that pigs are kept under the most varied circumstances, from those affecting the single sty-pig, for example, or the few gleaners about the farmyard, to the more extensive herds under the broader management known as swine husbandry. Owing to this great diversity of conditions to be taken into account, it would be impossible to give in few words definite teachings exactly suited to each case. At the very outset—the selection of stock—there is a wide range for difference in choice. To produce pure-bred stock to be sold for breeding purposes and the improvement of common stock, may be the object in view with some. To rear and feed hogs for what they will bring on the market when fat may be the aim of others. Location, the amount of capital at command, and a man's own taste or disposition in such matters, must help to determine which of these classes he will enter, or whether, as is often done, he

will breed and rear hogs with both objects in view. In founding a herd for the production of pure-bred stock, it is advisable for the novice to buy only from some thoroughly reliable and experienced breeder, and leave to him the selection of the animals. If the man of whom we buy is really a breeder of experience, his knowledge of the points to be considered in the mating of stock will be advisable, and if he be reliable, it will be money well invested to pay him not only for good animals, but for the selection of such as are best suited for breeding together. It will be time and money saved to begin right, taking as a foundation, so far as available, the best stock and the ripest experience of those who have gone before. There will be time enough for experimenting and the testing of newborn theories after we are fairly in the field. Having once learned something of the business from observation and practice, we may, in later purchases, trust more to ourselves; but at the start it is certainly best to rely upon the judgment of a well-informed and trustworthy breeder, and have him select for us a good boar and one or more sows—both sexes to be pure-bred animals.—*Farm and Home.*

HABITS OF THE STRAWBERRY.

The strawberry grows all summer to store up food for the production of fruit for the following season, like the onion or beet. Instead of storing up this food in the form of a bulb or root it is stored up in the plant. If the plant is allowed to waste its strength in producing runners, or is deprived of the needed food, the crop will be small in consequence. If the roots are injured by cultivating late in the fall, or wrenched and broken by freezing and thawing, the plant will make an effort to repair the damage at the expense of fruit. For this reason it is advisable to give it every opportunity to do its best and prevent it from injury during the winter.

Mulching keeps the ground cool and moist, and allows the surface roots to work to the best advantage. In no other way can these advantages be secured so readily. Any coarse material that will shade the ground will answer—as straw, tan bark, saw dust, boards, brick or tile. The strawberry is hardy and needs no protection when growing wild in the meadow or among the stumps in the clearing. In such situations the ground is always shaded and the surface roots remain uninjured. Where the sun shines on the bare ground the case is different. At night it may freeze and be lifted up by the expansion of the water as it turns to ice, lifting the plant with it. When it thaws the soil returns to its place but the plant does not. If this is repeated often enough the roots will be drawn out entirely. On dry soil this never occurs, as it is only the water in the soil that expands. Any coarse material that will shade the ground will prevent the sun from thawing the surface every bright day. As long as it remains frozen no great damage can be done. If the plant has been allowed to form a thick mat of surface roots they are lifted bodily and not broken, but settle back in their places, thus protecting each other. A mild, open winter is more injurious than a steady, cold one, and frequently the damage is done in March. It will thus

be seen that winter covering is especially necessary where the soil is wet or clayey, and where the plants are not so thick as to protect each other.

The ground among strawberry plants should be kept well stirred all the spring and summer so as to let air to the roots and kill all weeds. In stirring the soil avoid covering the crowns of the plants. The best cultivator for the work is the "Planet, Jr." When cool, damp weather comes in the fall the strawberry sends out new roots near the surface and these should not be disturbed; for this reason all deep cultivation should be discontinued until the fruit is gathered.

If runners are transplanted about four inches apart in mellow soil, where they can be shaded and watered, if necessary, in about a week they may be taken up after a thorough watering, and set out with the soil adhering, when they will nearly equal potted plants in value.—*Matthew Crawford, in Green's Fruit Grower.*

BRAHMA-DORKING FOWLS.

This cross is a very favorite one, and generally produces most hardy and prolific birds both for table and as frequent layers of large eggs. The best Brahma-Dorkings are bred by mating a colored Dorking cock of large size and low on leg with large dark Brahma hens. Fancy points may be disregarded, but good size is indispensable, and if the hens are free from, or at least with only very slight leg feathering, so much the better. The chickens will prove very hardy and quick growing, provided they are hatched early, and are well looked after. February and March are the best months for hatching, the pullets commencing to lay about September and the cockerels with a little extra feeding, prove excellent table fowl. For laying choose pullets with grey hackles in preference to those with gold or brassy colored, as the former are generally more prolific and do not get broody so frequently as the latter. If plumage be a consideration, then substitute a silver-grey Dorking cock with the Brahma hens, although this variety of Dorking is inclined to be small. A very handsome bird may be produced by crossing a white Dorking cock with light Brahma hens, and in a park or orchard, this breed looks very attractive, being nearly white. Whichever of these crosses be decided on, choose as parents, large healthy specimens of pure blood, and hatch early. Brahma-Dorkings require no special feeding other than that advised for other varieties generally, good sound grain and meal being the staple foods. It is not an easy matter to lay down any rule as to the quantity of food required by a given number of fowls, so much depends on the conditions under which they are kept. If they have a wide range, they are enabled to pick up a certain amount of food especially in the summer time when insects abound. In that case two meals a day will be sufficient, one morning and evening, except in very severe weather when the supply of natural food fails; then they must be allowed a feed at mid-day. On the other hand if the birds are in constant confinement three meals a day must always be allowed them, although the mid-day one may be of a light character, such as house scraps. As regards

quantity the birds should have as much at each meal as they will eat eagerly and no more. Food on no account should be allowed to remain on the run after they have finished, and if they are observed to be dainty and picking the corn and meal over and rejecting what does not please their fancy, it is a sure sign that they are over-led, and if the state of affairs be not rectified, a falling off in the number of eggs and disease of numerous types will soon make their appearance. In short, it is better to rather under-feed than over-feed poultry, and their owner must use his judgment as to the quantity to be given. By carefully watching the birds at feeding time it is very easy in a few days to determine how much they should have thrown to them, the right quantity being what they will eat with relish, and no more. Again fowls' appetites vary, and are influenced by the weather and other causes, as also by the health of the bird. A hen when laying, will and ought to, eat more than when not laying, and growing stock require most of all. The first feed in the morning, which should always consist of soft food, must be given as soon as possible after the birds have got off the roost, and the evening meal, which should always be hard grain, immediately before they retire to roost.—*Farm and Home.*

POUND FOR POUND.

When we were told, some years ago, by a breeder of Jersey cows, that he could make a pound of butter as cheaply as the best of feeders could make a pound of beef, we confess to have received the statement with some grains of hesitation, and the more we thought of it the more incredulous we became; but it was made by an experienced and truthful man, and we were anxious to see it in that light if it was true, and to prove the contrary to him if not. We therefore sought information elsewhere, and the further we looked and the more we investigated, the more clearly did we realize the correctness of this point. But what astounded us was the fact that his butter was being sold by contract, the year round, at an average of thirty-five cents a pound, whilst the best beef was worth only from six to seven, and that farmers were devoting so much of their time and their means to the production of the cheaper instead of the higher-priced article. And, even now, we question if the problem is a clear one to the majority of farmers, or even of business men who are notoriously close at calculating all the little details that enter into the cost of an article, and comparing the result with the price they can get for it. Let us do a little figuring, to show how it can be done.

From the report of the last fat stock show, we learn that the heaviest animal weighed 3,055 pounds; the heaviest two-year-old steer, 2,220 pounds; and the prize yearling, 1,600 pounds. The champion four-year-old steer, McMullen, weighed 2,565 pounds, and had made a gain, during the year, of 470 pounds; 535 pounds was the heaviest gain made in the year by any animal shown last year, while several made not over 300 pounds. Four yearlings made daily gains of 2.97, 2.51, 2.31, and 2.23 pounds. Young stock always make larger gains on the food consumed than older ones. These results were obtained upon beef

stock—Herefords, Shorthorn, and their grades and crosses—with the best feed and care that experienced feeders could give them, and may be considered representative animals of their class.

Let us now look at the record of some of the best butter producers and compare the probable profit of the two classes. Eurotas, the property of A. B. Darling, has a record of having made 778 pounds of butter from 7,525 pounds of milk, in 11 months and 6 days; Jersey Queen of Barnet, 770 pounds in one year; Jersey Belle of Scituate, 705 pounds in one year; Pansy, 574 pounds, when a four-year-old. Mr. A. B. Darling's four-year-old cow Bomba made 21 pounds and 11½ ounces in seven days, or 3,103 pounds per day. These are representative cows, and are only cited to show the capabilities of the cow for butter. Good butter cows will produce nearly as many pounds of butter upon the same amount of proper food as pounds of beef can be obtained when fed to the average beef stock.

It would take a pretty good beef animal to produce that number of pounds, live weight, in the same time. Yet we can sell our butter for four or five times the price of live-weight beef. If she gives but 300 pounds during the year, and we sell it, as he did, for thirty-five cents, we have \$105; 300 pounds gain of beef, at six cents, would be \$18.

It may be said that dairying is more expensive than steer feeding, and that the latter can be conducted on the cheaper lands of the West; but, as against such considerations, we have others to offset them. Our product is more easily handled, costs us much less to ship, the cows give us a calf every year, and we have their milk for the pigs.—*Rural World*.

THE DAIRY IN PENNSYLVANIA.

The Secretary of the State Dairymen's Association, which met at West Chester last October, said that the membership of the society was principally confined to four counties in the Northwestern part of the State. Among the benefits of holding the late meeting in Chester county will doubtless be a renewal of interest in dairy work in this part of the State, and a largely increased membership of the association.

The meeting of a body of men representing the immense dairy interests of Pennsylvania could hardly occur without profit to all the farmers of the State. \$975,689,410 are invested in Pennsylvania farms and improvements. Any association which has in view the increase of such a large capital, the devising of ways and means to make the investment profitable, must have the respect and support not only of dairymen, but of all the thinking people of the State, for this association and the dairymen are affording one solution of a serious problem which, ever since the rapid utilization of Western wheat lands, has confronted the Eastern farmer.

Venango, Mercer, Crawford and Erie, which counties contribute the bulk of the membership of the association, do not equal the older counties in the southeastern corner of the State in the quantity of dairy products. Chester county leads the way with 42,370 milk cows, which, according to the census of 1880, produced in one year 5,758,814 gallons of

milk, 4,246,655 pounds of butter and 11,296 pounds of cheese. Bradford county, with its 38,472 cows, made 4,824,656 pounds of butter, but only 469,112 gallons of milk. Crawford county, 31,479 cows, produced 4,510,397 gallons of milk, but only 2,197,574 pounds of butter; while in Chester, Lancaster and Montgomery the pounds of butter made do not fall far below the gallons of milk produced, which are but a little way behind the production of Chester county, given above. Delaware county, with only 16,088 cows, produces 3,412,439 gallons of milk and 1,428,084 pounds of butter; Montgomery, with 34,918 cows, shows a production of 5,534,032 gallons of milk and of butter 4,166,479 pounds; Bucks, with about the same number of cows, shows in milk 2,307,554 gallons, in butter 3,892,430 pounds. It is plain from the amount of capital in the Southeastern counties invested in dairying and the value of the yearly product that there is ample room for the Dairymen's Association to grow in this part of the State.

Besides the practical discussion of the feeding and treatment of milch cows, selecting of stock, the care of milk and the making of butter, the members of the association should find time to take a look at the difficulties of farmers not extensive dairymen, who find the profits of their grain crops cut down by Western competition. Tobacco growing, trucking, creameries and dairying are the main reliances offered to the Eastern farmer when grain growing for the market fails. Some light shed upon the comparative profits of the dairy would be most valuable as a pointer to many farmers who are hesitating which way to turn.—*Philadelphia Press*.

WHAT'S IN A NAME.

President Wilder struck a note of warning in his address before the meeting of the American Pomological Society, in Philadelphia, when he said we do not need any more long, high-sounding names to our fruits. We have had enough "captains," "colonels," "generals" and "presidents," and there should be no increase of the length of the list of such names as "Stump the World," "Seek-no-Further" and a host of others like them. A name of any fruit should be short and, if possible, descriptive. It is the handle by which the fruits is passed from mouth to mouth and from mind to mind on the written or printed page. The "Early Harvest" apple has a word of meaning in the name, especially to small boys, who, at the time of the ingathering of the oats and other "white grains," know where the trees stand which bear this fruit. If the first word was omitted and the apple was known as the plain "harvest" its taste would be equally delicious. Contrast the "Snow" with the "Golden Russet of Western New York," the "King of Tompkins County," or the "Westfield Seek-no-Further." There is more meaning in the four-letter word "Snow" than in all the others just mentioned.

The white flesh of this apple, which melts as it is crushed between the teeth, is well described. But what idea does the stranger gain of the characteristics of these varieties with the long names. Would not "King" alone do just as well as to limit it to the

county of Tompkins? Where is this county, anyway? and is there any reason why a royal apple should have such a limited kingdom. It may be that the smallest state in the Union needs to have her name kept before the people. But the "Rhode Island Greening" is now a standard fruit throughout all New England and elsewhere, and having outgrown the little state—as a boy outgrows his coat—it is only fair that it stands on its own merits as the "Greening." This name thus reduced is descriptive, short and handy, and stands on a level with the "Swaar and "Rambo."

Among cherries something should be done to prevent any christening of new varieties with such names as "Napoleon Bigarreau," "Knight's Early Black," or "Monstrene de Mezel." It would seem as if some persons give their fruits larger names to make up for the deficiency in other and more important directions, just as some parents load their children down for life with a millstone of names, because that is all they will ever be able to give them. Who has not stumbled over the "La Versailles" currant? It has been shortened into "Versailles" by some, and after all this wealth of name the authorities are not agreed that it is a distinct variety. If we would state that it is the "cherry" under a high-sounding French name, we might not be far from the truth. The next candidate for currant degrees conformed by the College of Pomologists is "Fays Prolific." "If it is a great bearer it may deserve the name "prolific," but Mr. Fay's name, as the first part of the handle is just so much time and space thrown away. Let us have nobody's this or that. "Mrs. Prince's Black Muscat" grape is, perhaps, not so bad as "Chasselas de Fontainebleau." "Maxatawney" is a pleasant-sounding name for a white grape when one gets used to it, but it does not taste any better than the "Iona" when well grown.

The "Early Newington Freestone" peach may have a world of meaning in its name, but the man who is pressed for time will probably skip the most of it. It is not to our purpose to go through the whole list of fruits; but it would not be fair to slight the pears in this consideration. The "Beurre Gris d'Hiver Nouveau" is not a large pear, or long, except as to name, but the "Jalousie de Fontenay Vendee" is long and pyriform. It originated in France! It does not taste much better than the Seckel, and, to my notion, if the name of any pear was long enough to reach in single file to the gates of Paradise it would not be so good as the plain little "Seckel." Pears have suffered greatly by their long names—at least their names have been butchered daily by dealers and others, who have not been careful to have a pocket "key" for the proper spelling of the names. "Souvenir du Congress" is a fine pear, and "Duchesse Angouleme" is one of the best, and as some think the only variety suited for dwarfs, but who would have a "Conseiller de la Cour," or a "Fondante des Charneuse," under these names, in their orchard! Perhaps some fruit-namers try to tell too much in a name. Thus we have the "Red Antwerp of the Hudson River" as one variety. Why not add to this, to make the

story more complete, "Cornwall-on-the-Hudson," or some other fruit-growing locality?

As was stated above, a name is but a handle by means of which the fruit is mentally tossed about, and there is every good reason why it should be short, and many bad reasons for its being drawn out through an unreasonable number of syllables. Short names will improve the morals of entry clerks, shippers and book-keepers of all nursery and fruit men, and let us hope that all persons who may be hereafter called upon to fasten a name to a fruit will make it short and to the point—call a spade a spade.—*Philadelphia Press*.

OUR WOOL PRODUCTION.

About 25 per cent. of the entire production of domestic wool during the census year of 1880 came from the two States Ohio and California, the former with 25,000,000 pounds, the latter 17,000,000; in 1870 the product of the former was 20,000,000 and the latter 11,000,000 pounds. The next State in order of importance as wool growers in 1880 were Michigan with 12,000,000, New York with 9,000,000, Pennsylvania with 8,000,000, Missouri with 7,000,000, and Wisconsin with 7,600,000. Texas produces nearly as much as the latter State. In 1870 it produced only 1,125,000 pounds. The total product of the Union in 1880 was 155,000,000 pounds, clipped from 35,000,000 sheep.—*Tradesman*.

SOME STATISTICS OF THE MILK SUPPLY OF BOSTON.

The City Inspector of Milk has issued his 20th annual report, which is always of more or less public interest. Since 1859 the milk trade of Boston has doubled, besides having been changed in other respects. The inspector claims "an increased show of pure milk at the doors of consumers." "The temptation to remove a portion of the cream or to add water seems too great for the average milkman to withstand unless intimidated by the law," says the inspector. Does he suppose that the law prevents the topping of milk cans?

The production of milk for the supply of cities and towns he reports has greatly increased within the past few years. Most of the Boston supply is brought in by rail. Contractors to supply the city engage the milk of the farmers, arranging the prices twice a year, to be paid monthly; so of the city peddlers, they collect and pay monthly.

The transportation of milk by rail has, owing to the contractors' transportation monopoly, been a source of serious complaint with producers. What the milk producers want is that the railways shall carry their milk independent of milk contractors. The inspector says "any arrangement that shall bring milk producers and consumers nearer together will be an advantage to both." He adds that "the local supply trade gives better satisfaction to families than *railroad* milk, as it is termed."

The number of cows kept within the city of Boston is 1,805. The registered number of wholesale dealers is 1,839; number in business, 800. The number of samples inspected since the last report, 1,213; number adulterated, 351. The number of gallons of milk

for daily supply of the city of Boston, 28,256 (or 113,024 quarts, or for the year, 41,253,760 quarts), at a cost of \$2,268,956.80 an average of about 5½ cents a quart to consumers, a low estimate, we would say, as milk is sold to consumers in some streets at 7 cents a quart. What proportion of the citizens are thus supplied we are unable to say, but we suppose that many are supplied at this price. This would greatly increase the aggregate cost of milk as estimated by the inspector.

Would it not be well for the inspector to find out and report how many gallons of milk are brought into Boston annually to supply the market, and then find out how many gallons are sold to consumers, and see how these two quantities compare? Also find out how many gallons of cream are sold to customers, and whence the cream supply is obtained? These, as it seems to us, are legitimate subjects of inquiry for the inspector to take into account, and for him to report upon. It has long been a matter of inquiry with some, whence the large amount of cream sold to consumers in Boston, if whole milk be sold by peddlers on their routes? If cans be "topped," as some intimate, and then refilled from "topped" cans, the milk may not, *technically* speaking, have been adulterated, yet, as all can readily see, such is not *whole* milk. It really seems to us that the line of inspection hereby suggested is quite as important, and even more so, than that hitherto pursued by the inspector for the purpose of detecting fraud in the milk supply in the city of Boston.

Paris, as seen by a late issue of the *Traveller*, is accomplishing much, having in three years, by the watchfulness of the authorities, reduced the supply of "sophisticated" milk delivered by the railways from 44 to 10 per cent.; and in the retail from 53 to 33 per cent., showing that much remains to be done to ensure pure milk to consumers in Paris.

Let the inspector in Boston do what the watchful authorities are doing in Paris, and report from year to year in percentages as in Paris. More thorough, systematic work needs to be done here, as is doing elsewhere, to ensure consumers a supply of good milk. There are three to one against the consumer's being supplied with pure milk in cities, to wit, the producer, the contractor, and the peddler, all of whom have been severally accused of taking a hand in the art of "sophisticating" milk on its way to the tables of the consumers. "The temptation to do this," says the inspector, "is too great for the average milkman to withstand." Let the authorities be watchful everywhere, and, to quote the inspector again, "intimidate by the rigors of the law."—*Boston Traveller*.

BARBED-WIRE FENCES.

Steel wire in some of its many forms is becoming, in certain quarters, the fencing material for farms and railroads, and even for garden and lawn. Some of the points claimed in favor of this new fence are: cheapness, durability, ease of shipment of the material, and indestructibility by ordinary fires, like those arising from sparks of a passing locomotive. The barb should be short, with a keen point, standing at right angles to the wire. Some have advocated a dull point as more

humane, but the success of turning stock resides in its sharp point. Often animals have been injured and even killed by wire fences, and all need to be introduced to this form of barrier. A coll, or cow, that has once been pricked by the barbs will keep at a safe distance from the fence. Most of the damage has been done by the animals running upon the wires without seeing them. A strip of board may be nailed from post to post, near the top, to make the fence more conspicuous. The ribbon wire is more easily seen than the round form, but experience has taught that it is less durable. Now, during the winter, is a good time to look into this important matter of barbed-wire fences.—*American Agriculturist*.

AGRICULTURE IN COMMON SCHOOLS.

One great difficulty in the way of the success of agricultural schools in the United States, lies in the fact that our people do not make use of the primary schools as auxiliaries—as feeders to them. Instruction in the elements of agricultural education should begin in the common schools of the country, especially in those where farmers' sons and daughters make up the bulk of attendance. This is being done in France and other European countries. The result is entirely satisfactory. Youth of both sexes can, in these schools, be instructed in botany, in the practical culture of trees, shrubs and flowers; in grafting, budding, hybridizing and selecting, and a score of other things that will amuse and instruct, and at the same time beget a love for rural pursuits, and a desire for higher instruction in the science and art of agriculture, horticulture, stock breeding, etc. Public sentiment needs arousing in this direction.—*Chicago Herald*.

ENGLISH CHEESE INTEREST.

Cheddar cheese, or made from the whole milk, is the best known and most popular in England, and since it is now largely made both in Great Britain as well as in America, on the most approved scientific method, it appears destined to supersede most other local systems of manufacture. It was first made only in the small locality of Cheddar, in Somersetshire. The mean composition of Cheddar cheese is 34.6 per cent, water, 30 butter, 27.4 casein, 3.2 milk sugar, lactic acid and extraction, and 3.8 per cent, mineral matter (containing common salt.) Gloucester cheese is either single or double, and is made from whole milk, or from mixing with the fresh morning milk that of the previous evening, after it has been skimmed. The Derbyshire is also a half-skimmed cheese. The cheese of Cheshire, Somerset, and Wills are principally of whole milk, made in ways slightly varying from Gloucester, and the same may be said of the Dunlap cheese of Scotland. Stilton cheese in uncolored and extremely rich in quality, as it is manufactured out of the morning's milk, with the addition of the cream of the previous evening's milking. The curd when separated from the whey is not broken as in making other kinds, but is drained and dried in a sieve. It is then placed in a wooden hoop on a dry board, frequently turned and wrapped in bandages,

which are tightened at each manipulation, or as occasion requires.

It is believed that the first country in which associate dairies were formed was in Switzerland, more than thirty years ago. It is generally known, however, as the American system, since here it first became popular, and from here it was introduced into England. The first cheese factory in America was established in 1851. The origin of the co-operative factory system of cheese-making in England dates from 1869, although in 1876 there were but nine in full working order, with an average total annual production of about 400 tons of cheese. Other factories are in the course of erection and more in contemplation in various parts of the country. It may be added that the factory system has already extended on the Continent to Russia, Holland, Denmark, Sweden, and other countries. The consumption of cheese in the United Kingdom far exceeds the home production, some authorities estimating that fully one-half the cheese sold in England is derived from abroad, and that the total amount now consumed per annum equals fully 200,000 tons. The imports of cheese into Great Britain nearly double every ten years. In 1855 the total imports were 38,213,504 pounds; in 1865, 95,567,004 pounds; in 1875, 182,158,256 pounds; while during the first seven months of 1878, 108,533,728 pounds have been imported.

The duty on all foreign cheese imported into Britain previous to 1842 was about \$2.62 per 112 pounds. In that year the duty on imports from British possessions was reduced to fifty-six cents per 112 pounds; in 1853 the duty was reduced to sixty-two cents per 100 weight on all foreign cheese, while in 1859 the duty was entirely abolished. The principal foreign supply comes from America, and as early as 1874, out of a total import of 166,349,680 pounds, the United States supplied 95,522,496 pounds, Holland 44,675,456, Canada 24,756,810, France 614,514, and Germany, Sweden and Belgium small aggregates. Since that date the American imports have exceeded all others in proportion to the total receipts. The growth of the cheese industry in the United States is something wonderful, and especially in the marked increase in the foreign demand for our cheese. For the twelve months ending June 30, 1877, our exports of cheese were 107,364,666 pounds, valued at \$12,700,627; while for the corresponding period of 1878 the total shows 123,783,736 pounds, of a value of \$14,103,529, the largest part of which was marketed in Great Britain. English people probably consume more cheese than any other nation on the globe, or in the proportion of about ten pounds yearly to each inhabitant, while in this country the consumption is less than half that quantity.—*Cultivator*.

TIMELY HINTS FOR HOUSEHOLDERS.

As the season has arrived when curing meat is in order, we republish, as of old, our famous receipt for curing beef, pork, mutton, hams, &c., as follows:

To one gallon of water take 1½ lbs. of salt, ½ lb. sugar, ¼ oz. saltpetre, ½ oz. 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 cold, 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, &c., 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 respect 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.

There is some difference of opinion as to protecting manure against rain, wind and the exhausting effects of the sun. Doubtless all these have an injurious influence upon the manure heap, and it is certainly true that without any moisture at all from rain, it will not be improved. However this may be, we are very certain that unlimited exposure to the weather will prove highly injurious to the quality of the manure. A leading farmer told us some time ago that he regarded the complete exposure of the manure heap through the winter and until it can be used in the spring, to damage at 50 per cent. In other words, one load of well protected manure was worth two of the exposed. This seems to be almost incredible, but it may not be far from the truth. There is no question that a subject which so vitally concerns the farmer as this one of manure, and causes him to give so much attention to it, possesses great merit. His straw is not to be sold because it is to be converted into manure. Stock is fed through the winter for the express purpose of accumulating manure. Articles that scarcely pay to send to the city are nevertheless hauled there in order that manure may be brought back as a return load; and yet the whole of the manure gathered is frequently all the season exposed to the sun, wind and rain until it is greatly diminished in value—one-half according to the opinion of our agricultural informant. The trouble is that few really believe that exposed manure undergoes any serious loss. Hence, in arranging farm buildings—and we know many that are so arranged—it will pay well to look almost as much to the preservations of the manure as of the hay or grass; and those whose buildings have no provision for this purpose, cannot spend twenty-five to fifty dollars better than in putting up a shed under which the manure heap may be protected against these adverse influences.—*Germantown Tel.*

METHODS OF MILKING.

Anyone who is familiar with the workings of the dairy knows how important it is to have the milking well done. The difference between the herd's yield in the hands of a good and a poor milker will often determine the question of loss or profit, and it does not require extreme instances to mark this difference, either. With this general knowledge of its importance, yet how rare is it we find any intelligent instruction upon the subject, either

upon the farm or in the dairy school. The great difficulty in teaching any one to be a good milker lies in the fact that there are two distinct branches to the art of milking, and it is hard to find the two qualities combined in one person. First and of most importance is that of disposition. Nervous, impatient and high-tempered men rarely make good milkers while lazy and indifferent natures are equally unfitted for the work.

The great point is to find a man who is fond of the work and in sympathy with the cow. Such a man can get enough more milk from a herd to warrant far better wages than he usually receives. The second requisite of a good milker is skill in manipulating the teats. This, unfortunately, is a matter upon which there is a great diversity of opinion. Each community of dairymen thinks its method the best, while those who set up to be authorities are equally at odds. There being no absolute evidence for settling this question, I will simply describe the usual methods and give my own ideas as to the best plan for dairymen to adopt.

First, there is the old poetic way, where the milkmaid saunters into the field with her mind upon a lover in the distance, playing a lute or Jew's harp. To her musical call the herd comes winding slowly o'er the lea, etc. She sits upon her heels or rests on her knees and milks deliberately with a simple grasp, by which the ends of the fingers squeeze the milk from the teats. Her mechanical work is probably the poorest in the market, but her kind nature and love for her cows induces them to forgive her awkwardness and do all in their power to make up for her deficiencies, and this is nearly half the game. The next character that we meet with in everyday life is the father, son and hired man of the commercial dairy. You will find him in all the dairies from the backwoods of Iowa to the suburbs of Boston.

He sits on a three-legged stool, wears a broad-brimmed straw hat, holds the tin or wooden pail, as the case may be, between his knees, and talks politics to his companion milker, and gets up from his stool as soon as a decent sense of duty performed will admit. His thoughts, like the milkmaid's, are usually far away, but unlike the said maid the cow is as glad to get rid of him as he is of her, and the yield is rarely as satisfactory as it should be. The grasp and manipulation of the teat is the old style, and both udder and teat are perfectly dry when the milking is ended. There is rarely, if ever, any attempt on the part of the owner of the herd to instruct the hired man or even his own son in the best and most thorough method of milking. Just as each one happens to take it up he continues the operation all his life. The result is that some men milk slowly, some rapidly, some roughly and others gently. Some pull the teat and end each stroke with a jerk, while others scarcely disturb the udder at all. Some milkers are constantly wetting the teats by dipping their fingers in the milk, but this is a foreign trick and rarely seen in a Yankee dairy.

The art of dairying is of much more modern growth in this country than it is in Europe, and it is seldom the business is followed by father and son to more than two or

three generations. The result is that there is a lack of uniformity and gradual improvement, and in the methods adopted small points are not given the importance that long experience suggests. The best milkers I have ever seen were natives of Switzerland, and, so far as my observation has gone, they have one uniform method that has, probably, been handed down from generation to generation, from the time that man's mind runneth not to the contrary. The Switzer straps a one-legged stool tightly around his hips, gives the cow a smart slap on the rump, sits down by her side, draws his right leg under him and spreads the other out behind the cow; the pail is held between his knees and his hatless head is pressed firmly into the cow's flank. The udder and the milker's hands have already been washed clean, and a few pulls are taken at the teat to moisten the hands. The thumb is bent back upon the palm of the hand and rests against the side of the teat while the fingers encircle it, the tips of the fingers not touching it. He milks with a rapid, steady pull until the udder is half emptied, repeatedly moistening his hands with the milk as he proceeds.

He then passes on to the next cow, and when she is half milked goes back to the cow he has just milked and rapidly strips her to the last drop. I am sorry to say I have seen him pour these two milkings into separate cans. That is, the first half is taken from different cows until the pail is filled, when he empties it, and returns for the stripping process, and the richer yield is probably saved for a different purpose or another set of customers. They tell me that cows give more milk if allowed a slight rest between the two milkings. The head resting in the flank gives timely notice of any attempt on the part of the cow to kick, and the left arm is thrown forward to intercept the blow. I have nothing to say as to the morals of the Switzer's methods, but he is certainly the most finished hand at the pail that I have ever seen, and I think it would be well for others to follow his methods of manipulation.—*Phila. Press.*

SHORTHORN PRIZES AT DESMOINES.

Mr. J. H. Sanders, of the *Breeders' Gazette*, has the following to say of the sweepstakes awards in the Shorthorn ring at the recent state fair at Des Moines:

Sweepstakes Shorthorn Bulls.

Six red bulls faced the committee on best Shorthorn bulls, as follows: Proud Duke 2d, Frederick William, Orange Lad, imported Van Tromp, John W. Porter, and a young son of Frederick William out of a Red Daisy cow. The two first named are the well-known sons of that great sire of prize winners, imported Duke of Richmond; the next two are of Mr. Cruickshank's Queen of the South and Victoria families, respectively; and John W. Porter, shown by "Uncle John" Meyers, is a good three-year-old of the Phyllis sort. By a unanimous vote, the prize went to Mr. Miller's Orange Lad—an animal of fine length, massive front, and good crops. He had been used very heavily during the summer, and was not in as high flesh as Proud Duke 2d, but handled better. His fin equality has evidently won him the ribbon. His hips are rather too

pronounced for perfect symmetry, but he is low in the twist, has round, deep body, is fine boned, and his hide is remarkably mellow, handling admirably. Altogether, he is a good sample of Mr. Cruickshank's right sort.

Sweepstakes Shorthorn Cow.

This was a large class, and some difficulty was experienced in judging it. After a careful examination, the committee balloted, each choosing a different cow. The unsuccessful beasts were led away. The judges had selected two of the older Potts cows—Caroline of Oakland and Emma 4th, one of the famous twins—and John G. Meyers & Son's fine red cow Susa Lee, bred in Kentucky, we believe, and tracing to an imported daughter of the old Duke of Gloster (113-2). There were many good judges on the ground who would have made different selections.

LOOKING OUT THE BACK DOOR.

A friend of ours wished to hire a farmer for a wealthy neighbor, and we mentioned one who was wanting an engagement. Knowing that our friend had been to see this farmer, we asked the result. His reply was, in substance: "Yes, I went there; I went around to the back door and came away, knowing that he would not suit." The front doors of many farm-houses are rarely opened. The back door is in constant use. One need not go far in any locality, to find the outlet of the kitchen sink ending in a sort of ditch, which is supposed to carry off the waste water, but which only allows it to soak away and saturate the ground near the back of the house. The seldom used front door is opened when a small coffin is to be taken out. The minister speaks of "the mysterious dispensations of Providence." They are not at all mysterious. Bad sink drains at the back of the house are sure to bring typhoid fever and other sickness. Let the back door surroundings be looked to. If nothing better can be done, carry the kitchen wastes to a cesspool a distance from the house, where they can soak away far below the surface. Prohibit all throwing out of slops at the back door. The ground soon becomes charged with matters that ferment and breed disease. Where pigs are kept, and that includes every farm, there should be a pail, to receive all animal and vegetable matters and daily emptied. Nothing of the kind should be thrown out at the back of the house. Where there is such a disease-breeding sink spout as we have mentioned, let provisions be at once made to carry off the water to a cesspool, and cover up the saturated ground with dry earth. Let the back yard to the house always be kept scrupulously neat.—*American Agriculturist for August.*

CARE OF FARM HORSES.

Successful farming is next to impossible with the use of inferior horses. Even when the best animals are secured skill and care are required to maintain them in proper working condition. Inefficient team help increases the cost of almost every farm operation, and makes high-priced labor expensive by diminishing its effectiveness. With careful but liberal feeding, and thorough grooming, a good team of horses should thrive even after

performing a good day's work every working day in the year. In some avocations men work every day through the year with the exception of Sundays, and, though this may not be the best practice for men and women, yet it is because of a finer nervous organization, which is not presumed to be an impediment in the case of the average work horse. Muscular weariness alone is relieved by regular rest at night, and also that of one day in seven set apart for that wise purpose. In the care of the horse, if the grooming be faithfully performed, it goes far towards resting the tired muscles after a hard day's work. We have in mind a most careful horse owner, who is accustomed every night to thoroughly rub and brush the wearied muscles of his team of horses. From the fresh and lively appearance of his horses and their disposition to work, we fancy this grooming is quite as important a factor in the well-being of his team as the grain which is fed to them. These horses have not been fed heavily, yet, from spring until fall, working every day excepting Sundays, the team continues to improve.

The mistake commonly made by farmers is in giving their horses too little grain in winter, or when not working, and then overloading the animals' stomachs when heavy work has to be accomplished. Grain thus fed not only fails to strengthen, but also absolutely weakens. It is really a tax on the digestive organs, to which they are not accustomed, and are therefore unable to bear. Every person knows, or lucky indeed is he who does not, the sudden weakness which almost invariably accompanies any derangement which generally follows any sudden increase in food just as hard work begins. In fact, sudden changes of food in kind as well as in amount should as far as possible be avoided.

A certain but moderate proportion of green food should form part of the daily ration for horses in winter as well as summer. At no time, however, should a working team be allowed to fill itself with grass to the exclusion of more substantial food. One feed of carrots daily through the winter is better with two feeds of grain than the feeding exclusively of grain rations morning, noon and night, without the roots. In a limited extent as an auxiliary feed carrots are worth as much for horses as oats, and more than corn. This latter grain, so well adapted for nearly every other purpose, is not well adapted to horse feeding. Some horses can assume corn without bad results, and it is a good sign for a horse that can, since it shows his digestive apparatus in excellent order. But, as a rule, a horse corn fed will not be able to do as much work as if given oats. When the corn does not cause colic, it may be given before hard work begins, but after that the oats are worth as much per bushel as the corn, though it takes only thirty-two pounds of oats to make a bushel and fifty-eight or sixty of corn. In hot weather the oil and starch in the corn are worse than wasted. The poor animal is hot enough already, and he needs strengthening, not heating food. We are aware that many heavy, slow-moving city draw and truck horses are fed a large proportion of meal, yet this does not change our opinion of its comparative value.

After spring plowing and planting are fin-

ished, it is the habit of many farmers to allow their horses to run down, to give them less care and little or no grain, not infrequently turning the team out to grass until heavier work is resumed. There are many excuses given by the average farmer for following this practice, yet there are many solid reasons for its discontinuance. Keeping a team on grain is expensive, especially if the home supply runs out, as is often the case after a hard spring's work. The feed, however, need not be so heavy during the summer, yet a few oats or a little mill feed should be given daily. If hay runs short cut clover, or the richer grasses by the roadside, let it cure in the sun and be drawn to the barn. The feeding of this cured clover seed and grass will be a change that the horses will appreciate, and such a feed will not work the injury sure to be occasioned through turning them out to fresh green grass. Occasionally a city horse is sent to the country to spend the summer. When he arrives his flesh is firm and his muscles are strong, yet after a few weeks on grass he becomes, unless judiciously fed, weak and flabby, and it requires several months of careful feeding and grooming to restore him to good working condition. Yet this is the same experience to which many thousand farmers unwittingly subject their farm horses after working them steadily through the spring, and getting them in just the trim to continue hard work daily without injury, so long as well fed and cared for. It is with horses as with most other specimens of animate nature, it is better and cheaper to maintain them in good condition rather than to attempt restoration after derangement has been caused through bad management.—*American Cultivator*.

ABOUT SHEEP.

The sheep (*Ovis*) has been domesticated from the earliest times known to history. It is found on prehistoric monuments, and was mingled in the personal representation of Jupiter and Osiris, and other gods. The goat is near enough in structure to be classified by some naturalists as in the same genus as the sheep. It, however, does not breed with the sheep, whose many marked varieties may suitably constitute a genus of themselves. The five prominent species are: *Ovis Musimon*, *O. Ammon*, *O. Tragelaphus*, *O. Montana* and *O. Aries*, or domestic sheep. Of the *O. Aries* there is a vast number of varieties, but the best are thought to have been, from England's large commerce, concentrated in the three kingdoms of Great Britain. Of these the three favorite breeds are now the Merino, the Cotswold and the South-Down.

The wild sheep is provided with horns in both sexes; but, being no longer of use in domestication, they have gradually disappeared, except in the Merino and other breeds. The sheep seems to flourish best in temperate climes, but is found in almost all latitudes. In the least cultured state their skins are covered with hair or wool mixed with long hair protruding through the wool; and the legs of all the genera are covered with hair; so are mostly the faces and bellies. These parts being mostly exposed to abrasion in movement, would not be so well able to maintain wool, which, from its structure, is easily torn

off. We may lay it down as a fact that culture diminishes the horns and the hair, as there seems to be a law of Nature that the things not needed to animal security are gradually lost. And in my own experience of nearly a third of a century the wool has increased on the foreheads, the legs and bellies of my sheep.

The sheep is a ruminant with double stomach and enlargement of the upper intestine so as to appear to have more stomachs. The intestines are the longest of any known domestic animal; they are about twenty-eight times as long as the whole body, hence sheep produce more flesh for the food consumed than any other animal. They have eight large teeth at maturity on the front of the lower jaw; none on the upper; and twelve molars on each jaw. This structure of the sheep enables them to eat very short grass, pressing it between the lower teeth even in the ground and the gristled bones of the upper jaw; while the cow thrusts out the tongue on alternate sides and gathers in the grass; and the horse nipping it with both upper and lower jaw fronts cuts not so closely as the sheep.

As a general rule, animals live five times as long as the period of maturity, that is to say, if sheep mature in two years, they should live ten years; but they go much above that. So man ought to live by the rule to an hundred years; and he will when the laws of Nature shall be better observed from generation to generation. The first year the sheep has eight small teeth, which at the end of that time show two large teeth in the center, replacing two small ones; and so on, losing two small and gaining two large teeth until the mouth is full, with eight teeth at four years and upwards, for I find that these results are only approximate. After a few years the teeth begin to wear away, and are finally lost, when the sheep, unless fed upon pulverized feed, must die. When sheep are bred simply for mutton at so much per pound, the old sheep should be culled and fattened for the butcher. But with sheep having faucy prices if they have a lamb and die, they thus bring more than when fattened that year and sold to the butcher.—*Cassius M. Clay in Rural New Yorker*.

WHITEWASHING TREES.

As we ride through the country we occasionally see orchards that the trunks and larger limbs of the trees have been covered with a thick covering of whitewash, but this practice is being gradually abandoned. The more intelligent the farmer becomes the better he understands that the growth of vegetation is retarded and its health injured by any covering which shall in any degree prevent a free circulation of air. While it may be sometimes advisable to wash the trunks and larger limbs of the trees for the removal of insects, the work should be of a character to leave a clean surface. Whenever the surface is covered with any substance that remains on the tree it does more or less injury, because it is not natural to have the air shut out from the bark of the tree. We never pass an orchard that has been well whitewashed without feeling that the owner has made a mistake, if he has any idea that he has either improved the appearance or the condition of his trees. As

to appearance, it does not improve it to the eye of an experienced orchardist any more than it would improve the appearance of a drove of hogs to the eye of a stock-grower by whitewashing them; and as to making the trees grow better it is a mistake. But it is claimed that it kills many insects; no doubt it may some, yet the number of insects on the trunk of a tree in the spring is not large: the few that are on the tree can be killed much easier by washing with strong soap suds, which if washed off immediately with clean water, will do no harm. In washing young trees with soap suds, unless it is washed off, it may sometimes be so strong as to change the color of the bark. When potash is used instead of soap there is always danger of getting it too strong unless at once washed off with water. Whatever wash is to be used that is strong enough to kill insects should be washed off at once with water about the same temperature as is the atmosphere.

The idea that the trunk and the larger limbs of a tree should be covered with anything which in the least interferes with the free circulation of air should be abandoned. The orchardist who has to resort to this practice to keep the insects off has much yet to learn.—*Massachusetts Ploughman*.

WARMTH IN THE STABLES.

Before an animal can increase in weight it must first have supplied the heat and renewed particles of bodily waste. This is done with the food, but if it requires all the food given to keep up the healthy standard a loss occurs. We can easily see, then, that the warmer and more comfortable the quarters are, the smaller the amount of food required for creating natural warmth. If more than a sufficiency for warmth is furnished, the stock is at once stored up in the body of the animals until needed should the supply of food at any time become insufficient. We call this storage of food in the system fat, and although animals do not provide for themselves in the manner of the bees and ants, yet there is, nevertheless, a providential storage in times of plenty in order to compensate for those periods in which the opportunity is not present. We, feeding for the same purpose, rely on the accumulation of flesh and fat by having the quarters warm, and thus economize in the food demanded. Every ounce of food over and above that which should supply heat, if not converted into a portion of the body, is a waste, and we can be extravagant by neglecting the winter quarters. Now is the proper time to make all needed repairs and other preparations, and a little time devoted to that object not only ensures a profitable return for the expense of labor and time, but adds materially to the comfort and happiness of the stock.

THE WHEAT BELT AND WHEAT PRODUCTION.

It occurs to us that we hear a good deal less nonsense now than formerly about the "Wheat Belt." It is only a few years ago that learned disquisitions on the shifting of the wheat belt were as common as editorials on the "Causes of the Late Defeat" have been during the past month. This journal always combated the idea that climatic or

any other unpreventable changes had anything to do with the shifting of the localities of greatest wheat production. We have many times pointed out that continuous cropping of the soil to wheat would inevitably lead to small crops and to inferior crops. Show us a locality where wheat is the mainstay of the agricultural population, and we will show you a district where wheat will soon be a rare crop. It is not necessary to recite the history of the Genesee valley, and of nearly all the older States of the Union. The change from a wheat-growing to a non-wheat growing section is going on to-day in parts of Iowa, Wisconsin and Minnesota. Farmers have fondly imagined that the soil was inexhaustible; and if ever there was excuse for such a fallacious belief, it exists in reference to the soil of some parts of the Northwest. But it cannot be gainsaid that wheat is an exhausting crop. It is not like tobacco, that seems to poison the soil; but as wheat contains in proper proportions every element necessary to sustain human life and activity, something which cannot be predicted of any other cereal, it stands to reason that it must speedily exhaust the soil of vital elements; at least, of the elements necessary to the perfection of the wheat berry. There are, it is true, some soils that have raised wheat year after year. The "American Bottom" in Illinois may be cited as an example; but its time of deterioration must come sooner or later, no matter how long deferred.

The statistics of wheat production during the last ten years show conclusively that there is no such thing as a climatic shifting of the wheat belt, and that whatever changes take place in this particular arise from the cause just stated—long continued cropping of the soil to wheat. It is only a couple of years ago when wheat raising was abandoned in parts of Illinois, Indiana, and Ohio; but now there is scarcely a county in either of these three States which does not produce a respectable amount of wheat. The facts are simply these: Years ago, when the country was new, the soil produced prodigious crops of wheat. The virgin prairie seemed anxious to repay the settler who braved the perils of frontier life. In return, the intelligent settler continued to sow wheat until nature put in her veto. Then the settler or his son declared that wheat could not be raised any longer in that section, and went to planting corn and oats. Another generation has found that the soil has recuperated; and that it does not need a prophet to foretell that the soil will go through another experience of over-cropping and deterioration until the farming population learn the logic, the common sense of rotation of crops. A map of the greatest centers of wheat production would be interesting. It would show for one thing, that new land produces large crops; that old land that has not been cropped to wheat for years also produces large crops. It would also show that from Minnesota to Tennessee there are no climatic influences that prevent the raising of wheat; the difficulty is in the soil and its tillers.—*American Miller*.

THE USE OF SALT.

We have received from a correspondent a letter making some inquiries into the use of

salt, and we are given to understand that among other follies of the day some indiscreet persons are objecting to the use of salt, and propose to do without it. Nothing could be more absurd. Common salt is the most widely distributed substance in the body; it exists in every fluid and in every solid; and not only is everywhere present, but in almost every part it constitutes the largest portion of the ash when any tissue is burnt. In particular, it is a constant constituent of the blood, and it maintains in it a proportion, that is almost wholly independent of the quantity that is consumed with the food. The blood will take up so much and no more, however much we may take with our food; and, on the other hand, if none be given, the blood parts with its natural quantity slowly and unwillingly. Under ordinary circumstances a healthy man loses daily about twelve grains by one channel or the other, and if he is to maintain his health that quantity is to be introduced. Common salt is of immense importance in the processes ministering to the nutrition of the body, for not only is it the chief salt in the gastric juice and essential for the formation of bile, and may hence be reasonably regarded as of high value in digestion but it is an important agent in promoting the processes of diffusion and therefore of absorption. Direct experiment has shown that it promotes the decomposition of albumen in the body, acting probably by increasing the activity of the transmission of fluids from cell to cell. Nothing can demonstrate its value better than the fact that if albumen without salt is introduced into the intestines of an animal no portion of it is absorbed, while it all quickly disappears if salt be added. If any further evidence were required it could be found in the powerful instinct which impels animals to obtain salt. Buffaloes will travel for miles to reach a "salt-lick;" and the value of salt in improving the nutrition and the aspect of horses and cattle is well known to every farmer.

The conclusion, therefore, is obvious, that salt being wholesome, and indeed necessary, should be taken in moderate quantities, and that abstention from it is likely to be injurious.—*London Lancet*.

OUR LOCAL ORGANIZATIONS.

LANCASTER COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY.

A stated meeting of the Lancaster County Agricultural Society was held in their room in city hall on Monday afternoon, December 3rd.

The following named members were present: Messrs. H. M. Engle, Marietta; John C. Linville, Salisbury; James Wood, Little Britain; Johnson Miller, Warwick; Israel L. Landis, Manheim; C. L. Hunsecker, Manheim township; Frank R. Dillenderfer, city; Levi S. Reist, Oregon; J. M. Johnston, city; Ephraim S. Hoover, Manheim; S. P. Eby, city; James Collins, Drumore; Charles P. Collins, Colerain; Jacob Hostetter, Penn township; Mr. Hershey, West Lampeter.

In the absence of President Rush, Vice President Engle was called to the chair.

F. R. Dillenderfer reported that he had read two competitive essays which had been handed him for examination and had then handed them over to S. P. Eby, Esq., another member of the committee appointed to pass upon them; but that Mr. Eby had informed him that he had not yet handed them over

to Mr. Johnston, the third member of the committee; and that, therefore, the committee was not yet able to report.

Mr. Johnston said he had no doubt the two members of the committee who had examined the essays would make a just award, and he was quite ready to waive an examination of them. [Mr. Eby came into the meeting some time afterwards and stated that he had not read the essays with sufficient care to make a decision at the present meeting, and so the matter was postponed.]

Mr. Linville presented to the society a bound volume of the report of the chief signal officer of the United States, which had been forwarded for the library; also, a catalogue of the world's cotton exposition to be held at New Orleans, and a copy of a newspaper called the *Sugar Beet*.

A Dearth of Business.

Israel L. Landis said there seemed to be a great dearth of business in the society, and he would like to know why this is so. The society was organized for a good and useful purpose, and yet its meetings were very slimly attended, and there seemed to be little or nothing to do by those who do attend.

C. L. Hunsecker said the society had been organized for many years; the attendance was never as large as the importance of the matters discussed merited. The farmers of the county would be greatly benefited by meeting together and consulting on their mutual interests. He thought the failure of the society to hold a country fair had caused some persons to look upon it with disfavor. He said that poorly as the meetings were attended they were better attended than meetings of similar organizations. The tobacco growers' association, after being in existence a few months' disbanded; so did the beekeepers' association, and at the last meeting of the Linnæan society only six members were present. The agricultural society was the only one that had held together for a long series of years. He gave great credit to newspapers of the city for publishing extended reports of the proceedings, but took the *Examiner* to task for the curt manner in which it referred to the last meeting of the society. He paid a compliment to "the nine or thirteen" members whom the *Examiner* had ridiculed for always being in their places, and he saw no reason for their surrendering to "younger men," as has been suggested.

Levi S. Reist explained that what he meant at last meeting, when he referred to infusing younger blood into the society, was that he, who had been one of the originators of the society, was willing to give way to any more progressive persons who would take hold of the work.

Johnson Miller thought the society would be more prosperous and its meetings much more largely attended if they were held in different parts of the county instead of in the city. Let them be held alternately in Marietta, Litz, Little Britain and other parts of the county, and much more interest will be taken by the farmers generally.

Mr. Hunsecker did not think so; he feared the society would soon be entirely disrupted, if it gave up its permanent place of meeting. He believed that though the meetings were not large they did a great deal of good; many important things are said and valuable essays read before the society by practical agriculturists, who knew what they were talking about and these did more good than the finest speeches made by our great men. Col. McClure and W. U. Hensel are able men, but when they undertake to instruct farmers how to do their own work they are likely to do less good than when plain, practical farmers talk in these meetings.

Mr. Landis was of the opinion that the society had been injured by its refusal to recognize the independent state fair held here two months ago, and by the speeches in reference to it which had been made by members here. While the fair was not all that could have been wished the machinery and implements and some other departments were equal or superior to any ever held in the country.

Mr. Johnston thanked Mr. Hunsecker for the kind

manner in which he had referred to the newspaper reports of the proceedings; but gave it as his opinion that the newspapers were the cause of the meagre attendance at the meetings. The local papers print not only the proceedings of the meetings, including the essays and papers read, but they reprint valuable articles clipped from other papers on agriculture, horticulture, stock raising and other matters of interest to the farmers. Every farmer takes one or more papers and when they can get in the papers the information they seek, they will not leave their homes and lose a day every month to attend the meetings of the society. He did not believe that any plan could be devised to increase the attendance at the meetings, and the society would have to be content with the small number of "old regulars" who are in the habit of attending.

Levi S. Reist said there was much truth in what Mr. Johnston said. Our farmers read the papers, and he was pleased to notice that much that is said in this society is quoted elsewhere.

Eph. S. Hoover was of the same opinion, and added that farmers gained much useful information in visiting each other and exchanging views on the manner of cultivating various crops. When they hear of a farmer who is unusually successful in any particularly branch, they visit him, find out his mode of culture and adopt it.

Mr. Hershey thought the regular meetings of the society should be held in this city, but suggested that they would be more largely attended if the time of meeting were changed from Monday to Saturday.

Messrs. Reist, Landis and others opposed any change of day.

S. P. Eby, Esq., said the meetings might be made larger and more interesting if the members who attend regularly would make it a point to bring with them their neighbors, who had proved to be unusually proficient in the culture of any particular crop, and have them explain their mode of culture.

Bills Paid.

Mr. Eby presented bills for coal, coal box, coal bucket, &c., which were ordered to be paid.

Pruning Peach Trees.

In answer to a question by Mr. Eby, Mr. Engle said that peach trees that had grown so luxuriantly, or on which the branches were too close together, might safely be trimmed now, or at any time between now and next spring, providing the wood is not frozen. Trim freely and head off those branches which have made too much growth.

The following was proposed for action at next stated meeting:

Referred Questions.

"Will the large quantities of dead clover on the fields, if plowed down be a benefit to next season's corn crop?" Referred to James Wood.

"When corn is 60 cents per bushel what is the value of a bushel of potatoes as feed for stock?" Referred to Johnson Miller.

"What are the most profitable books for farmers to read?" Referred to M. D. Kendig.

"Should this society encourage the improvement of agricultural implements and labor saving machines?" For general discussion. Adjourned.

POULTRY ASSOCIATION.

The County Poultry Association met statedly Monday morning, Dec. 3, in the office of Jacob B. Long.

The following members were present: Hon. J. A. Stober, Shenick; J. B. Long, J. B. Lichty, Harry A. Schroyer, John E. Schum, F. R. Diffenderfer, W. A. Schoenberger, Henry Schmit, P. A. Goodman, Chas. Lippold, C. A. Gast, city; Mr. Stauffer, Bareville; Geo. A. Geyer, Florin, and Jacob Bruner, Mount Joy.

The minutes of last meeting were approved.

On motion of Mr. Schroyer it was agreed two men should be appointed for day and night service at the coming show, the wages to be \$1.25 each per day.

The same gentleman made a motion that two persons be selected to sell and to receive tickets.

Agreed to. It was also agreed the cost of these two men shall not exceed \$14.

On motion, Mr. William Schoenberger was employed as general manager of the exhibition room and its surroundings at the rate of \$1.50 per day.

On motion, Messrs. Schroyer, Schum and Bruner were appointed a weighing committee.

Treasurer's Report.

The Treasurer reported 72 shares sold at \$5 each, out of which \$133 of last year's premiums were paid. Other indebtedness of the old society to the extent of \$231.30 was also paid. The total payments were \$364.30, leaving a balance due the treasurer of \$5.60; but enough is still due on stock to pay this indebtedness.

The total value of the advertisements in the new catalogue is \$73 in cash, besides some cattle powders. The printing up to date has cost, with postage paid to send them out, \$82.93. It is expected the entire cost of printing will be realized out of the advertisements. Something will, in addition, be realized out of the sheet catalogue now in course of preparation.

The room has also been partially rented from the present time until January 1, so that as the case now stands the rental to the Society will not exceed \$100, with four more months to realize further sums. The thanks of the Society were extended to the officers for their services in attending to the matter of renting the room.

A motion was made that the Executive Committee should be present at the show every evening at seven P. M., to attend to such matters as may require their attention.

The Baltimore Poultry Association has agreed to lend its large flag to our society during the continuance of the show. The offer was accepted with thanks.

On motion, it was resolved that if any entries of pigeons or poultry were made that are not on the premium list, they be not admitted, and the birds and entry fee be returned to their owners.

There being no further business, the society adjourned.

LINNÆAN SOCIETY.

The Linnæan Society met on Saturday afternoon, November 24, 1883, at 2 o'clock, in the museum rooms, the president, J. P. Wickersham, in the chair and six members in attendance. The minutes of the previous meeting were read in part and approved, and the dues collected, after which the

Donations to the Museum

were examined, and found to consist of a box of glass sand from James Grant, of No. 294 Second street, Philadelphia, Pa.; an antiquated specimen of a wooden snuff-box, from Germany, per S. S. Rathvon; specimens of the main line and attachment wires and carbon point of the Lancaster city electric light, neatly mounted on a cord and labeled, donated by S. M. Sener; mounted specimen of plant (*Antherisum villatum*) from Cape of Good Hope, donated by S. M. Sener.

Master W. G. Baker visited the museum and exhibited to the members a fine specimen of calcareous incrusted moss and sage plants, which had been sent to him from Colorado. On motion a vote of thanks was given him for the exhibition of this beautiful petrification.

Dr. Duhbs exhibited a specimen of a *Phallic Statuette*.

Dr. S. S. Rathvon donated specimens of the foliage and flower of the *Black Helibore*, or "Christmas Rose," also a small phial of a species of musculus or fly, brought up from the Southern States in a box of oranges sent to this city.

Additions to the Library

Consisted of a cabinet and a stereoscopic view of a contorted rock, a geological specimen of a once plactic rock superimposed upon a more ancient boulder, located between the Pennsylvania Railroad bridge and the Groffstown road, on the Conestoga

creek, photographed for and donated to the Linnæan by W. L. Gill, photographer, city; Official Gazette of United States Patent Office, No. 8, Vol. 25; *Lancaster Farmer* for November, 1883; Catalogue of Books and Pamphlets Relating to the American Indians; DeWolf & Fisk's large Catalogue of Books; Lippincott's Monthly Bulletin for November; Sundry Circulars; one envelope with 13 scraps; Report of Commissioner of Education for 1881; Catalogue of Ancient and Modern Books by Gustave Steckert, of New York city; Guide to Lexington, Ky., by Ranck, with compliments of the author.

Current Business.

The treasurer then reported that Mr. King had lifted his share of stock, and the secretary read a letter from Mr. R. C. Bair, of York Furnace, thanking the members for his election as a correspondent.

Tributes of Respects.

Dr. Rathvon said it became his painful duty to announce to the members the deaths of two of our correspondents, Dr. John L. Leconte, of Philadelphia, and Hon. J. J. Libbart, of Marietta, and read the following:

Mr. President: Impressed with a special regard towards those who have unselfishly devoted blameless lives to the development of natural science, and deeply sensible of the uncertain duration of human life, I feel it incumbent to announce officially to the members of the Linnæan Society the recent deaths of two of its most distinguished correspondents, in the persons of Hon. J. J. Libbart, late of Marietta, this county, and of Dr. J. L. Leconte, late of the city of Philadelphia. Perhaps no man in Lancaster county has performed more uncompensated scientific, literary, and artistic labor than Judge Libbart. He has been locally identified with the progress of art, science, mechanics, scientific literature and music from a very early period of his life, and only ceased to labor specially in these pursuits, when official duties and failing health supervened. Although too remote, and too much locally occupied to participate actively in the affairs of this society, yet he manifested a practical recognition of its worth by making liberal donations to its museum, and sympathizing in its progress. As a member of the "Old Lyceum," and other kindred institutions, he was amongst the first to give impulse to the pursuits of natural science in the county of Lancaster, and his example in that respect, was worthy of a more numerous, and a more active following. After two years of physical privation and deep affliction, he has been "gathered to his fathers" at the "green old age" of seventy and seven.

Judge Libbart was born in Kreutz Creek Valley, York county, on the 6th day of August, 1806, and died at Marietta, Lancaster county, on the 6th day of November, 1883, and as a practical and versatile mechanic and scientist, he perhaps had few or no equals in the county. It would perhaps be invidious to say that no other man could fill the vacuum caused by his removal, but it is questionable whether any other man would fill it.

We accord these sentiments as a tribute of respect towards one whom we deem to have been a worthy co-laborer in the field of natural science. *May he rest in peace.*

Dr. John L. Leconte, although, perhaps, personally known to but few of the members of this society, stood confessedly at the very head of the coleopterists of the United States, and for nearly forty years has been identified with the coleopteral literature of the country. He was born in the city of New York, on the 13th day of May, 1825, and died on the 15th day of November, 1883, having attained the age of 58, hardly past the prime of life; but he accomplished a very large amount of scientific labor, not only within the bounds of his entomological specialty, but also in other scientific fields during his lifetime. Although his relations to this society were little more than merely nominal, yet in view of his pre-eminence as a naturalist, the recognition of that pre-eminence by the society, is the least that it can afford as a tribute to his fame.

Dr. L. was not what is termed a popular entomologist; his descriptions having generally been written in a dead language, he was, therefore, technically contra-distinguished as a scientific entomologist, being one of the most expert investigators, insect anatomists; and structural classifiers in the country, so far at least as relates to the order Coleoptera. His contributions to coleopteral literature were very numerous and very learned, but better adapted to the apprehension of learned societies than to popular appreciation. He was one of the founders of the American Entomological Society, if he was not the ruling spirit that gave the original impulse to the movement which culminated in its organization.

Dr. Leconte was the intimate associate and friend of Prof. Haldeman, and they jointly revised and added the *Melshimer Catalogue of Coleoptera*,

published by the "Smithsonian Institution," the original being the oldest and first contribution to scientific entomological literature in the United States of America, its date being about 1812. He always accorded a willing help to students in entomology, and liberally compensated them for any favors granted him from their collections. His labors are now ended on earth, but his name will be transmitted to posterity as long as the changing things of time endure.

Dr. Rathvon read an article clipped from the daily papers in reference to a species of white ants, infesting and undermining the wood-work of the State capital building of Massachusetts, and commented upon the same. He also read notes on some of the articles donated to this meeting, and also additional notes upon the grape fly donated at last meeting.

Dr. Dubbs then read an article on the "Phallic Statue," exhibited by him to the members.

Action on constitution and by-laws was continued. There was quite a number of visitors in attendance. After discussing the various donations and papers read the society adjourned to meet on Saturday afternoon, December 29, 1883, at 2 P.M., which will be our annual meeting.

FULTON FARMERS' CLUB.

The Fulton Farmers' Club met at the residence of E. H. Haines, on Dec. 1, 1883. The members were nearly all present and Edwin Reynolds and wife, Samuel Haines, James Hadley and wife and James Mason, were present as visitors. The minutes of the last meeting were read and approved.

Sol. Gregg exhibited several Dominic apples and Wm. King showed a sample of his variety of field corn.

Questions and Answers.

William King asked if it is profitable to use more than 500 pounds of South Carolina Rock to the acre on one crop? Lindley King thought it was not profitable.

Sol. Gregg said he has experimented with from 200 to 1,200 pounds per acre, and thinks that 500 pounds is the maximum amount that it is advisable to apply at one time. He also thought that it is better to use smaller amounts and apply oftener.

This question raised some discussion in the club as to whether South Carolina rock was really a manure, or whether it only acted as a stimulant, but all present were of the opinion that it was the cheapest fertilizer farmers of this section could buy. Several members cited cases where 200 pounds appeared to make as much show as 800 or 1,000 pounds did.

This leads one to suppose that its action on the soil was only stimulating.

Sol. Gregg thought there is a limit to the application of any kind of manure to a profit.

There being visitors from other sections of the country, Montillion Brown asked them how lime was acting in their neighborhood. Mr. Edward Reynolds, of Cecil county, Md., said lime was not giving much satisfaction with them; and James Hadley, of the same county, was of the same opinion.

E. H. Haines asked what was the best kind of hay knife? There were several kinds spoken of. The old fashioned kind and a patent one, which could be bought at any hardware store, were mentioned as the best.

Rebecca King asked if German carp would live in stagnant water? Edward Reynolds, a person who has had several years' experience, and has been very successful in raising these fish, answered that he thought they would not. Mr. Reynolds read from a pamphlet, published by the United States Fish Commission, answering all questions relating to carp culture.

The club then adjourned for dinner, after which the usual after dinner stroll and inspection of the host's farm, buildings and stock, was made.

Afternoon Session.

The club being called to order, the minutes of the last meeting held here were read, and criticisms on farm management was called for.

Mont. Brown spoke favorably of the host's fine herd of Jersey cows.

Wm. King noticed a new porch on the east side of the house and a new kitchen in the rear, and everything that came under the observation of the club was in good order, but some of the members noticed his silo, which was built some years ago, empty.

The host read an article from the *Practical Farmer* entitled "Farmers of To-day," giving a comparison to what they were fifty years ago.

Miss Bell Mooney read a well written essay on "Decorations of the Farmer's Home."

Carrie Blackburn recited Paddy O'Sheff.

"Are canneries of any benefit to the farmers of the communities in which they are?" the question postponed at a former meeting, was then taken up for discussion, but the drift of the remarks showed very little personal experience as regards profit.

Sol. Gregg, the only one present who had furnished canneries in any amount, gave the following report as the results of the present year's operations: One acre of corn, a good application of barnyard manure and 400 pounds of South Carolina rock, yielded 97 bushels of corn at 75 cents, or a total of \$72.75; one acre of tomatoes, the ground treated the same as for the corn, yielded 375 bushels at 25 cents, or a total of \$93.75. He stated that the fodder was a total loss, as it was impossible to cure it so as to keep. This acre of ground would have raised 60 bushels of field corn. As to any advantage to farmers living in the neighborhood of canneries, the club was of the opinion that they were of no benefit; that they demoralize farm labor and by bringing large bodies of men, women and children together and also compelling night work, it was of no benefit to the morals of a neighborhood.

Edward Reynolds spoke of the benefits and pleasure it gave him in attending this meeting, and made a donation of 100 German carp for the benefit of the club.

A vote of thanks was tendered to Mr. Reynolds for this generous gift.

The club then adjourned to meet at Grace A. King's, on January 5, 1884.

AGRICULTURE.

The Benefit of Drainage.

The land can be utilized for crops to the depth that it is drained, but no deeper. Drainage not only deepens the soil but improves its texture and quality. The air will penetrate the soil as deep as it is drained and impart to it fertilizing qualities; it enables us to work sooner after rains; it makes the ground much warmer, and does it much sooner by the warm rains passing through it; it enables us to get at our work much earlier in the spring; it starts our crops two weeks earlier; it prevents crops from freezing out in winter; it enables us to get the full benefit of manures that would be soaked and washed away if not drained; it improves the quality of hay and pasture; it gets our fields in a cleaner and healthier condition; it prevents surface washing; it makes the surface more friable and mellow, and easier to cultivate; it prevents land from becoming sour by removing all standing water before it becomes stagnant; it banishes the chills and fever, and other forms of malarial diseases.

Tile drainage is much the cheapest and most effectual way of drying up wet and muddy roads; it will assist in drying up the mud around farm buildings; it will change that pale and sickly hue from your children's complexion to that of the blooming rose. As more of the mysteries of vegetable growth are solved, the more will successful farmers learn of the great benefit of tile drainage.—*Germantown Telegraph.*

Absorbing Power of Soil.

"Fill a bottle which has a hole in the bottom with fine river sand or half-dry garden earth, pour gradually into the bottle thick and purified dung-liquor until its contents are saturated. The liquid that flows out at the lower opening appears almost odorless and colorless and has entirely lost its original properties." Liebig found that "water holding

ammonia in solution when poured upon clay ran through deprived of this substance." Prof. Way has made elaborate experiments to determine the composition of drain-water from grain fields. He found that in 100,000 parts of drain water there were from 35 to 60 parts of impurities consisting of ten mineral substances and a little organic matter. These were pretty satisfactorily proven to be dissolved from the soil. What is called ordinary pure water does not differ materially from drain-water as thus determined. Bronner comes to this conclusion: These examples sufficiently prove that the soil, even sand, possesses the property of attracting and absorbing the attracted matter, so that the water which subsequently passes is not able to remove them; even the soluble salts are absorbed, and are only washed out to a small extent by new quantities of water.

The practical bearing of these facts is apparent. The absorption of matter from the water of the surface as it passes through the soil would be impossible in an undrained, or surface-drained soil, for the water must flow over the surface to some outlet channel, or be evaporated and leave the surface in the form of volatile gas.

A drained soil acts as a collector and condenser of gases and vapor from the air. While it is true that water absorbs and holds within itself large quantities of ammonia and carbonic acid, yet in this condition they are of but little value to plants.—*Elmira Husbandman.*

Raspberry Canes and Crops.

I used to think it of little consequence when the old canes of blackcaps were cut. Wild raspberries continued to bear well, though the old wood was never removed. But recent experience and experiment has convinced me that they should be removed as soon as the fruit is gathered. At this season the old bearing canes are yet alive and may be cut easily with a sharp hook attached to a handle two feet long, after which the field may be more thoroughly cultivated and hoed than if the encumbering canes were in the way.

But aside from this the old canes appear to draw on the vitality of the plant, and seriously affect its subsequent capacity for bearing fruit. It is now held by scientific men that a dead branch exhausts the vitality of the tree as much as though alive. The dead canes on raspberry bushes would appear to affect them in like manner. Bushes not cleared of old canes produce small, defective, crumbling specimens. The first year or two the bushes are not so seriously affected. Hereafter we will trim ours as soon as the fruit is gathered, sweep them out of the spaces between rows with a one-horse rake, similar to a steel-toothed hay-rake, but very short and no wheels, and save the ashes.

Blackcap raspberries are one of the most certain crops, and are as sure of sale as wheat. If not wanted fresh picked they pay as well evaporated. After one learns how to manage them there is no more trouble to harvest them than most farm crops. A young girl often has charge of fifty pickers on our place, but it pays to have a competent person walking about to see that the work is well done. Our blackcaps bring in about \$150 per acre, gross income, on the average for the fruit alone. The crop of plants from the same acre is as valuable as the fruit, often more so. The blackcap abhors low, wet ground, but if such is drained it will thrive therein. Souhegan or Tyler, for early, and Gregg for late, are the best varieties.—*New York Tribune.*

HORTICULTURE.

Care of Raspberries.

Not only is the raspberry one of the most delicious berries, but if properly managed is the most profitable. The raspberry is no more trouble to raise than corn, and will yield a profit of from \$200 to \$300 per acre.

Now that the fruiting season is past the old canes should be cut out. This should be done that all the

force and strength of the roots be thrown into the new growth, for upon this the next seasons crop greatly depends. To insure a bountiful crop next season you should get a large, vigorous and well-matured bush, and to secure this the young growth must be topped as soon as it is three feet high, and then cut the old canes out as soon as done fruiting. Throw two or three shovels full of some rich compost around the bush slightly working it in the soil.

As soon as the lateral branches get about fifteen inches long cut the tip off. By so doing the bush is stocky and will not need staking, and will stand the winter better. But if you desire tips the lateral branches should be let grow. Keep the soil mellow around the bush, and when the ends of the branches begin to swell bury them at an angle of forty-five degrees, and after the first heavy frost cut the branches off about fifteen inches from the cane. The tips should now be set out. Throw a shovel full of manure on them to protect them from too heavy freezing. In this latitude raspberries cared for in this way require no winter protection.—*Farm and Garden.*

Varieties of Strawberries.

Though I am testing nearly all the new varieties, I desire to retain only a few of those that succeed best over the country at large. Charles Downing, Cumberland Triumph, Sharpless and Wilson, of the old varieties, come the nearest to filling this requirement, and I can see no reason for retaining more of them, though I confess it appears harsh to discard so many that have much merit. Of the newer varieties, Manchester has proved to be valuable for a near market or home use. It is productive, large, vigorous, fair quality, good form. Jersey Queen failed here with ordinary treatment. We test the new comers much as we would treat a field for market, and if they fail to succeed under these circumstances we do not consider them valuable for general purposes. Jersey Queen is of superior quality, but unproductive.

James Vick, while not of extra large size, appears to be the most productive and profitable of all that we have tested. It is exceedingly firm, bright, crimson, of good form, and the plant is remarkably vigorous. It is a lazy man's berry, enduring the worst neglect. Good reports of the Vick come in from nearly every State. Big Bob was the greatest failure of everything on our grounds, and I get discouraging reports of it from various sections of the country. Lacon makes a large stool, and is very productive of medium-sized berries, soft and sour. Mrs. Garfield showed some fine fruit quite early; of good form, color and quality, fairly productive; desirable for the amateur. Elm City is a promising variety for home gardens. Woodruff (from Ann Harbor, Mich.), may be ranked about with Elm City and Mrs. Garfield. These three, while not fully tested, would appear to be satisfactory for the garden. We tested several varieties that are not of enough value to warrant an opinion, as they appear this season here. While we have so many really valuable old strawberries that we must discard for want of room, it is folly to enlarge the list by adding doubtless new varieties. The James Vick and Manchester appear to be the most promising of the newer varieties here.

Indeed with these two varieties, as they now appear, we would seem to need no others, new or old, unless the highest grade of quality is desired. We are testing seedlings from a cross between the James Vick and Manchester, John Charlton has crossed James Vick and Sharpless.—*Country Gentleman.*

The New Strawberries.

On our grounds in the vicinity of New York, on rather heavy clay soil, the strawberry crop was very good, and most of the new varieties proved satisfactory.

Manchester improves by long acquaintance. With us the plant is very vigorous, foliage healthy; the berries are larger, lighter colored, and better quality than those grown in the Jersey sands.

James Vick has been grown in a trial bed together with Captain Jack. The two kinds are not identical. Although they resemble each other in general appearance, the James Vick is decidedly the better of the two; its foliage is larger and more vigorous; its berries are larger, very firm, of more sprightly flavor and generally better quality, and are borne on longer, stiffer, upright fruit-stalks, not hugging the ground like Captain Jack. How a strawberry plant can be more productive than the James Vick is not easy imaginable.

Jersey Queen made but a poor growth.

Sharpless, though of indifferent quality and not ripening well at the tips, has in its favor largest berries, very large, healthy foliage, and, under favorable conditions great productiveness.

Bidwell has been very satisfactory for home use, producing a large crop of good-sized, well-shaped and well-flavored berries. Both in hills and matted beds, the plants wintered well during the last two winters, without protection.—*American Garden.*

Gathering Pineapples.

The average life of the "scarlet" pine is three years, and that of the sugar-loaf is about five. The average weight of the fruit in the Bahamas is from three to three and one-half pounds. A field is generally gone over three times during the season, affording three grades of fruit, called first, second and third cuttings. The scarlet variety ripens a month or two earlier than the sugar loaf. Owing to the sharp serrated leaves of the plant, the gathering of fruit is a tedious and difficult matter—the men, women and children engaged in the work being obliged to wear heavy canvas leggings and gloves with gauntlets to protect themselves against the sharp spines of the plant. The pineapple plants furnish but one regular crop during the year, although the local market is seldom without a few pineapples on sale. About the middle of April, the first cuttings are made of the scarlet pines, and the last is made about the first of July. The sugar-loaf pine is at maturity during July and August. The shipping season is one of signal activity, for when the fruit is cut it must be hurried with all speed to market or it will be lost.

The Best Apples.

Mr. Charles Downing furnishes the *Tribune* with a list of what he considers the best varieties of apples to supplement the list of pears given in last week's *Press*. A tree or two of each kind will furnish a supply for family use from July to June. Here is the selection:

- | | |
|--------------------------|----------------------------|
| 1. Early Harvest. | 12. Rhode Island Greening. |
| 2. Red Astrachan. | 13. Melon. |
| 3. Fanny. | 14. Sutton Beauty. |
| 4. Primate. | 15. Baldwin. |
| 5. Jersey Sweet. | 16. Grimes' Golden Pippin. |
| 6. Porter. | 17. Jonathan. |
| 7. Peach-Pond Sweet. | 18. Northern Spy. |
| 8. Fall Pippin. | 19. Newtown Pippin. |
| 9. Mother. | 20. Lady's Sweet. |
| 10. Hubbardston Nonsuch. | 21. Red Russet. |
| 11. Blenheim Pippin. | |

For those who raise especially for market, varieties should be selected that succeed best in the locality, which may be ascertained by inquiry of those who make orcharding a business and know the kinds most in demand in the markets they supply. Experienced growers for market say that a few sorts rather than many give the most profit. For small gardens a few varieties grown as dwarfs on the paradise will supply a moderate family during the summer and autumn, for culinary uses and eating; Nos. 1, 3, 6, 7, 8 and 9 are good varieties for this purpose. Winter apples can generally be purchased more readily than summer and fall kinds.

Winter Apples.

What our farmers in Pennsylvania need in their orchards is a few exceptionally good keeping apples. Out of the immense number of varieties in good repute in other localities there are few, indeed, that are adapted to our locality. We have already size, color, quality, etc., but, unfortunately, our apples

will not keep. In preparing a list to-day for this purpose we should name Smith's Cider, York Imperial, and perhaps Tewksbury Winter Blush, all second class in quality, and there we should have to stop. All our most approved systems of cultivation fail to assist us in this matter, and so we do the next best thing, humiliating as it is, send to other states for our supply of fruit.

The only remedy for this is to test all the newer varieties of promise, and especially those originating in our own state, and possibly in time we may obtain relief.—*Press.*

How to Manage Cuttings.

In reply to a correspondent, the *Floral Cabinet* gives the following directions in regards to the making and managing of plant cuttings.

In selecting a cutting, a great deal depends upon a judicious choice; if the slip is too young and full of fresh sap, it will fade away from too much evaporation; if it is too old—hard and woody—it will take a great while to strike root.

You must take a cutting that is perfectly ripened and is from a vigorous shoot, yet a little hardened at the base.

It is also essential to have a bud or joint at or near the end of the cutting; as all roots strike from it, and the nearer it is to the base, the greater your chance of success.

Plant your cuttings in common red pots, filled half-full of rich loam and two inches of sand on top (scouring sand will do, but not sea sand); wet this thoroughly, and put the cuttings close around the edge of the pot, for if the bud or joint comes in contact with the surface of the pot, it seems to strike root more quickly. Pull off the lower leaves before you plant the cutting. Press the wet sand tightly about the tiny stem, for a great deal of your success in raising the cutting depends upon the close contact of the sand with the stem. When the cuttings are firmly planted, cover them with a glass shade if possible, as it will greatly promote the growth of the plant.

Moisture, light and heat, are the three essentials to plant life—without them no cuttings will start.

Shade for two or three days from the sunlight, but don't let the sand become dry; then give all the sun you can obtain, keep up a good supply of moisture, and you can hardly fail to root most of your cuttings.

HOUSEHOLD RECIPES.

BOILED FLANK OF BEEF.—Wash the flank, and make a dressing as for turkey, which spread over it, first having salted and peppered it well; then roll up and tie. Wind the twine around it several times, to keep it in place; then sew into a cloth kept for that purpose. Put a small plate in the pot, and put in the meat; then pour on it boiling water enough to cover, and boil gently six hours. When done, remove the cloth, but not the twine until stone cold; then cut in thin slices, and you will have alternate layers of meat and dressing. This is a nice dish for breakfast or tea.

FISH CHOWDER.—Cut half a pound of salt pork into thin slices and put into the stew-pan. Fry slowly for twelve minutes; then add two onions, cut fine, and fry ten minutes longer. Have about four pounds of fresh fish, freed of skin and bone and cut into pieces; have also one quart of potatoes pared and cut in thin slices. Put a layer of the fish and then a layer of the potatoes on top of the pork and onions. Dredge well with salt, pepper and flour. Continue this until all the fish and potato are used; then cover with boiling water, and simmer gently for fifteen minutes. Mix one pint of milk with two tablespoonfuls of flour and add this to the chowder, together with six Boston crackers, split. Cook ten minutes longer and serve. The milk may be omitted if not liked. In that case, however, be a little generous with the boiling water when you begin the chowder.

EXCELLENT GOLD CAKE.—A cupful of sugar, half as much butter, half a cupful of milk, one and three-fourth cupful of flour, the yolks of three eggs and one whole egg, one-fourth of a teaspoonful each of soda and cream of tartar, half a teaspoonful of lemon flavor. Mix together the sugar and butter, and add the eggs, milk, lemon extract and flour, in this order. Bake for half an hour in a moderate oven.

LEMON CAKE.—The rind and juice of a lemon, a teaspoonful of cream of tartar, half as much saleratus, a teacupful of butter, one of sweet milk, three of sugar, four and a half flour, and five eggs—the yolks and whites beaten separately. Bake in two loaves for forty five minutes in a rather quick oven.

FRIED CHICKEN.—Cut the chicken into six or eight pieces, and season with salt and pepper. Dip into beaten egg, and then into fine bread crumbs, in which there is a teaspoonful of chopped parsley for every cupful of crumbs. Dip once more in the egg and crumbs, and fry ten minutes in boiling fat.

PLAIN FRUIT CAKE.—Half a cupful each of milk and butter, one and a half cupfuls of sugar, two and a half cupfuls of flour, two eggs, half a teaspoonful of soda, spices and fruit.

VEAL LOAF.—Three pounds of veal or fresh beef, half a pound of salt pork chopped fine, two beaten eggs, one teacupful of cracker crumbs, three table-spoonfuls of salt, two teaspoonfuls of pepper. Mix and press hard into a tin. Bake one and a half hours.

STEAMED BEEFSTEAK PUDDING.—One quart of flour, one large teaspoonful of lard, two teaspoonfuls of cream of tartar, one teaspoonful of soda, two cupfuls of milk or water, a little salt, one and a half pounds of beefsteak. Roll out the crust and line a deep earthen dish; then lay in part of the steak, with a few pieces of butter, a little salt and a few whole cloves; then lay on the rest of the steak, with seasoning as before. Turn the crust up over the whole. Steam two hours.

NICE GRIDDLE CAKES.—Two quarts of flour, a handful of Indian meal, two eggs, a teaspoonful of salt, one of soda, one quart of milk.

COTTAGE PUDDING.—One cupful of sugar, two of flour, one of milk, one egg, butter the size of an egg, one teaspoonful of soda, two of cream of tartar. Beat the sugar and butter together; then add the egg well beaten, then the milk, and finally the flour, in which the soda and cream of tartar have first been well mixed. Bake in a pudding dish for half an hour in a moderate oven. To be eaten with sauce. The lemon sauce is good with it.

GRIDDLE AND INDIAN CAKES.—For the griddle cakes use two coffee cupfuls of sour milk or butter-milk, one teaspoonful of saleratus dissolved in a little hot water, and flour enough to pour. Grease the griddle with a piece of fat salt pork, and fry the cakes a light brown. Indian cakes are made in much the same way, save that half flour and half Indian meal is used, and also a teaspoonful of salt. They require a somewhat longer time to fry.

OKRA SOUP—EQUAL TO TURTLE SOUP.—One leg of beef, quarter of a package of okra, two carrots, eight tomatoes, two onions, cut fine, nine quarts of water. Boil six and a half hours. Cut the meat off the bone in small pieces. Take the most glutinous parts of the leg and a little of the flesh, and mix with the soup when it is made. Cut the okra in small pieces roundwise. Boil steadily, but not hard.

STEAMED BROWN BREAD.—Two cupfuls of new milk, two of Indian meal, one and a half of flour, one of molasses, one teaspoonful of soda. Steam three hours.

PAPERHANGER'S PASTE is made as follows: Beat up four pounds of good white wheat flour in cold water—enough to form a stiff batter, first sifting the flour; beat it well, to take out all the lumps; then add enough cold water to make it the consistence of pudding batter; add about two ounces of well-pounded alum; pour boiling water, direct from the

fire, gently and quickly over the batter, stirring rapidly at the same time, and when it is observed to swell and lose the white color of the flour it is cooked and ready. This will make about three-quarters of a pail of solid paste. It should not be used while hot, but allowed to cool, when it will go further.

COCOANUT CUSTARD.—One cocoanut grated, quarter pound butter, two cups white sugar, two eggs, quart new milk; bake with one crust twenty minutes.

EGG OMELET.—Break the eggs, separating the yolks from the whites; beat the whites to a stiff froth; then drop the yolks in the whites and beat both well together; grease the pan with butter; cook two minutes, one minute before turned, one minute after turned; do not season until after cooked, as the seasoning causes it to fall if done before cooked.

FRENCH CAKE.—Three eggs, two cups white sugar, two-thirds cup of butter, one cup milk, half teaspoon soda, half teaspoon cream tartar, three cups flour, flavor with bitter almond.

GINGER SNAPS.—One pint molasses and one cup butter, boiled together; when cold add half cup ginger, one teaspoon soda, and flour to roll; roll thin and bake.

DAINTY SANDWICHES.—Chop the lean part of some cold boiled ham very fine. Make a dressing by mixing the yolks of two boiled eggs with four table-spoonfuls of mixed mustard and four of salad oil added gradually; put in a dash of red pepper and thin with a little vinegar—melted butter may be used instead of oil if preferred. Mix enough of this dressing with the ground ham to make it slightly moist. Cut all the crust from a small loaf of fresh bread and spread the end very lightly with softened butter, then with the preparation of ham, which should be soft and smooth enough to spread evenly. Cut the slice (with a sharp knife) as thin as possible, roll it up and punch the ends to keep it in place, or, two slices, with a layer of ham between, may be fitted neatly together and afterward cut into triangles.

TAPIOCA CREAM.—Soak three large table-spoonfuls of tapioca over night in one pint of water, the next morning add one quart of milk and boil; a little salt, four eggs, one cup of sugar; flavor with lemon or vanilla; beat white of eggs to a stiff froth, and brown in shape of eggs; put on the top of pudding when it is cold.

ORANGE CAKE.—Mix two cups of sugar with the yolks of two eggs, then add the whites, beaten to a stiff froth, next add a large table-spoonful of butter, then one cup of milk and flour to make as stiff as cup cake; flavor to taste; bake in jelly pans; filling, one lemon, two oranges, grate rinds and add the juice, one cup of sugar, one table-spoonful of corn starch, one cup of water; boil until smooth; cool before putting between cakes.

KALSOMINE.—This is the mixture of glue sizing and Paris white. The proportion is twenty pounds of the latter to one pound of glue, which will be dissolved in two or three quarts of boiling water, and the whitening should be placed in a pail and the glue size poured over it, and then diluted with warm water until as thick as thin cream. It needs a little practice to know just what thickness to make it, and it is well to try a little before thinning it out too much. Kalsomine can only be applied to walls that have hard finish upon them.

LIVE STOCK.

Corn Fed Pigs.

A pig of corn-fed ancestors, himself fed on corn and almost nothing but corn, may, at ten or twelve months old be as round as a log and as fat as butter; but he is, nevertheless, nearly starved to death for the want of nitrogenous elements, and their inseparable associates, the phosphates, in his rations. Such a hog when killed is found to have little more blood

than a turnip; the bones are so brittle they break like pipe-stems; the lean meat is scanty, dry, tasteless, and the walls of the cells in the fatty portions are so thin that the meat shrinks to mere scraps in the pot or pan. The fact is, that in order to get the best, the juiciest and highest flavored pork, whether fat or lean, the hog must have a higher nitrogenous ration. Therefore, it is, hogs kept in a slaughter-house yard and feeding on the offal in connection with corn, make pork of excellent quality and second only to that fattened on milk, grass and peas, or pea meal. It is easy to see that a hog fed on corn almost exclusively and having bones of no strength, organs of no vigor, little blood and less power of circulation, will become the prey of all sorts of disease—those taking on the form most common to the seasons and the peculiar local situation. This is about all there is of hog cholera, and so the treasury commission will find if they do the work they undertake thoroughly.—*B. P. Johnson in Press.*

Cure for the Blackleg.

About two years since I sent you the following as a preventive for the blackleg. It has been for years used in England, and I have never known an animal to die that has been subjected to the treatment. In the first place, take two quarts of blood from the beast. Then give him the following medicine: Take myrrh in powder one ounce; epsom salts two ounces; flowers of sulphur, one ounce; liver of antimony in powder, half an ounce; diapente in powder, one ounce.

Mix these together for one dose; to be given in one quart of strong Rnetea; the Rue can be produced in any first-rate drug store. Fast three hours before and after the dose. Now insert in the animal's dewlap, a seton made in the following manner. Take a piece of flax-tow and roll it in horse turpentine; cut a small slit in the dewlap, put the seton through and tie a small stick to each end, for it must be moved frequently until it commences to discharge, and a little more turpentine applied to the tow. The object of the seton is to draw off the bad humors from the blood.

I send you this, for I read in your last paper of some inquiring for such a thing; and I know it is good for it, if it is properly done, but it should be done in the fall. This is to be used as a preventive; for if an animal once gets a blackleg there is no human power can save him.

The Health of Animals.

The health of animals as well as that of human beings can often be guessed at very shrewdly by simply feeling their pulse. In a horse a good and *strong but quiet pulse* beats forty times a minute, in an ox fifty or fifty-five, in sheep and pigs not less, than seventy nor more than eighty for ordinary health. It may be felt wherever a large artery crosses a bone. In the horse it is generally felt on the cord which crosses over the bone of the lower jaw in front of its curved position, or in the bony ridge over the eye; and in cattle over the middle of the first rib. In sheep, it is, perhaps, easiest to place the hand on the left side, where the beating of the heart may be felt. A rapid, hard and full pulse in stock points to inflammation and high fever; a rapid, small and weak also to fever, but to fever accompanied by a weak and poor state of the subject. A very slow pulse in stock will often be found to indicate brain disease, while a jumping and irregular pulse shows something wrong with the heart.—*Boston Cultivator.*

Stumbling Horses.

Some good horses are addicted to *stumbling* while walking or moving in a slow trot. A well-versed veterinarian states that there are two causes that would tend to produce this faulty action; one, a general weakness in the muscular system, such as would be noticed in a tired horse; the other a weakness of the exterior muscles of the leg, brought about by carrying too much weight on the toe. To

effect a cure, he adds, lighten the weight on each front shoe about four ounces; have the toe of the shoe made of steel, instead of iron, it will wear longer; have it rounded off about the same as it would be when one-third worn out, in order to prevent tripping; allow one week's rest; have the legs showered for a few minutes at a time with cold water through a hose, in order to create a spray; then rub dry, briskly, from the chest down to the foot. Give walking exercise daily during this week for about an hour twice a day. When you commence driving again omit the slow jog; either walk or send him along at a sharp trot for a mile or two, then walk away, but do not speed for at least several weeks. By this means the habit of stumbling from either of the above causes will be pretty well overcome.—*Pittsburg Stockman*.

Carp Ponds.

The Fish Commissioner at Washington is now distributing carp to farmers who have the endorsement of their members of Congress. It has been demonstrated that these fish can be easily raised, and that they grow with great rapidity. Some epicures hold that they lack delicacy of flavor. But the farmer raises them to eat and not for the fun of catching them. The fact is, the carp is a fair-eating fish, and when freshly taken from the water is better than the average fish found in the markets. Professor Shelton, of the Kansas Agricultural College, has made a table trial of the carp and pronounces it not so palatable, perhaps, as brook trout, but "good enough to be served at our tables several times every week of the year." A fish-pond stocked with carp will be found a profitable adjunct to any farm.—*Philadelphia Press*.

Milch Cows.

Breed up the cows; bring them to as near perfection as possible. Weed out the unprofitable, though you give them away, and set your standard at not less than a pound a day per cow for at least eight months in the year. Those who are using their cows for butter must see the propriety of their being bred to a Jersey, Guernsey, or Holstein bull; and if this cannot be done by individuals, let it be done by communities—that is, a number clubbing together. By these means, the productive capacity of the cows in a given neighborhood may be doubled in the course of two or three years, and be gradually increased, so as to produce three times that now marketed. There is no manner of doubt of the ultimate establishment of hundreds of creameries in this State, and these will call into requisition every good milch cow to be had, and the better the cow, the greater the amount of marketable product.—*Rural World*.

Abortion in Cows.

One of my neighbors has a herd of fine Shorthorns that are always losing their calves by abortion. He is a careful hand with stock, furnishing good food, good shelter, and soft bedding. But he lets his stock out to water in winter, and they drink out of a hole cut in the ice. They get on their knees to drink; fight and squabble on the ice; fill themselves, and chill the whole system into a shiver. Is this a sufficient cause for abortion?—L. P. W., Irving, Iowa.

Abortion is often caused by the animals drinking foul water, or eating bad food; but in the case you describe, the abuses to which the animals are subjected would seem to be a sufficient reason. Of course no good farmer would permit such treatment for a single day.—*Country Gentlemen*.

Pure Water for Hogs.

Mr. J. M. Stahl, writes as follows on the above subject in the *American Agriculturist* for August.

Swine are subject to the same laws that govern the health of other animals. Vegetable and animal matters, in a decaying state, when introduced into the system, are detrimental to health. Such matters are readily introduced with water, being taken directly into the stomach, soon pass to the intestines, etc., and become a source of disease. Experience and observation have convinced us that a large

per cent. of swine disease is produced by the disease germs being carried into the stomach in foul water. It is now believed that this, and many other diseases, are due to minute organisms, so low in the scale of organic life, that it is difficult to say whether they are vegetable or animal; they are known by the general name of "disease germs." The vitality of these germs is not great, except when preserved, as it is in water containing organic substances. In the water of pools, ditches and ponds, their vitality is preserved for some time. If hogs are forced to drink such water, they take into their bodies the seeds of disease.

In August, hogs suffer the most from unwholesome water. During this month they require much water, and it is more essential that it be pure than any other time of the year. The sun is hot, the air dry, the earth parched; the hog has a compact body, formed largely of fat, small lungs imbedded in masses of flesh and fat, and with its nostrils near the ground. It inhales dust, which in part consists of decaying vegetables. Everything conspires to produce a feverish state of the body, and a great thirst, to be allayed only by large quantities of cold water. But water from creeks, ponds and the like, are at this season the most heated. The greatest fatality among swine is in September and October. As the period from the inception of the disease to its fatal termination is from thirty to forty days, it would appear that the disease germs are most often taken into the body of the animal in August.

POULTRY.

Milk for Hens.

We have many times urged the feeding of skimmed milk to laying hens, and will add that on the farm where dairying is carried on the use of buttermilk will also be found of great benefit, and will very sensibly increase the egg production. After a few days' trial the "biddies" will look out eagerly for your coming with the accustomed dish in hand. Use it instead of water, and the slightly saline quality will be beneficial. Either buttermilk or skimmed milk are excellent. The latter, of course, is not as rich and fattening as the former, but still contains much of good. Should you be keeping a large flock of hens, and the choice lies between feeding the milk to a pig and giving it to the hens, decide in favor of the hens every time. The extra production for one year by the *milk feed* will buy all the pork your family may need, and make your occupation much pleasanter all round.—*Poultry World*.

The Care of Fowls.

Poultry keeping is much better adapted to women than the milking of cows, which many of them still do, though not as many as formerly. The care of chickens is especially in their line, and many a woman would succeed with poultry who now finds it hard to live by some branch of sewing, or what is about as bad, trying to teach music or write poetry for magazines. Care and patience, united with natural tact, would bring a handsome reward in many cases.

The only sure cure for egg eating is the axe. But to keep fowls from acquiring the habit, feed them plenty of cheap meat, and such as comes from the table. They rarely acquire the habit if constantly at large, unless in winter, when insects are gone. But in confinement, with no variety to eat and nothing to do, they both learn to eat eggs and to peck each other for blood and flesh. Feed meat, scraps, crushed bones, grease, marrow, anything coming from animals or birds that they like. And they don't mind chicken meat, either.

The study of poultry diseases is not as important as that of animals, because a sick fowl is usually very small, and the time required for proper treatment is often worth more than the bird itself. The aim should be to keep the flock in health, which usually is not at all difficult.

Early chickens are easily raised in a warm, dry cellar, where there is plenty of fermenting manure to scratch over. Have an opening on the south side, with plenty of light, and then if the place is rat proof, as it should be, they will do better than out of doors in July, when it is too hot and lice abound.

It takes more skill to succeed with fowls when kept up most of the time than when at large, be-

cause when at large they help themselves to many things that are important to a variety. For instance, there is grass, which many think not necessary. But fowls eat a great deal of grass in a year, and when confined even on a sod they will soon eat off and kill out a considerable area. When this happens it is a sure sign that their yard is not large enough, and that they must have a larger one or more liberty.—*Philadelphia Press*.

Light Brahmas.

In a pretty large experience with fowl raising, for the last thirty years, we have tried many sorts, new and old, and have settled upon the Light Brahmas as the best fowl for villagers and farmers. They are a long time in coming to maturity, but there is no difficulty in getting nice broilers from them, in July and August, or in getting eggs from the early pullets in the fall, and that is about all that can be done with the earlier varieties. Well fed pullets beginning to lay in November, in warm quarters, will give an abundance of eggs through the winter, when they bring the best prices. They are the largest breed with which we are acquainted, adult cocks sometimes weighing thirteen to sixteen pounds, hens ten to twelve pounds. The flesh is of good quality, and when one comes to the table, there is enough to go round and some to spare. They are the most popular of all varieties, tested by the demand for breeding fowls and eggs.—*American Agriculturist*.

LITERARY AND PERSONAL.

"TEXAS SIFTINGS."—We "sift" from a stray leaf of an old publication, (it bears date September, 1879, and that, in the eye of the present young and fast age, is very old,) that Texas has one hundred and sixty-six periodical publications, of which Galveston and Dallas have each nine; Grayson and Harris have each six; Fannin, Bexar, Kaufman, McLean and Williamson, have each four; Travis has five; and Robertson, Smith, Tarrant, Limestone, Fayette and Caldwell have each three. A few places have only two; for instance, Cameron, Anderson, Cass, Collins, Cherokee, Ellis, Freestone, Palestine, etc., and many others only one. The publications—whether folios, quartos, or octavos, and whether daily, weekly, monthly, or quarterly, are published in ninety-five different counties.

In the month of December, 1836, we stood upon a "wharf-boat," on the lower Ohio river, when the steamboat came along bearing GEN. SANTA ANNA as a "hostage" of the United States, to the city of Washington. He had, a short time previously, been defeated by Gen. Sam. Houston, at the battle of San Jacinto, in Texas, which was the downfall of Mexican authority in that State, and the final ultimatum of Texan independence. Only forty seven years ago, and probably at that time there was not a single English paper published in all Texas or, if any, but few indeed. Texas was then regarded as a wild, reckless, daredevil—if not a cut-throat place, inhabited by people who had "left their country for their country's good." Yet in 1879 she had her 166 literary publications, a result that exhibits more intellectual progress at least than any other section of the American Union. Conservative stay-at-homes usually underrate new communities. From their far-off standpoints they seldom have a proper appreciation of the moral and intellectual struggle it requires to elevate a heterogeneous mass to a higher plane of humane civilization. Men must be taken at what they are, and gradually moulded into a more orderly form; and during the transition, things often appear as if they had resolved themselves into chaos, but by energy and perseverance, "time eventually makes all things even." *Well done indomitable Texas*.

OUR SOCIETY JOURNAL, devoted to the interests of assessment life insurance, literature and the welfare of the people; published by the Journal Publishing Association, Bryant Building, New York City, at 50 cents a year. This is a two-column, sixteenth-page quarto, printed on fine paper and in clear

type, and is very mechanically gotten up. It is devoted to its specialty with more than ordinary ability and addresses itself to that portion of the community who are, or may be, interested in life insurance, and especially those who favor the "assessment system." From a special notice on its first page we are informed that this journal started with a circulation of twenty-three thousand copies, and that orders in "large blocks continue to roll in;" also that it proposes to make its circulation one hundred thousand, and not one copy less. It calls upon the friends of assessment insurance to help in attaining that end by remitting 50 cents for themselves, and also using their influence in obtaining other subscribers; and promises to "strike sturdy blows against and upon all life insurance monopolies." As our age is ten years beyond the limit that life insurance companies usually take risks, we cannot be expected to take that interest in any of them that we might if we were twenty years younger; still, we may admonish our patrons and readers to post themselves up on the subject, and to do so, a years subscription would be a small amount to risk in making an intelligent investigation, whatever the result might be.

THE AMERICAN JOURNALIST, No. 3, for November, comes to hand fresher than No. 1, a notice of which appeared in our literary columns some months ago. The leading article contains an interesting history of the *New York Herald*, illustrated with fine portraits of James G. Bennett, Sr., James G. Bennett, Jr., Joseph Elliott, and William H. Heury. The article reads like a most interesting romance, and a romance in reality it surely is. As this professes to be "The only journal devoted to professional writers in 'existence,'" it commends itself to that class of people at least.

THE ARKANSAS FOREST AND FARM. An illustrated monthly, edited and published by W. H. Kerns, at Little Rock. Terms, \$1.00 per year. Devoted to the illustration and description of the best methods of farming and fruit raising in Arkansas, also forest lands and the best and most profitable manner of utilizing the same. This is an eight-page 4to, very mechanically executed, and the number before us is containing a double-page map of the State of Arkansas, giving county boundaries, completed and projected railroads, county seats, post-offices, streams, towns, villages, etc. Particularly commended as a medium through which all information in reference to lands, railroads, emigration and settlements may be obtained.

REPORT OF YIELD OF CROPS PER ACRE, on the progress of sorghum growing, the crops of Europe, and on freight rates of transportation companies, for the month of November, 1883. No. 2, new series, Division of Statistics, Department of Agriculture, Washington, D. C., 59-pages octavo. The aggregate yield of CORN in the Union for 1883 in exact figures is 1,577,000,000, being 40,000,000, short of 1882, although the acreage was greatly in excess of 82. The present season seems to be the most favorable for Potatoes of any year since 1875, the yield being about 195,000,000 of bushels, being 93 bushels per acre, or 3½ bushels per capita as the country's supply. The season, on the whole, was unfavorable for Buckwheat, the approximating 10,000,000 bushels, being a shortage of about 3,000,000 bushels.

In 29 counties in the State of Maine, the number of cans of green corn canned, was 8,880,000, from 6,613 acres. The sorghum product of 1883 approximates 30,000,000 gallons of syrup, although in the northern belt the quality is inferior, on account of the early frosts.

THE production of syrup and sugar from sorghum and the sugar-beet in this country must ultimately succeed, provided the business is pursued intelligently, economically, and energetically. The population is increasing so rapidly, and the consumption of sugar in many ways becoming so great, that there must always be a corresponding demand, although the prices may fluctuate, but this is one of the things to be considered in its economic administration.

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